FOCUS

October 1999

In This Issue

Joint Mathematics Meetings

Washington, DC

January 19-22, 2000

Advance Registration Deadlines

Early advance registration	NOVEMBER 8
Ordinary advance registration	NOVEMBER 22
Final advance registration	DECEMBER 20

Have You Moved?

The MAA makes it easy to change your address. Please inform the MAA Service Center about your change of address by using the electronic combined membership list at MAA Online (www.maa.org) or call (800) 331-1622, fax (301) 206-9789, email maaservice@maa.org, or mail to MAA, P.O. Box 90973, Washington, DC 20090.

2000 JOINT MATHEMATICS MEETINGS

MAA

MAA, AMS and SIAM

proudly present the

2000 Joint Mathematics Meetings –

AMS

your chance to **meet with stellar**

mathematicians in a capitol setting.

SIAM

Welcome to Washington, DC, home of the MAA!

Kick off the World Mathematical Year 2000 at the Joint Mathematics Meetings in Washington, DC, January 19-22. Join your colleagues to learn from the past and discover the future of mathematics at the largest professional mathematics gathering of the year. SIAM (Society for Industrial and Applied Mathematics) is joining the MAA and AMS in this turn-of-the century event, making it a meeting not to be missed.

This meeting features a myriad of lectures and sessions. Consider *Why Study the History of Mathematics?*, or consider possible new developments in teaching in *Through the Looking Glass*. Learn more about a hot topic in mathematics at the MAA Short Course, *Fuzzy Mathematics*. Other sessions include *Prime Numbers: What We Still Don't Know* by Carl Pomerance and a student lecture on *Interactive Geometry on the Internet* by Thomas F. Banchoff. And these represent just five of the over 100 mathematics sessions.

Take time to meet and greet your colleagues at several special events. The opening banquet celebrates the beginning of the World Mathematical Year 2000 with representatives from more than twenty mathematical-related organizations. Challenge your knowledge of mathematics and mathematics trivia at *The Number Years: A Mathematical Game Show* hosted by Arthur Benjamin, Eric J. Libick, and Jennifer J. Quinn. Celebrate Marcia Sward's decade of service to the MAA at her retirement dinner on Saturday, January 22. And be sure to take the opportunity to visit the MAA's headquarters in historic Dupont Circle.

Register early for discounted rates. Use the enclosed registration form, or register online at www.maa.org. We look forward to seeing you in the nation's capitol!

Joint Invited Addresses

TITLE TO BE ANNOUNCED
Brian Greene, *Columbia University*
Wednesday, 11:10 a.m.
(AMS-MAA-SIAM)

STOCHASTIC DIFFERENTIAL EQUATIONS IN FINANCIAL MATHEMATICS: FROM BLACK - SCHOLES TO THE PRESENT
George C. Papanicolaou, *Stanford University*
Friday, 11:10 a.m.
(AMS-MAA-SIAM)

MATHEMATICS AND SCIENCE EDUCATION: SOME ROLES FOR MATHEMATICIANS AND SCIENTISTS
Bruce Alberts, *National Academy of Sciences*
Wednesday, 4:35 p.m.
(AMS-MAA-MSEB).

AMS COMMITTEE ON SCIENCE POLICY-MAA SCIENCE POLICY COMMITTEE GOVERNMENT SPEAKER
speaker and title to be announced
Friday, 5:00 p.m.
A reception will follow the talk.

MAA Invited Addresses

COMBINATORICS AT THE CROSSROADS: PROGRESS. PROBLEMS. AND PROSPECTS
Ronald L. Graham, *Bell Laboratories – Lucent Technologies*
Wednesday, 2:15 p.m.

MATHEMATICS AND MODELING
Wade Ellis, Jr., *West Valley College*
Wednesday, 3:20 p.m.

LOOKING BACK: AN HISTORIAN'S PERSPECTIVE ON AMERICAN MATHEMATICS
Karen H. Parshall, *University of Virginia*
Thursday, 10:05 a.m.

PRIME NUMBERS: WHAT WE STILL DON'T KNOW
Carl Pomerance, *Bell Laboratories - Lucent Technologies*
Friday, 2:15 p.m.

INTERACTIVE GEOMETRY ON THE INTERNET
Thomas F. Banchoff, *Brown University*
Friday, 7:30 p.m. (Student Lecture)

THE Y2.1K PROBLEM: WHAT CAN THE RESEARCH AND TEACHING COMMUNITY DO TO INSPIRE A SONG OTHER THAN "MATH SUKS"?
Edward B. Burger, *Williams College*
Saturday, 9:00 a.m.

AMS Invited Addresses

TITLE TO BE ANNOUNCED
Sun-Yung Alice Chang, *University of California, Los Angeles*
Friday, 9:00 a.m.

THE PROOF OF THE KEPLER CONJECTURE
Thomas C. Hales, *University of Michigan, Ann Arbor*
Wednesday, 10:05 a.m.

THE RIEMANN-HILBERT PROBLEM AND INTEGRABLE SYSTEMS
Alexander R. Its, *Indiana University-Purdue University Indianapolis*
Saturday, 2:15 p.m.

REFLECTIONS AND TWISTS
Arthur M. Jaffe, *Harvard University*
(AMS Retiring Presidential Address)
Thursday, 2:15 p.m.

DYNAMICS OF QUADRATIC POLYNOMIALS
Mikhail. Lyubich, *State University of New York at Stony Brook*
Saturday, 10:05 a.m.

TITLE TO BE ANNOUNCED
Curtis T. McMullen, *Harvard University*
(AMS Colloquium Lectures)
Wednesday, Thursday, and Friday, 1:00 p.m.

PHYSICS. COMPUTABILITY, AND MENTALITY
Sir Roger Penrose, *Oxford University*
(AMS Josiah Willard Gibbs Lecture)
Wednesday, 8:30 p.m.

Joint Special Sessions

THE HISTORY OF MATHEMATICS
(CODE: AMS SS E1)
Karen H. Parshall, *University of Virginia, and*
David E. Zitarelli, *Temple University*
Friday and Saturday, mornings and afternoons
(AMS-MAA)

INNOVATIVE DEVELOPMENT PROGRAMS FOR TEACHING ASSISTANTS AND PART-TIME INSTRUCTORS
(CODE: AMS SS D1)
Teri Jo Murphy, *University of Oklahoma;*
Neil Calkin, *Clemson University; and*
Ethel Wheland, *University of Akron*
Friday morning and afternoon
(AMS-MAA)

IN MEMORY OF GIAN-CARLO ROTA
(CODE: AMS SS W1)
Richard P. Stanley, *MIT, and*
Rodica Simion, *The George Washington University*
Thursday, Friday, and Saturday, mornings and afternoons
(AMS-MAA)

LINEAR ALGEBRA AND OPTIMIZATION
(CODE: AMS SS C1)
Dianne P. O'Leary, *University of Maryland, College Park,*
and
Margaret H. Wright, *Bell Laboratories*
Friday morning and afternoon
(AMS-AWM-SIAM)

MATHEMATICS AND EDUCATION REFORM
(CODE: AMS SS P1)
William H. Barker, *Bowdoin College,*
Jerry L. Bona, *University of Texas, Austin,*
Naomi Fisher, *University of Illinois, Chicago, and*
Kenneth C. Millett, *University of California, Santa Barbara*
Wednesday and Thursday, mornings and afternoons
(AMS-MAA-MER)

MATHEMATICS IN BUSINESS, GOVERNMENT, AND INDUSTRY
(CODE: AMS SS CC1)
Mary Lynn Reed *and* Navah Langmeyer,
National Security Agency
Thursday morning and afternoon
(AMS-MAA)

Joint Sessions

MAKING THE MOST OF THE JOB SEARCH PROCESS
organized by
Thomas W. Rishel, *Cornell University*
Wednesday, 5:30 p.m.-7:00 p.m.
In this workshop we will discuss the interview process, from writing résumés and cover letters, through the Mathematical Sciences Employment Center, to a description of the difference between being a graduate student and a junior faculty member. A current chair will also give his or her view of the job process. Sponsored by the AMS-MAA-SIAM Joint Committee on Employment Opportunities.

PRIZE SESSION AND RECEPTION
Thursday, 4:00 p.m.-6:00 p.m.
In order to showcase the achievements of the recipients of various prizes, the AMS, MAA, and SIAM are co-sponsoring this event at 4:00 p.m. on Thursday. A cash bar reception will immediately follow. All participants are invited to attend. The Frank and Brennie Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student (co-sponsored by the AMS, MAA, and SIAM) will be presented. The AMS and SIAM will present the Norbert Wiener Prize in Applied Mathematics. The AMS will announce the winners of the Leroy P. Steele Prizes and the Frank Nelson Cole Prize in Algebra. The AWM will present the Louise Hay Award for Contributions to Mathematics Education and the Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman. The MAA prizes include the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics, the Chauvenet Prize, the Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics, the Beckenbach Book Prize, and Certificates of Meritorious Service. The Joint Policy Board for Mathematics Communication Award will also be presented.

PROJECTS OF THE MATHEMATICAL SCIENCES EDUCATION BOARD (MSEB)
organized by
James D. Gates, *MSEB*
presentations
ANALYSIS BY THE COMMITTEE ON SCIENCE AND MATHEMATICS TEACHER PREPARATION
W. James Lewis, *University of Nebraska*
TEACHERS LEARNING MATHEMATICS THROUGH SITES OF PRACTICE
Deborah Loewenberg Ball, *University of Michigan*
RECOGNIZING, EVALUATING, AND REWARDING EXCELLENT UNDERGRADUATE TEACHING IN SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY
Jay Labov, *Center for Science, Mathematics, and Engineering Education, and*
TRANSFORMING UNDERGRADUATE EDUCATION IN SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY
Harvey B. Keynes, *University of Minnesota*
Thursday, 2:30 p.m. - 4:00 p.m.
Sponsored by the AMS, MAA, and MSEB

Other Joint Events
There are several special social events at this meeting, including the Gala Opening Banquet.
See details in the *Social Events section* of this announcement.

MAA Minicourses

Minicourses are open only to persons who register for the Joint Meetings and pay the Joint Meetings registration fee in addition to the appropriate minicourse fee. If the only reason for registering for the Joint Meetings is to gain admission to a minicourse, please make a notation on your form. If the minicourse is fully subscribed or canceled, a full refund will be made of the Joint Meetings advance registration fee (otherwise subject to the 50% rule.) The MAA reserves the right to cancel any minicourse that is undersubscribed.

MINICOURSE 1: MATHEMATICAL FINANCE

organized by
Walter R. Stromquist,
Berwyn, PA
PART A:
Wednesday, 8:00 a.m. - 10:00 a.m.
PART B:
Friday, 8:00 a.m. - 10:00 a.m.
We will cover two main ideas of modern finance: portfolio optimization and option valuation. Portfolio optimization means allocating a fixed investment fund among instruments (e.g., stocks) in order to maximize return and/or minimize risk; the techniques range from matrix algebra to quadratic programming. In option valuation, we will derive the Black-Scholes formula under naive assumptions and then show how the modern no-arbitrage theory allows us to apply it more generally. The presenter will draw on practical examples from his consulting work.
Enrollment limit is 30; Cost is $80.

MINICOURSE 2: PROJECTS IN PRE-CALCULUS, CALCULUS, AND DIFFERENTIAL EQUATIONS USING BIOLOGY AND CHEMISTRY APPLICATIONS

organized by
Meghan A. Burke *and* Sean F. Ellermeyer,
Kennesaw State University
PART A:
Wednesday, 2:15 p.m. - 4:15 p.m.
PART B:
Friday, 1:00 p.m. - 3:00 p.m.
This minicourse will present self-contained mathematics projects in the application areas of biology and chemistry, primarily for use in precalculus, differential and integral calculus, and differential equations courses. Each science application will be addressed at each mathematical level, with the idea that a student would see the same science background repeatedly, at increasing levels of mathematical complexity. Project materials will be distributed to participants, to facilitate integration into their existing courses. In addition, participants will be given the opportunity to examine the materials in their web-based form.
Enrollment limit is 30; cost is $80.

MINICOURSE 3: THE CURVES AND SURFACES OF THE DIGITAL AGE

organized by
Colm K. Mulcahy *and* Jeffrey Ehme,
Spelman College
Part A:
Wednesday, 4:30 p.m. - 6:30 p.m.
Part B:
Friday, 6:00 p.m. - 8:00 p.m.
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).
Enrollment limit is 30; cost is $80.

MINICOURSE 4: COMPUTER BASED MODELING WITH DIFFERENCE EQUATIONS AND MATRICES

organized by
Mazen Shahin,
College Misericordia, and
Richard E. Bayne,
Howard University
PART A:
Thursday, 8:00 a.m. - 10:00 a.m.
PART B:
Saturday, 8:00 a.m.–10:00 a.m.
This minicourse is based on an ongoing liberal-arts finite mathematics course in which students explore and discover mathematical ideas on their own as they complete specially designed tasks whose emphasis on applications helps them see the relevance of the abstract concepts. Integrating technology and cooperative learning using these ideas will be discussed. Participants will work on and develop DERIVE-based activities modeling real-life situations with difference equations, matrices, and Markov chains. Though experience with microcomputers is helpful, no prior familiarity with DERIVE is required.
Enrollment limit is 30; cost is $80.

MINICOURSE 5: EXPLORING ABSTRACT ALGEBRA TOPICS THROUGH

INTERACTIVE LABS

organized by
Allen C. Hibbard,
Central College, and
Kenneth M. Levasseur,
University of Massachusetts at Lowell
PART A:
Thursday, 1:00 p.m. - 3:00 p.m.
PART B:
Saturday 1:00 p.m. - 3:00 p.m.
Using Mathematica, participants will become engaged in examining a series of interactive laboratory activities for groups and rings (and morphisms between these.) The Mathematica notebooks are designed for exploration and investigation of these structures, intended to motivate/expand upon classroom discussions. The labs are independent of any text. Since the Abstract Algebra packages that define the required functionality are read in, no previous programming with Mathematica is necessary, though brief familiarity using Mathematica is needed. (On Wednesday, noon - 1:00 p.m., there will be a preliminary session available to acquaint those unfamiliar with Mathematica.) More information can be found at www.central.edu/eaam.html.
Enrollment limit is 30; cost is $80.

MINICOURSE 6: TEACHING WITH WEB-BASED INTERACTIVE MODULAR MATERIALS

organized by
David A. Smith *and* Lawrence C. Moore,
Duke University
PART A:
Thursday, 5:30 p.m. - 7:30 p.m.
PART B:
Saturday 3:15 p.m. - 5:15 p.m.
The goals of this minicourse are (1) to introduce participants to a freely-available collection of web-based lab materials for the first two years of college mathematics and (2) to demonstrate a range of ways in which these materials can be used to enhance learning in commonly taught courses. The materials are provided on the Duke site of the Connected Curriculum Project, www.math.duke.edu/education/ccp, and the project is supported by a grant from the National Science Foundation. We will use Maple in this course; some familiarity with a CAS is useful but not required.
Enrollment limit is 30; cost is $80.

MINICOURSE 7: GETTING STUDENTS INVOLVED IN UNDERGRADUATE RESEARCH

organized by
Joseph A. Gallian,
University of Minnesota, Duluth, and
Aparna W. Higgins,
University of Dayton
PART A:
Wednesday, 8:00 a.m. - 10:00 a.m.
PART B:
Friday, 8:00 a.m. - 10:00 a.m.
This course will discuss strategies and give examples for getting undergraduate students involved in doing mathematical research. Examples will be presented of both summer research and research that can be conducted during the academic year. Although the examples of projects will primarily be in the areas of discrete mathematics and graph theory, the strategies used to involve undergraduates in research can be applied to any area of mathematics.
Enrollment limit is 40; cost is $55.

MINICOURSE 8:
FACILITATING ACTIVE LEARNING: CONCRETE WAYS TO FOSTER STUDENT PARTICIPATION
organized by
Sandra L. Rhoades,
San Diego State University
PART A:
Wednesday, 2:15 p.m. - 4:15 p.m.
PART B:
Friday 1:00 p.m. - 3:00 p.m.
This minicourse provides a place for hearing about, sharing, and experiencing a broad range of techniques for facilitating learning. No one method or technique is promoted; rather a number of concrete ways to get students involved in their learning are discussed and illustrated. Participants exchange ideas, discuss and reflect on the techniques being used in the minicourse, as well as those being shared, and consider how to incorporate new techniques into their own classrooms.
Enrollment limit is 40; cost is $55.

MINICOURSE 9:
GENERATING FUNCTIONS: TECHNIQUES AND TRICKS
organized by
Louis W. Shapiro,
Howard University
PART A:
Wednesday, 4:30 p.m. - 6:30 p.m.
PART B:
Friday, 6:00 p.m. - 8:00 p.m.
Generating functions occur in many parts of mathematics and are useful not only in problem solving but also as a unifying theme. This course is designed for a non-specialist who wants to learn some basic techniques, see a variety of applications, and to get some exposure to some tricks (i.e., advanced techniques.) The applications start with enumeration but

involve calculus, differential equations, linear algebra, and probability.
Enrollment limit is 40; cost is $55.

MINICOURSE 10:
INTERDIS-CIPLINARY LIVELY APPLICATIONS PROJECTS,
organized by
Richard D. West,
U.S. Military Academy,
Laurette B. Foster,
Prairie View A & M University, and
Marie M. Vanisko,
Carroll College
PART A:
Thursday, 8:00 a.m. - 10:00 a.m.
PART B:
Saturday, 8:00 a.m. - 10:00 a.m.
Interdisciplinary applications connect mathematics with other disciplines to provide student growth in modeling and problem solving. We will discuss projects that are used in a wide range of mathematics, science, and engineering courses. Our projects can be done as groups or individually. Participants will work with materials prepared for students and instructors in printed and video formats. Interdisciplinary curricula that make use of projects will be discussed. We will share our experiences of writing and using Interdisciplinary Lively Application Projects (ILAPs). Participants will be divided into groups to discuss the use of ILAPs at specific levels (pre-calculus, calculus, post-calculus.)
Enrollment limit is 40; cost is $55.

MINICOURSE 11:
DISCRETE DYNAMICAL SYSTEMS: MATHEMATICS, METHODS, AND MODELS
organized by
David C. Arney,

U.S. Military Academy,
Frank R. Giordano,
COMAP, and
John S. Robertson,
Georgia College and State University
PART A:
Thursday, 1:00 p.m. - 3:00 p.m.
PART B:
Saturday,1:00 p.m. - 3:00 p.m.
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. The presenters have written a textbook on this subject and advocate teaching this course to freshmen.
Enrollment limit is 40; cost is $55.

MINICOURSE 12:
TRANSFORMING ANXIETY INTO HATRED: RETHINKING THIS STANDARD MODEL OF REACHING LIBERAL ARTS STUDENTS AND THE GENERAL PUBLIC
organized by
Edward B. Burger,
Williams College, and
Michael Starbird,
University of Texas at Austin
PART A:
Wednesday, 8:00 a.m. - 10:00 a.m.
PART B:
Friday, 8:00 a.m. - 10:00 a.m.
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.
Enrollment limit is 40; cost is $55.

MINICOURSE 13:
TEACHING CONTEMPORARY STATISTICS WITH ACTIVE LEARNING
organized by
Beth L. Chance,
California Polytechnic State University,
Robin H. Lock,
St. Lawrence University,
Mary R. Parker,
Austin Community College,
and Allan Rossman,
Dickinson College
PART A:
Wednesday, 2:15 p.m. - 4:15 p.m.
PART B:
Friday, 1:00 p.m. - 3:00 p.m.
This minicourse will help instructors to teach introductory statistics in accordance with the recommendations of a joint ASA/MAA committee: emphasizing statistical thinking with more data and concepts, less theory and fewer recipes. Participants will engage in hands-on investigations that can be adopted for immediate use with students. These activities concern such topics as data collection, exploratory data analysis, randomness,

and statistical inference. Other issues considered include use of technology, student projects, and authentic assessment. Handouts of activities used in the minicourse and an extensive, annotated listing of print and electronic resources related to statistics education will be provided.
Enrollment limit is 40; cost is $55.

MINICOURSE 14:
MODERN PHYSICS AND THE MATHEMATICAL WORLD
organized by
George DeRise,
Thomas Nelson College
PART A:
Thursday, 1:00 p.m. - 3:00 p.m.
PART B:
Saturday, 1:00 p.m. - 3:00 p.m.
Various popularizations of physics read by our students are loaded with some pretty "crazy" notions — for example, black holes, quarks, antimatter, the big bang, superstrings in a 10-dimensional universe, wormhole solutions of Einstein's equations permitting time travel, etc. Much of this material can be understood in a more formal manner, yet not using any mathematics beyond the sophomore year. This minicourse, on a semi-intuitive, semi-technical level, is a first bridge from the popularizations of modern physics to the more austere technical literature. Some problems in Quantum Mechanics are solved using Maple. Some demonstrations will be given.
Enrollment limit is 40; cost is $55.

MAA Contributed Paper Sessions

MINICOURSE 15:
THE FIBONACCI AND CATALAN NUMBERS
organized by
Ralph P. Grimaldi,
Rose-Hulman Institute of Technology
PART A:
Thursday, 8:00 a.m. - 10:00 a.m.
PART B:
Saturday, 8:00 a.m. - 10:00 a.m.
In introductory courses in discrete or combinatorial mathematics one encounters the Fibonacci numbers — and sometimes the Catalan numbers. This minicourse will review and then extend this first encounter as it examines some of the properties these numbers exhibit, as well as applications where these sequences arise. A survey of the applications dealing with chemistry, physics, computer science, linear algebra, set theory, graph theory, and number theory will show why these sequences are of interest and are important. *Enrollment limit is 40; cost is $55.*

THE USE OF HISTORY IN THE TEACHING OF MATHEMATICS
Florence Fasanelli, *College-University Resource Institute,*
V. Frederick Rickey, *U.S. Military Academy, and*
Victor J. Katz, *University of the District of Columbia*
Wednesday and Thursday mornings

INTEGRATING MATHEMATICS AND OTHER DISCIPLINES
William G. McCallum, *University of Arizona,*
Duff Campbell, *U.S. Military Academy,*
Deborah Hughes Hallett, *University of Arizona,*
David C. Lay, *University of Maryland,*
Nicholas Losito, *SUNY Farmingdale,*
Jim Rolf, *U.S. Military Academy, and*
Yajun Yang, *SUNY Farmingdale*
Wednesday and Thursday mornings

INNOVATIVE USES OF THE WORLD WIDE WEB IN TEACHING MATHEMATICS
Brian E. Smith,
McGill University, and
Marcelle Bessman,
Jacksonville University
Wednesday and Thursday mornings

INTERDISCIPLINARY APPLICATIONS FOR COLLEGE ALGEBRA
Donald B. Small, *U.S. Military Academy,*
Della D. Bell, *Texas Southern University, and*
Ahmad Kamalvand, *Houston-Tillotson College*
Wednesday and Thursday afternoons

INTERDISCIPLINARY COLLABORATIONS TO IMPROVE SERVICE COURSES IN MATHEMATICS AND STATISTICS
Linda H. Boyd, *Georgia Perimeter College, and*
Thomas L. Moore, *Grinnell College*
Wednesday and Thursday afternoons

THE ROLE OF MATHEMATICIANS IN THE DEVELOPMENT OF MATHEMATICS TEACHERS AND THEIR STUDENTS
Diane Spresser, *National Science Foundation,*
John S. Bradley, *National Science Foundation, and*
Alfred B. Manaster, *University of California, San Diego*
Thursday afternoon

GRADUATE STUDENT PAPER SESSION
organized by
Howard L. Penn, *U.S. Naval Academy*
Friday, 8:00 a.m. - 10:50 a.m.

LOOKING TO OUR FUTURE: RECRUITING AND PREPARING THE NEXT GENERATION OF MATHEMATICS TEACHERS
Jay A. Malmstrom, *Oklahoma City Community College,*
Gary L. Britton, *University of Wisconsin Washington County,*
Marjorie Enneking, *Portland State University,*
James Loats, *Metropolitan State College of Denver, and*
Mary Robinson, *University of New Mexico*
Friday and Saturday mornings

TEACHING STATISTICAL REASONING
K.L.D. Gunawardena, *University of Wisconsin, Oshkosh,*
Nkechi M. Agwu, *Borough of Manhattan CC, and*
Mary Sullivan, *Rhode Island College*
Friday and Saturday mornings

INNOVATIONS IN THE USE OF TECHNOLOGY IN TEACHING ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS
Timothy J. McDevitt, *Millersville University,*
Elias Y. Deeba, *University of Houston-Downtown,*
Richard J. Marchand, *U.S. Military Academy*
Friday and Saturday mornings

MATH AND MATH SCIENCES IN 2010: WHAT SHOULD GRADUATES KNOW?
Herbert E. Kasube, *Bradley University, and*
Harriet S. Pollatsek, *Mount Holyoke College*
Friday and Saturday afternoons

ESTABLISHING AND MAINTAINING UNDERGRADUATE RESEARCH PROGRAMS IN MATHEMATICS
Emelie Kenney, *Siena College,*
Joseph A. Gallian, *University of Minnesota, Duluth, and*
Daniel J. Schaal, *South Dakota State University*
Friday and Saturday afternoons

RESEARCH ON THE USE OF HAND-HELD TECHNOLOGY IN TEACHING MATHEMATICS
Deborah A. Crocker, *Appalachian State University, and*
Penelope H. Dunham, *Muhlenberg College*
Saturday afternoon

ASSOCIATION FOR RESEARCH ON UNDERGRADUATE MATHEMATICS EDUCATION
Julie Clark, *Emory and Henry College,*
M. Kathleen Heid, *Pennsylvania State University, and*
Rina Zazkis, *Simon Fraser University*
Wednesday and Saturday afternoons

Other MAA Sessions

TENURE AND POST-TENURE REVIEW POLICIES

organized by
John D. Fulton, *Virginia Polytechnic Institute and State University,*
James W. Daniel, *University of Texas at Austin, and*
Bernard L. Madison, *University of Arkansas*
Wednesday, 9:00 a.m. - 10:20 a.m.
Tenure for faculty members continues to prompt disagreements about both its meaning and benefits. In recent years, many institutions have established post-tenure review policies of various kinds. Some of these policies do nothing more than prompt more rigorous faculty performance evaluations, while others amount to a periodic renewal of tenure. The panel would include a discussion of these and related issues. The views on the benefits of tenure differ because of perspectives. For example, the benefits are viewed differently by legislators, by university administrators, by tenured faculty members, by untenured faculty members, and by unemployed faculty candidates. These different perspectives would be discussed.

BUILDING MATHEMATICAL LEADERSHIP AMONG WOMEN

organized by
Carolyn Connell, *Westminster College*
Wednesday, 9:00 a.m. - 10:20 a.m.
Interested in moving into a leadership role in your institution? In the MAA? Come to this session and learn the leadership secrets of women mathematicians—a department chair, a provost, a principal investigator, and a nationally-elected MAA officer.

SESSION ON MATHEMATICAL MODELING IN BIOLOGY VIA DIFFERENTIAL EQUATIONS

organized by
Sunil Tiwari, *Sonoma State University,*
Sanjay Rai, *Jacksonville University, and*
Robert Robertson, *Huntingdon College*
Wednesday, 2:15 p.m. - 6:15 p.m.
In any physical phenomenon, when one or more dependent variables change with respect to one or more independent variables, that physical phenomenon can be modeled using a system of differential equations. Continuous or discrete growth, motion of particles, and diffusion are a few examples, and we find an abundance of them in biological science. This session focuses on differential equations arising in various biological systems. Individual presentations will be listed in the Program of the Sessions detail in the program booklet.

WHY STUDY THE HISTORY OF MATHEMATICS?

organized by
Ronald Calinger, *Catholic University of America*
Wednesday, 2:15 p.m. - 3:05 p.m.
It is a pity that regular mathematicians, whether teachers or researchers, are not more interested in the history of their subject. The result is that substantive historical context is generally missing in teaching and research in mathematics, and what is said is often incomplete or incorrect. Historically-minded mathematicians ought to play a more active role in historical studies of their field. The speaker will probe the reasons for this continuing situation, and discuss what might be done to raise the level of conscious of the oftentimes excellent research and writing of historians of mathematics among regular mathematicians. The speaker will be I. M. James, Oxford University. The commentators will be Ronald Calinger, and Joseph Dauben, City University of New York. The group will be moderated by Donald J. Albers, Mathematical Association of America.

SUMMA SPECIAL PRESENTATION

organized by
William A. Hawkins, Jr., *director of the SUMMA (Strengthening Underrepresented Minority Mathematics Achievement) program*
Wednesday, 2:15 p.m. - 3:35 p.m.
Presentations will be given on intervention programs for minority pre-college students. Speakers to be announced. There will be ample time for questions and interchange with the presenters.

THROUGH THE LOOKING GLASS

organized by
Mary L. Platt, *Salem State College, and*
Marcelle Bessman, *Jacksonville University*
Wednesday, 2:15 p.m. - 3:35 p.m.
This panel will take a visionary look into the future for the development and use of technology as support for learning and doing mathematics. The panelists will discuss technology they would like to see developed (or currently being developed) that will further enhance instruction. Panelists include Benton L. Leong, Waterloo Maple, Inc.; Charles M. Patton, MathTech Services; Douglas A. Quinney, University of Keele; and Franklin A. Wattenberg, NSF. The panel will be moderated by Marcelle Bessman, and is sponsored by the MAA Committee on Computers in Mathematics Education (CCIME).

A METAPHORICAL UNVEILING OF ARCHIMEDES' PALIMPSEST "ON THE METHOD": IN MEMORIAM TO WILBUR KNORR

organized by
Ronald Calinger, *Catholic University of America*
Wednesday, 3:15 p.m. - 4:05 p.m.
Wilbur Knorr, over his too-short lifetime, entered imaginatively into developments of ancient and medieval mathematics, combining mathematical insights with scraps of historical data to try to fill in the gaps in our knowledge of how early mathematicians actually did their work. In his early work, Knorr concentrated on the Greeks. At the end of his life he was working on medieval mathematics and astronomy. The recent sale of the famous palimpsest of Archimedes' Method raises the tantalizing possibility that historians will be able to obtain a more exact reading of the Method than that made by Heiberg in 1906, one that does not introduce anachronisms or emendations. Or was Heiberg's version the most accurate one possible? In this session the participants will examine some case studies of ancient and medieval Archimedean texts, trying to understand how they were understood by the people who used them. Attention will also be given to Wilbur Knorr's contributions to the field. The speakers will be Reviel Netz, Stanford University, and Edith Sylla, North Carolina State University. The session will be moderated by Joseph Dauben, City University of New York.

FINDING YOUR SECOND JOB

organized by
Kevin E. Charlwood, *Washburn University and*
Philip E. Gustafson, *Mesa State University*
Wednesday, 3:45 p.m. - 5:05 p.m.
Panelists include Evelyn L. Hart, Colgate University; Frank Sottile, University of Wisconsin; Edward Aboufadel, Grand Valley State University; and T. Christine Stevens, Saint Louis University. The panel will be moderated by Michael Prophet, University of Northern Iowa, and is co-sponsored by the MAA and the Young Mathematicians Network.

Other MAA Sessions, continued...

COMPOSING THE HISTORY OF TWENTIETH-CENTURY MATHEMATICS

organized by
Ronald Calinger, Catholic University of America
Wednesday, 4:15 p.m. - 5:05 p.m.
A history of mathematics in the twentieth century is curiously missing. This session will discuss the main ideas, concepts, and figures from the century. It will probe professionalization, including journals, prizes, and institutions. It will place mathematics in a larger social context, such as the World Wars, and will consider the influence of technological inventions upon the development of twentieth-century mathematics. The speaker will be Michael I. Monastyrsky, Institute of History of Science and Technology, Moscow. David Roberts, National Museum of American History, will serve as commentator and Daniele Struppa, George Mason University, as moderator.

MATHEMATICS, COMPUTERS, AND OTHER CALCULATING INSTRUMENTS

organized by
Ronald Calinger, Catholic University of America
Wednesday, 5:15 p.m. - 6:05 p.m.
This session will lay out some of the basic themes and issues associated with the use of computers and other mathematical instruments in research in mathematics and mathematical sciences. A major portion of the session will be a case study of John von Neumann and the Institute for Advanced Study computer project (1945–1957). We will show the computer's role in stimulating change in four areas: numerical analysis, computational science, the mathematical theory of computation, and heuristic mathematics. Further, pre-computer calculating aids and analog and digital devices, as well as ways in which the computer has shaped mathematical research since the IAS computer project, will be discussed. The speaker will be William Aspray, Computer Research Association. Ulf Hashagen, Heinz Nixdorf Museumsforum, will serve as commentator and Peggy Kidwell, National Museum of American History, as moderator.

MAKING CONNECTIONS WITH FACULTY IN OTHER DISCIPLINES

organized by
T. Christine Stevens, St. Louis University
Thursday, 9:00 a.m. - 10:20 a.m.
Colleges and universities, as well as funding agencies, are putting increasing emphasis on teaching and research that cross departmental boundaries. Forging connections with faculty in other disciplines can be a challenging task, especially for faculty members who are relatively new to the institution. The panelists, who include mathematicians and a faculty member from another discipline, will discuss how they established such collaborations, the obstacles that they encountered, and the benefits that they and their institution derived from their collaborative efforts. The panelists will be Gregory S. Chirikjian, Johns Hopkins University; Jan E. Holly, Colby College; Daniel P. Maki, Indiana University; and Lee L. Zia, University of New Hampshire, and will be moderated by Joseph A. Gallian, University of Minnesota, Duluth. Sponsored by the MAA and Project NExT.

OUTREACH PROGRAMS FOR WOMEN AND GIRLS IN MATHEMATICS POSTER SESSION

organized by
Kathleen A. Sullivan, Seattle University
Thursday, 9:00 a.m. - 11:00 a.m.
Advocacy programs for women and girls in mathematics will be showcased at this poster session. Mathematicians with programs that target women and girls are urged to submit applications, preferably by email, to the organizer at ksuliva@seattleu.edu. Each application should include the name, address and title of the applicant, an email address if available, and a one-page description of the project. Applications should be submitted by December 1. Space is limited, and there is no guarantee that all submissions can be accommodated. Applicants will be notified in December whether or not their proposals have been accepted. The poster session is sponsored by MAA Women in Mathematics Network.

CBMS MATHEMATICS EDUCATION OF TEACHERS REPORT

organized by
Ronald C. Rosier, CBMS
Thursday, 1:00 p.m. - 2:20 p.m.
This report seeks to inform mathematics faculty about issues that will help them better educate future teachers in mathematics. It tries to survey the best thinking about the mathematical content, pedagogy, and related components of the mathematical education of teachers. The major premises of the report are that the most important undergraduate students that any mathematics faculty member teaches are preservice teachers (they will reach hundreds of students over their careers) and that these teachers must learn deeply the mathematics they will teach in order to teach it well. There is an intellectual challenge for faculty in thinking deeply, often for the first time, about the critical ideas underlying school mathematics. Panelists will include Alan C. Tucker, SUNY at Stony Brook, and the panel will be moderated by W. James Lewis, University of Nebraska.

WHAT DOES ALGEBRA MEAN IN THE TWENTY-FIRST CENTURY?

organized by
Sheldon P. Gordon, SUNY at Farmingdale,
Linda A. Kime, University of Massachusetts at Boston, and
Ray E. Collings, Georgia Perimeter College
Thursday, 1:00 p.m. - 2:20 p.m.
A combination of curricular changes at the college and high school levels, changes in what people actually do with mathematics in real life, and the growing power of technology all are having major influences on the kind of algebra that is taught at the college level. In this panel session, the speakers will address issues such as (1) What kind of mathematics is actually being used in the workplace today? (2) What changes in the mathematics preparation of high school students are taking place and what are the implications for the colleges? (3) What are some of the alternatives to traditional algebra courses at the college level? (4) What are the implications of modern technology, such as hand-held computer algebra systems, on courses at the college algebra level? The panelists will include Linda H. Boyd, Georgia Perimeter College; Wade Ellis, West Valley College; Carole B. Lacampagne, U.S. Department of Education; and Zalman P. Usiskin, University of Chicago. The panel is jointly sponsored by CRAFTY, CUPM and the Committee on Two-Year Colleges.

PROJECT NEXT AND YMN POSTER SESSION

organized by
Kenneth A. Ross, University of Oregon
Thursday, 2:00 p.m. - 4:00 p.m.
The session will include exhibits from 30 or so new or recent Ph.D.s in the mathematical sciences, or from those still pursuing graduate study. Applications should be submitted to Ken Ross (ross@ math.uoregon.edu) by December 1, 1999.

GREAT THEOREMS OF MATHEMATICS

organized by
Douglas E. Ensley *and* Cheryl Olson, *Shippensburg University*
Thursday, 2:30 p.m. - 3:50 p.m.
The speakers will be Farhad Jafari, University of Wyoming, on The evolution of the Stone-Weierstrass Theorem; Elena A. Marchisotto, California State University Northridge, On a theorem of Pappus; Daniel Velleman, Amherst College, On the fundamental theorem of algebra; and Roger A. Wiegand, University of Nebraska, Lincoln, on The Hilbert Basis Theorem and its ramifications.

THE FOUR COLOR CONJECTURE THEOREM

organized by
Robin Wilson, *The Open University*
Thursday, 5:15 p.m. - 6:00 p.m.
This video presentation features the origin and early evolution of the Four Color Conjecture.

THE NUMBER YEARS: A MATHEMATICAL GAME SHOW

organized by
Arthur T. Benjamin, *Harvey Mudd College,*
Eric J. Libick, *University of Southern California, and*
Jennifer J. Quinn, *Occidental College*
The Number Years will challenge your knowledge of mathematics and mathematical trivia. Everyone gets to play for fun and fabulous prizes. Bring a writing implement and your wits. You just might go home a grand prize winner!
Thursday, 7:00 p.m. - 8:30 p.m.

MATHEMATICAL EXPERIENCES FOR STUDENTS OUTSIDE THE CLASSROOM

organized by
Tom Kelley, *Metropolitan State College of Denver, and*
Richard L. Poss, *St. Norbert College*
Friday, 8:30 a.m. - 10:00 a.m.
Mathematics "happens" outside the classroom and, in fact, many math majors are drawn to the subject through an event sponsored by a Student Chapter or Math Club. This session seeks presentations by academic, industrial, business, or student mathematicians. Descriptions of non-classroom activities could include, but are not limited to, special lectures, workshops for students, Math Days, Math Fair, research projects for students, Career Days, recreational mathematics, problem-solving activities, and student consultants. Applications should be submitted to Tom Kelley, kelley@mscd.edu, by October 15. The application should include name, address, phone number, email address, title of presentation, and a one-page description of the activity. Presentation time is limited and there is no guarantee that all submissions can be accepted. Applicants will be notified by November 15 whether or not their proposal has been accepted. This session is sponsored by the MAA Committee on Student Chapters, which is supported by a grant from the Exxon Education Foundation.

PEDAGOGICAL USE OF COMPUTER ALGEBRA IN MATHEMATICS TEACHING

organized by
Bert K. Waits, *Ohio State University, and*
V.S. Ramamurthi, *University of North Florida*
Friday, 9:00 a.m. - 10:50 a.m.
With the introduction of new, powerful CAS tools (calculators and laptops) it is likely that in the future many more mathematics students will be using computer symbolic algebra for algebraic and calculus manipulations, rather than tedious paper and pencil techniques. However, there are also pedagogical opportunities for using computer algebra that are less well known. Expert panelists will provide examples of pedagogical use of computer algebra. Time will be provided for questions and discussion. The panel is sponsored by the MAA Committee on Computers in Mathematics Education (CCIME). Panelists include John W. Kenelly, Clemson University; Jeanette R. Palmiter, Portland State University; Bernhard Kutzler, University of Linz; Austria, Wade Ellis, West Valley College; and L. Carl Leinbach, Gettysburg College.

QUANTITATIVE LITERACY: NATIONAL QUESTIONS AND LOCAL SOLUTIONS

organized by
Richard A. Gillman, *Valparaiso University*
Friday, 9:00 a.m. - 10:20 a.m.
More and more, state and federal agencies are expecting high school and college students to graduate with some level of mathematical proficiency. There is a general sense that students should be "quantitatively literate" in order to be functional members of our society. Most members of the mathematical community are aware of the NCTM's Standards documents, the growing list of states with high school graduation exams, and content proficiency standards for pre-service teachers. However, fewer members of our community are aware of the questions being asked about quantitative literacy at the post-secondary level: What does it mean for a college graduate to be quantitatively literate? How is this different from what is expected of a high school graduate? Is it the responsibility of the mathematics department to provide this training? This panel will present the current state of thinking on these and other questions. They will present national and state issues, and the responses made by both large public and small private post-secondary institutions to these issues. The panelists will be Steven F. Bauman, University of Wisconsin; Judith F. Moran, Trinity College; Linda R. Sons, Northern Illinois University; Lynn A. Steen, St. Olaf College; and Janet E. Teeguarden, DePauw University.

POSTER SESSION IN ENVIRONMENTAL MATHEMATICS

organized by
Ahalm Tannouri, *Morgan State University, and*
William D. Stone, *New Mexico Institute of Mining and Technology*
Friday, 9:00 a.m. - 11:00 a.m.
Poster presentations are invited in all areas of environmental mathematics. We invite posters on joint work on actual environmental problems, classroom projects, and student work. Joint work on actual problems would be of interest, showing opportunities for contributions from mathematicians and demonstrating the range of possible work. Posters could present the problem, the model, the mathematical techniques used, and the results. Modules bringing environmental modeling into the classroom at the K-12, undergraduate, or graduate level are welcome. These could be long-term projects for a class or simpler class units. Posters could present the problem, the requisite background, the appropriate class, and how the project was done (small groups, whole class, or homework project). Student presentations are particularly invited. These could be independent projects or excellent examples of student work on class projects. Posters could present the problem, the model, the mathematical techniques used, and the results. Presenters will be asked to be available to answer questions during the session. Handouts of lesson plans for class modules are encouraged. Applications should be submitted by December 1, 1999. Space is limited, and there is no guarantee that all submissions can be accommodated for the session. Proposals or questions may be addressed to Ahlam Tannouri, Department of Mathematics, Morgan State University, Baltimore, MD 21215, atannour@Morgan.edu, Tel. 443-885-4654, Fax: 410-319-4323.

Other MAA Sessions, continued...

CURRICULAR REFORMS IN CLIENT DISCIPLINES—IMPLICATIONS FOR POST-CALCULUS MATHEMATICS

organized by
Sheldon P. Gordon, *SUNY at Farmingdale*
Friday, 1:00 p.m. - 2:30 p.m.

Recent curricular reforms in science and engineering may have significant impact on college mathematics courses—on content, mode of instruction, and course enrollment. The most dramatic change affecting mathematics by a client discipline involves the new ABET 2000 standards for review and accreditation of engineering programs. These standards replace the input criteria of specific courses by "outcome" criteria describing knowledge and abilities that engineering graduates should possess. The panelists will focus on mathematics topics that typically follow the first year of calculus, and they will address the following questions: (1) How will the changes in your undergraduate program affect the mathematical training needed for your students? (2) What mathematical knowledge, general abilities (including scientific writing), and attitudes should your students possess as they prepare to graduate? What role can mathematics departments play in accomplishing this? (3) The mathematical needs of computer science students differ from those of some engineering students. How can mathematics departments best serve these diverse groups? (4) Should the way you use technology in your discipline have some coordination with technology use in mathematics? What about new methods of instruction? Panelists include Peter B. Henderson, SUNY Stony Brook; John Prados, University of Tennessee; James Stith, American Institute of Physics; and Michael Ruane, Boston University. The panel is sponsored jointly by CUPM and CRAFTY and is moderated by David C. Lay, University of Maryland, and Sheldon P. Gordon.

MATHEMATICS AND MATHEMATICAL SCIENCES IN 2010: WHAT SHOULD GRADUATES KNOW?

organized by
Thomas R. Berger, *Colby College*
Friday, 1:00 p.m. - 2:20 p.m.

The third millennium confronts us with the need to prepare our students for new challenges. Identifying these challenges will guide mathematics departments in setting, addressing, and meeting goals. A broad look at the undergraduate curriculum is particularly timely after over a decade of innovation and debate about content and pedagogy in specific courses. The panelists will discuss what majors should know, successful programs, preparation for the workplace, post-BA study, and other issues related to preparation of undergraduates in the mathematical sciences. Audience reaction is invited. Panelists include George W. Cobb, Mount Holyoke College; Joyce R. McLoughlin, Rensselaer Polytechnic Institute; and J. Douglas Faires, Youngstown State University. This panel is organized on behalf of the MAA Committee on the Undergraduate Program in Mathematics (CUPM) and will be moderated by D. J. Lewis, University of Michigan, Ann Arbor.

CHANGING THE ACADEMIC CULTURE

organized by
Donald B. Small, *U.S. Military Academy*
Friday, 1:00 p.m. - 2:20 p.m.

Social and pedagogical changes along with technological and discipline advances are forcing faculty members, departments, and schools to reexamine various aspects of their academic culture. For instance: What is the role of technology in the curriculum? Are the benefits of group work worth the time cost? How to value interdisciplinary collaboration? A decision to make a cultural change introduces the question: How to effect a cultural change? The panelists, Laurette B. Foster, Prairie View A&M University; John L. Scharf, Carroll College; Robert W. Case, Northeastern University; and Maynard Thompson, Indiana University, represent a diversity of schools and programs, will share their experiences in effecting cultural changes. The panel will be moderated by David C. Arney, U.S. Military Academy, and is sponsored by Mathematics Across the Disciplines (MAD), a subcommittee of CUPM.

INNOVATIONS IN MATHEMATICS PROGRAMS WHICH BENEFIT FUTURE TEACHERS POSTER SESSION

organized by
Marjorie Enneking, *Portland State University*
Friday, 1:00 p.m. - 3:00 p.m.

This poster session will provide an opportunity for faculty from community colleges, colleges, universities and collaboratives of institutions to share their innovations in courses and programs that are designed to benefit students in the courses who plan to become elementary, middle school, or high school teachers. In addition to courses, the session will showcase programs that incorporate diversity, advising, undergraduate research, undergraduate peer teaching experiences, use of technology, or other components that provide exemplary support for future teachers. Applications should be submitted to Marj Enneking, marj@mth.pdx.edu, by December 1, 1999. The application should include name, address, phone number, email address and title of the applicant. Space is limited and there is no guarantee that all submissions can be accommodated. Applicants will be notified whether or not their proposals have been accepted. The poster session is sponsored by COMET (MAA Committee on the Mathematical Education of Teachers).

PRESENTATIONS BY TEACHING AWARD RECIPIENTS
Friday, 3:30 p.m. - 5:00 p.m.

Winners of the Awards for Distinguished College or University Teaching of Mathematics will give presentations on the secrets of their success. Details will be published in the program booklet.

INFORMAL SESSION ON ACTUARIAL EDUCATION

organized by
James W. Daniel, *University of Texas at Austin*
Friday, 5:00 p.m. - 7:00 p.m.

This informal session sponsored by the Actuarial Faculty Forum provides an opportunity for those involved in actuarial education, interested in it, or curious about it, to get together to discuss common concerns such as the major changes in the actuarial exam systems that will have just taken place.

A WORKSHOP FOR TEACHING ASSISTANT TRAINERS

organized by
Thomas W. Rishel, *Cornell University*
Friday, 5:00 p.m. - 7:00 p.m.

Training graduate students for teaching has become an integral activity of mathematics departments. In this workshop for current and prospective trainers, we will compare various models of TA training programs. We will concentrate on how these programs are set up, what they are designed to accomplish, and their typical agendas. We will then discuss such extensions to basic training programs as college teaching courses, professors for the future programs, job market and teaching portfolio preparation, and peer mentoring and evaluation.

A GUIDED TOUR OF PROJECT INTERMATH APPLICATION PROJECTS

organized by
David C. Arney, *U.S. Military Academy*
Friday, 5:00 p.m. - 6:30 p.m.

This session will showcase the "Best of the Best" of the Interdisciplinary Lively Applications Projects (ILAPs) produced under the NSF-funded Project INTERMATH. The purpose, development, and use of ILAPs will be presented, followed by a discussion of individual ILAPs. This discussion will include comments from several ILAP authors who will describe how ILAPs are used, as well as responses from students and faculty. The final portion of the session will be a poster display of several ILAPs. The session is sponsored by Mathematics Across the Disciplines (MAD), a subcommittee of CUPM.

RESEARCH ON UNDERGRADUATE MATHEMATICS EDUCATION

organized by
Julie Clark, *Emory and Henry College*,
ARUME is a group formed for mathematics educators and professional mathematicians interested in research an undergraduate mathematics education. There will be a welcoming address, business meeting, eleciton of officers, and several presentations exemplifying research on undergraduate mathematics.

THREE ENVIRONMENTAL MATHEMATICS SKITS

Friday, 6:30 p.m. - 7:30 p.m.
These dramatic presentations, *Unintended Consequences,* by Ben Fusaro, Florida State University; *The Adventures of Supermath,* by Barry Schiller, Rhode Island College, and *Hamlet, Prince of Modelling,* by Lothar A. Dohse, University of North Carolina, and Patricia C. Kenschaft, Montclair State University are sponsored by the Committee on Mathematics and the Environment.

COMPROMISE AND CALCULUS REFORM — CALCULUS REFORM IN THE LONG RUN

organized by
Jack Bookman, *Duke University, and*
Herbert E. Kasube, *Bradley University*
Saturday, 9:00 a.m. - 10:20 a.m.
The purpose of this panel is to address the following questions: (1) What compromises with the reform agenda need to be (or have been) made in order to meet the approval of the majority of the members of a math department? (2) What, if anything, is lost by making these compromises? (3) Is there a steady state? What would that be? (4) Is there a growing consensus in the mathematical community about what calculus instruction ought to be like? (5) What gets compromised? Content? Alternative assessment? Technology? Pedagogical innovation? The panelists will be Michael C. Reed, Duke University; William J. Davis, Ohio State University; Morton Brown, University of of Michigan, Ann Arbor; Barbara A. Holland, John Wiley & Sons; and Susan L. Ganter, American Association for Higher Education. Sponsored by the CUPM Subcommittee on Calculus Reform and the First Two Years (CRAFTY).

IMPROVING MATHEMATICS EDUCATION IN THE NEW CENTURY: LEARNING FROM THE PAST, LOOKING TO THE FUTURE

organized by
Joan Ferrini-Mundy, *Michigan State University*
Saturday, 9:00 a.m. - 10:20 a.m.
This CRUME-sponsored panel discussion honors the work of Robert Davis.

MATHEMATICS ACROSS THE CURRICULUM PROJECTS

organized by
Frank Giordano, *COMAP*
Saturday, 9:00 a.m. - 10:30 a.m.
CUPM-MAD is promoting and disseminating efforts that involve working across disciplines to improve undergraduate education. The National Science Foundation's Division of Undergraduate Education in cooperation with the Division of Mathematical Sciences has awarded seven projects supported under the Mathematical Sciences and their Applications throughout the Curriculum (MATC) Initiative. This session will begin with each of the several project directors giving a 10-minute overview of their project. Additionally, there will be a brief presentation on "adopt and implement" funding opportunities by NSF representatives. This will be followed by a poster session where each of the project directors and NSF directors will be available to answer questions and provide handouts. Programs and their presenters are Mathematics Across the Curriculum, Dorothy I. Wallace, Dartmouth

College; Middle Atlantic Consortium, Dennis DeTurck, University of Pennsylvania; Project Links, Mark H. Holmes, Rensselaer Polytechnic Institute; Long Island Consortium, Alan C. Tucker, SUNY-Stony Brook; New Frameworks, Steven R. Dunbar, University of Nebraska, and Benny D. Evans, Oklahoma State University; Mathematics Throughout the Curriculum, Daniel P. Maki, Indiana University;Project Intermath, Chris Arney, U.S. Military Academy; NSF Funding Opportunities, James H. Lightbourne, Elizabeth J. Teles, and Lee Zia, NSF.

IF 'LESS IS MORE' IN THE K-12 CURRICULUM, THEN WHICH 'LESS' DO WE CHOOSE?

organized by
Richard D. Anderson, *Louisiana State University*
Saturday 1:00 p.m. - 2:20 p.m.
The purpose of this panel discussion is to generate serious thought and dialogue among research mathematicians as to what K-12 mathematics will be really fundamental in the 21st century. Panelists include Andrew M. Gleason, Harvard University, and Hyman Bass, Columbia University.

STAMPING THROUGH THE MILLENNIUM

organized by
Robin Wilson, *The Open University*
Saturday, 1:00 p.m - 2:00 p.m.
A history of the past 1000 years is illustrated with postage stamps.

SCHOOL MATHEMATICS CDS FROM SINGAPORE

organized by
Richard A. Askey,
University of Wisconsin, Madison
Saturday, 1:00 p.m. - 2:20 p.m.
Several CDs will be shown, illustrating aspects of the Singapore elementary school curriculum.

DOCTORAL PROGRAMS IN MATHEMATICS EDUCATION—RESULTS FROM A NATIONAL CONFERENCE

organized by
Robert Reys,*University of Missouri and*
James Fey, *University of Maryland*
Saturday, 2:30p.m. - 4:00p.m.
There is an increasing demand for doctorates in mathematics education, and research suggests a critical shortage in the near future. As doctoral programs in mathematics education are initiated and restructured at institutions of higher education, what should be the core program elements in mathematics? mathematics education? research? preparation for teaching? How can faculty in mathematics departments contribute toward the development of mathematics educators?

SPECIAL SESSION FOR CHAIRS OF MATHEMATICS DEPARTMENTS IN COMPREHENSIVE UNIVERSITIES, 4-YEAR LIBERAL ARTS AND TWO-YEAR COLLEGES

organized by
Gerald L. Alexanderson,
Santa Clara University
Saturday 2:30 p.m. - 4:00 p.m.
This session will consist mainly of breakouts into discussion groups organized around the three types of institutions.

MAA Short Course

FUZZY MATHEMATICS
organized by
Kiran Bhutani, *Catholic University of America*
Monday and Tuesday, January 17 and 18

Fuzzy set theory is an extension of conventional (crisp) set theory: It holds that all things are matters of degree. In classical mathematics we are familiar with crisp set. A crisp set contains objects that satisfy precise properties of membership or nonmembership. For example the set A of real numbers greater than or equal to 10 is crisp. Given any real number n, we can give a "yes" or "no" answer to whether n is a member of the set A or not, thus the notion of membership is binary. Suppose now we consider another set B of real numbers around 10. In this situation what can we say for the numbers 9.5, 9.96? Do these numbers belong or not belong to set B? The uncertainty in this case is due to vagueness or the ambiguity of the adjective "around." A more natural way to construct the set B would be to relax the strict separation between "around 10" and "not around 10." We will do this by allowing not only the crisp decision "Yes, the number is in set B," or "No, the number is not in set B," but also more flexible phrases like "Well, the number belongs more to set B," or "It belongs very little to set B." Clearly, 9.5 and 9.96 are both around 10, hence belong to B but to different degrees: 9.96 is more around 10 than 9.5. Zadeh, in his seminal paper "Fuzzy Sets," Information and Control, 8, 1965, extended the notion of binary membership to accommodate various "degrees of membership" on the real continuous interval [0,1], where the endpoints of 0 and 1 conform to no membership and full membership.

Formally a fuzzy subset of a set U is defined as a function $B:U \to [0,1]$. In the above examples, A is a crisp subset of real numbers and B is a fuzzy subset of real numbers. Fuzzy sets are often incorrectly assumed to indicate some form of probability since they both take on similar values. It is important to note that membership values are not probabilities and this topic will be discussed in this course. Research in this area has been growing steadily since its inception. A large number of applications have been developed, implemented, and found to help improve the quality of our life. Interest in fuzzy systems is growing most rapidly among undergraduate students who are seeking a new field for their graduate and/or professional work. This short course will be taught by experts in the field of fuzzy theory. The attendees of this course will get a good introduction to the theory of fuzzy sets and it is our hope that this course will encourage the initation of new courses in fuzzy systems at various levels of undergraduate education. No previous knowledge of fuzzy theory is assumed, although familiarity with the basic notion of set theory and probability theory will be helpful. The main topics that will be covered include introductory lectures with examples in fuzzy mathematics, fuzzy clustering, fuzzy graphs, and fuzzy logic and applications in practice. Speakers include Azriel Rosenfeld, Director of the Center for Automation Research, University of Maryland, College Park; John Yen, Director of the Center for Fuzzy Logic, Texas A&M University; John Mordeson, Director, Center for Research in Fuzzy Mathematics, Creighton University; and Gregory Campbell, Director for the Division of Bio Statistics, FDA.

Please note that there is a separate registration fee for this Short Course. To register in advance, please use the Advance Registration/Housing form found at the back of this issue. Advance registration fees are $125/member; $175/nonmember; and $50/student, unemployed, emeritus. On-site registration fees are $140/member; $190/nonmember; and $60/student, unemployed, emeritus.

Other MAA Events

BOARD OF GOVERNORS MEETING
Tuesday, 8:30 a.m. - 4:00 p.m.

SECTION OFFICERS MEETING
Wednesday, 4:30 p.m. - 6:30 p.m.

MAA BUSINESS MEETING
Saturday, 11:10 a.m. - 11:40 a.m.
See the listings for various receptions in the Social Events section.

Student Activities

STUDENT LECTURE: INTERACTIVE GEOMETRY ON THE INTERNET
Thomas F. Banchoff,
Brown University
Friday, 7:30 p.m.

GRADUATE STUDENT PAPER SESSION
organized by
Howard L. Penn,
U.S. Naval Academy
Thursday, 1:00 p.m. - 3:45 p.m.
Send a one-page abstract including the name, affiliation, and address of the proposer by December 1, 1999 to Howard L. Penn, U. S. Naval Academy, Annapolis, MD 21402-5002; 410-293-6768; fax: 410-293-4883; email: hlp@nadn.navy.mil.

STUDENT WORKSHOP ON THEOREMS IN STONE AND BRONZE
organized by
Helaman Ferguson,
Laurel, Maryland
Thursday 2:15 p.m. - 4:00 p.m.
This workshop will consist of two parts. The first part will be an interactive lecture with slides and video, giving general background and descriptions of various sculptures. Mathematical problems originating in the sculpture process—which can be qualitative or quantitative—will be set up. The second part will be even more interactive: some of the problems raised earlier will be solved, old solutions will be discussed, new solutions entertained. WARNING: This workshop contains explicit raw and cooked materials.

UNDERGRADUATE RESEARCH STUDENT POSTER SESSION
Organized by
Mario Martelli,
CSU Fullerton
Friday, 5:00 p.m. - 8:00 p.m.
The CUPM Subcommittee on Research by Undergraduates invites undergraduate students to display posters describing their mathematical research projects. First-year graduate students may submit posters about work done while undergraduates. Posters will be judged on their mathematical content and on their presentation, with monetary prizes for the best poster presentations. Poster boards will be provided. Send a one-page abstract describing the project, including title, author's name, address, phone number, email, and faculty advisor's name, to Mario Martelli, Mathematics Department, California State University, Fullerton, CA 92634, tel: 714-278-3326, email: mmartelli@thuban.ac.hmc.edu; fax: 714-278-3972, by December 1, 1999. Notification of acceptance will be mailed two weeks after the abstract has been received.

JOINT PI MU EPSILON AND MAA STUDENT CHAPTER ADVISORS' BREAKFAST
contact
Richard Jarvinen
Friday, 7:00 a.m. - 8:00 a.m.
rdjarvinen@vax02.winona.msus.edu.

STUDENT HOSPITALITY CENTER
organized by
Richard Neal,
University of Oklahoma
**Wednesday-Friday,
9:00 a.m. - 5:00 p.m.,
Saturday, 9:00 a.m. - 3:00 p.m.**

AMS Special Sessions

ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA
(CODE: AMS SS AA1)
Irena Peeva, *Cornell University, and*
Hema Srinivasan, *University of Missouri, Columbia*
Friday and Saturday afternoons, and Saturday morning

ANALYTIC ASPECTS OF JORDAN THEORY
(CODE AMS SS GG1)
C. Martin Edwards, *Oxford University,*
Kevin McCrimmon, *University of Virginia,*
Bernard Russo, *University of California, Irvine, and*
Gottfried Ruettiman, *University of Bern*
Friday and Saturday afternoons, and Saturday morning

BEAUTIFUL GRAPH THEORY
(CODE: AMS SS J1),
Gary Chartrand, *Western Michigan University, and*
Frank Harary, *New Mexico State University*
Wednesday and Friday mornings, and Wednesday and Thursday afternoons

COMPLEX HYPERBOLIC GEOMETRY AND CONFORMAL GEOMETRY OF THE HEISENBERG GROUP
(CODE: AMS SS K1)
William M. Goldman, *University of Maryland,*
Hanna M. Sandler, *American University, and*
Richard Schwartz, *University of Maryland*
Friday and Saturday afternoons, and Saturday morning

CONTROL THEORY FOR PARTIAL DIFFERENTIAL EQUATIONS
(CODE: AMS SS EE1)
Robert Triggiani, *University of Virginia*
Friday morning and afternoon

DIFFERENCE EQUATIONS AND THEIR APPLICATIONS IN SOCIAL AND NATURAL SCIENCES
(CODE: AMS SS V1)
Hassan Sedaghat, *Virginia Commonwealth University,*
Abdul Aziz Yakubu, *Howard University,*
Gerry Ladas, *University of Rhode Island, and*
Saber Elaydi, *Trinity University*
Friday and Saturday afternoons, and Saturday morning

EFFECTIVE METHODS AND COMMUTATIVE ALGEBRA
(CODE: AMS SS BB1)
Anna Guerrieri, *Università Degli Studi dell'Aquila, and*
Irene Swanson, *New Mexico State University*
Wednesday and Thursday afternoons, and Thursday and Friday mornings

ERGODIC THEORY AND TOPOLOGICAL DYNAMICS OF Z^d AND R^d ACTIONS
(CODE: AMS SS R1)
E. Arthur Robinson, *George Washington University, and*
Ayşe A. Şahin, *North Dakota State University*
Wednesday and Thursday mornings and afternoons

THE FEYNMAN INTEGRAL AND APPLICATIONS
(CODE: AMS SS A1)
Michel L. Lapidus, *University of California, Riverside, and*
Gerald W. Johnson, *University of Nebraska*
Friday and Saturday afternoons, and Saturday morning

GEOMETRIC ANALYSIS
(CODE: AMS SS G1)
Paul C. Yang, *University of Southern California, and*
Matthew J. Gursky, *Indiana University,*
Wednesday and Thursday mornings and afternoons

THE HISTORY OF TOPOLOGY (IN HONOR OF RALPH KRAUSE)
(CODE: AMS SS T1)
Jack Morava, *Johns Hopkins University*
Friday afternoon

HOLOMORPHIC DYNAMICS AND RELATED ISSUES
(CODE: AMS SS GG1)
Mikhail Lyubich, *State University of New York at Stony Brook,*
Kevin Pilgrim, *University of Missouri, and*
Michael Yampolsky, *Institute des Hautes Études*
Wednesday, Thursday, and Friday mornings, and Wednesday afternoon

HOMOTOPY THEORY
(CODE: AMS SS Q1)
W. Stephen Wilson *and*
Jack Morava, *Johns Hopkins University*
Friday and Saturday mornings, and Saturday afternoon

INTEGRAL EQUATIONS AND APPLICATIONS
(CODE: AMS SS U1)
Constantin Corduneanu, *University of Texas at Arlington, and*
Mehran Mahdavi, *Bowie State University*
Wednesday and Thursday, mornings and afternoons

INVARIANTS OF KNOTS AND 3-MANIFOLDS
(CODE: AMS SS L1)
Dubravko Ivansic, *George Washington University,*
Mark E. Kidwell, *U.S. Naval Academy,*
Jozef H. Przytycki *and*
Yongwu Rong, *George Washington University, and*
Ted Stanford, *U.S. Naval Academy*
Wednesday and Thursday, mornings and afternoons

MATHEMATICAL ASPECTS OF CONSENSUS THEORY
(CODE: AMS SS B1)
Melvin F. Janowitz, *University of Massachusetts, Amherst*
Wednesday, Thursday, and Friday mornings, and Thursday afternoon

MISTAKEN PHILOSOPHIES IN MATHEMATICS EDUCATION
(CODE: AMS SS Z1)
Seymour Lipschutz, *Temple University*
Saturday morning and afternoon

MODULAR FORMS AND ELLIPTIC CURVES, AND RELATED TOPICS
(CODE: AMS SS FF1)
Sharon Frechette, *Wellesley College, and*
Tamara Veenstra, *University of Northern Iowa*
Saturday morning and afternoon

NONLINEAR EIGENVALUE PROBLEMS AND APPLICATIONS
(CODE: AMS SS N1)
Alfonso Castro, *University of Texas, San Antonio, and*
Maya Chhetri *and*
Ratnasingham Shivaji, *Mississippi State University*
Wednesday and Thursday, mornings and afternoons

OPERATOR ALGEBRAS
(CODE: AMS SS X1)
May M. Nilsen,
University of Nebraska, Lincoln, and Texas A&M University, and
David R. Pitts, *University of Nebraska, Lincoln*
Wednesday and Thursday mornings and afternoons

OPERATOR THEORY. SYSTEMS THEORY. AND INTERPOLATION IN SEVERAL COMPLEX VARIABLES
(CODE: AMS SS H1)
Joseph A. Ball,
Virginia Polytech Institute & State University, and
Cora S. Sadosky,
Howard University
Friday and Saturday afternoons, and Saturday morning

QUANTUM COMPUTATION AND INFORMATION
(CODE: AMS SS M1)
Samuel J. Lomonaco, Jr., *University of Maryland, Baltimore County, and*
Howard E. Brandt,
Army Research Labs
Wednesday and Thursday afternoons, and Thursday and Friday mornings

RECENT ADVANCES IN COMPLEX AND HARMONIC ANALYSIS
(CODE: AMS SS DD1)
Carlos A. Berenstein,
University of Maryland, College Park,
Stephen D. Casey,
American University,
Bao Qin Li, *Florida International University,*
David F. Walnut,
George Mason University, and
C. C. Yang, *Hong Kong University of Science and Technology*
Friday and Saturday, mornings and afternoons

RESEARCH IN MATHEMATICS BY UNDERGRAD-UATES
(CODE: AMS SS Y1)
Darin R. Stephenson,
Hope College, and
Leonard A. VanWyk,
James Madison University
Saturday morning and afternoon

SINGULARITIES IN ALGBEBRAIC AND ANALYTIC GEOMETRY
(CODE: AMS SS S1).
Ruth I. Michler,
University of North Texas, and
Caroline Melles,
U.S. Naval Academy
Wednesday and Thursday mornings and afternoons

SIXTY YEARS OF MATHEMATICAL REVIEWS
(CODE: AMS SS F1)
Jane E. Kister,
Mathematical Reviews
Friday afternoon, followed by a reception

AMS Contributed Papers

There will be sessions for contributed papers of ten minutes' duration. Contributed papers will be grouped by related *Mathematical Reviews* subject classifications into sessions insofar as possible. The title, author(s), and affiliation(s) of each paper accepted and the date and time of presentation will be listed in the program. Abstracts must be submitted, preferably electronically. Send a blank message to abs-submit@ams.org and type help as the subject to see your electronic options.

Other AMS Sessions

PUTTING AND FINDING MATHEMATICS ON THE WEB
organized by
Robby Robson, *Oregon State University*
Wednesday, 2:15 p.m.–4:15 p.m.

COMMITTEE ON SCIENCE POLICY PANEL DISCUSSION
Friday, 2:30 p.m.–4:00 p.m.

COMMITTEE ON EDUCATION PANEL DISCUSSION
Saturday, 8:30 a.m.–10:00 a.m.

Other AMS Events

COUNCIL MEETING
Tuesday, 1:00 p.m.–10:00 p.m.

BUSINESS MEETING
Saturday, 11:45 a.m.–12:15 p.m.

In order that a motion for this business meeting receives the service offered by the Committee in the most effective manner, it should be in the hands of the secretary by December 22, 1999. The Committee consists of Robert J. Daverman (chair), Raymond L. Johnson, and Robert K. Lazarsfeld.

AMS Short Courses

Please see the information regarding these conferences at http://www.ams.org/amsmtgs/2026_intro.html.

QUANTUM COMPUTATION: THE GRAND MATHEMATICAL CHALLENGE FOR THE TWENTY-FIRST CENTURY AND THE MILLENNIUM
organized by
Samuel J. Lomonaco, Jr., *University of Maryland, Baltimore County*
Monday and Tuesday, 9:00 a.m. - 5:00 p.m.

SHORT COURSE ON ENVIRONMENTAL MATHEMATICS
organized by
V. S. Manoranjan, *Washington State University*
Monday and Tuesday, 9:00 a.m. - 5:00 p.m.

SIAM Sessions

SIAM INVITED ADDRESS
Alan Newell, *title to be announced*
Friday 10:05 a.m.

Minisymposia

ANALYSIS OF KRYLOV SPACE METHODS IN NUMERICAL LINEAR ALGEBRA
Anne Greenbaum,
University of Washington

3D NAVIER-STOKES AND EULER EQUATIONS
Basil Nicolaenko *and* Alex Mahalov,
Arizona State University

TITLE TO BE ANNOUNCED
Kathleen T. Alligood,
George Mason University, and
James Yorke, *Institute for Physical Sciences and Technology, University of Maryland*

DISCRETE MATHEMATICS IN INFORMATION TECHNOLOGY
Fan Chung, *University of California, San Diego*

Activities of Other Organizations

Several organizations or special groups are having receptions or other social events. Please see the Social Events section of this announcement for details.

Association for Symbolic Logic (ASL)

This two-day program on Friday and Saturday will include Invited Addresses and sessions of contributed papers. Watch for details in a future issue.

Association for Women in Mathematics (AWM)

TWENY-FIRST ANNUAL EMMY NOETHER LECTURE: THE MATHEMATICS OF OPTIMIZATION
Margaret H. Wright, *Lucent Technology*
Thursday, 9:00 a.m. - 9:50 a.m.

Also see the AMS-AWM-SIAM Special Session organized by Wright and Dianne P. O'Leary. A dinner in honor of the lecturer will be held on Wednesday evening. See the Social Events section for details on how to participate.

HOW TO INCREASE THE NUMBER OF TENURED WOMEN IN MATHEMATICS DEPARTMENTS
organized by
Jean Taylor, *Rutgers University*
Wednesday, 2:45 p.m. - 4:05 p.m.

Those who have tentatively agreed to participate in this panel discussion are Mille Dresselhaus, Institute Professor, M.I.T.; Maria Klawe, Dean of Science, University of British Columbia; Jerry Ostriker, Provost, Princeton University; and Karen Uhlenbeck, University of Texas at Austin. Provosts from a small college and a public university may also be included.

At the conclusion of the panel discussion, AWM will recognize the Alice T. Schafer Prize winner, runner-up, and honorable mention honorees. Note that formal prize winner announcements are made at the Joint Prize Session on Thursday afternoon (see the AWM inclusion in the Joint Sessions section at the beginning of this announcement.)

BUSINESS MEETING
Wednesday, 4:05 p.m. - 4:25 p.m.

RECEPTION
Wednesday, 9:30 p.m. - 11:00 p.m.
See the listing in the Social Events section of this announcement.

WORKSHOP
Saturday, 8:30 a.m. - 5:00 p.m.
With funding from the Office of Naval Research and the National Science Foundation, AWM will conduct its workshop for women graduate students and women who have received the Ph.D. within the last five years.

Twenty women mathematicians have been selected in advance of this workshop to present their research. The selected graduate students will present posters, and the recent Ph.D.s will give 20-minute talks. Travel funds are provided to the the 20 selected presenters. The workshop will also include a panel discussion on issues of career development and a luncheon. Participants will have the opportunity to meet with other women mathematicians at all stages of their careers. All mathematicians (female and male) are invited to attend the entire program. Departments are urged to help graduate students and recent Ph.D.s who do not receive funding to obtain some institutional support to attend the workshop and the associated meetings. The deadline for applications presenting and funding has expired. Inquiries regarding future workshops may be made to AWM by telephone: 301-405-7892, by email: awm@math.umd.edu, or visit http://www.awm-math.org.

AWM seeks volunteers to lead discussion groups and to act as mentors for workshop participants. If you are interested in volunteering, please contact the AWM office.

NATIONAL ASSOCIATION OF MATHEMATICIANS (NAM)
GRANVILLE-BROWN SESSION OF PRESENTATIONS BY RECENT
DOCTORAL RECIPIENTS IN THE MATHEMATICAL SCIENCES
moderated by
William A. Massey, *Lucent Technologies–Bell Labs*
Friday, 2:15 p.m. - 5:00 p.m.

TRENDS AND ASSESSMENTS OF MINORITY STUDENTS STUDYING
MATHEMATICS AT THE GRADUATE LEVEL
Panelists in this discussion include Gloria Hewitt, University of Montana, Missoula; William A. Hawkins, University of the District of Columbia; John W. Alexander, Jr., Spelman College; and
Duane Cooper, University of Maryland, College Park. The moderator is Leon Woodson, Morgan State University,
Saturday, 9:00 a.m. - 9:50 a.m.

BUSINESS MEETING
Saturday, 10:00 a.m. - 10:50 a.m.

William W. S. Claytor Lecture
NOTES ON QUANTUM ELECTRODYNAMICS ON A NEGATIVELY CURVED
SURFACE AND THE SELBERG-MAASS TRACE FORMULA
Floyd Williams, *University of Massachusetts at Amherst*
Saturday, 1:00 p.m.

National Science Foundation (NSF)
The NSF will be represented at a booth in the exhibit area. NSF staff members will be available to provide counsel and information on NSF programs of interest to
mathematicians. The booth is open the same days and hours as the exhibits. Times that staff will be available will be posted at the booth.

Pi Mu Epsilon (PME) Council Meeting
Friday, 8:00 a.m. - 11:00 a.m.

Rocky Mountain Mathematics Consortium (RMMC)
BOARD OF DIRECTORS MEETING
Friday, 2:15 p.m. - 4:10 p.m.

Young Mathematicians Network (YMN)
CONCERNS OF YOUNG MATHEMATICIANS: A TOWN MEETING
organized by
Kevin Charlwood, *Washburn University*
Wednesday, 7:15 p.m. - 8:15 p.m.
This panel discussion will focus on the current primary concerns for young mathematicians, with emphasis on audience participation. Also see details about the poster
session (Thursday afternoon) and panel discussion (Wednesday afternoon) cosponsored by YMN under the MAA's "Other Scientific Events" listings.

Ancilliary Conference
AMERICAN STATISTICAL ASSOCIATION (ASA):
TEACHING STATISTICS WITH ACTIVE LEARNING
This two-day Learnstat program is presented by
Beth L. Chance, *California Polytechnic State University, and*
Allan Rossman, *Dickinson College*
Monday and Tuesday, January 17 and 18
See the ASA website at http://www.amstat.org/education/index.html for more information.

Special Opportunity
AMERICAN ASSOCIATION OF COLLEGES AND UNIVERSITIES (AACU)
86TH ANNUAL MEETING, GREATER EXPECTATIONS: OF OUR STUDENTS,
OUR STAKEHOLDERS, OURSELVES
January 20-22, 2000
At the Grand Hyatt Hotel (accessible from the Marriott and Omni hotels via the Red Line Metro). Joint Meetings participants are welcome to attend sessions.
See www.aacu-edu.org for program details; copies of the complete program and timetable will be available at the Joint Meetings registration desk.

Other Events of Interest

MAA OPEN HOUSE
Thursday, Noon - 3:00 p.m.
The MAA cordially invites all
attendees to visit our headquarters at
1529 Eighteenth Street, NW. Join us
for light refreshments and a tour of
our newly remodeled, historic building.

BOOK SALES AND EXHIBITS
All participants are encouraged to
visit the book, education media, and
software exhibits from noon to 5:30
p.m. on Wednesday, 9:30 a.m. to
5:30 p.m. on Thursday and Friday,
and 9:00 a.m. to noon on Saturday.
Books published by the AMS and
MAA will be sold at discounted prices
somewhat below the cost for the
same books purchased by mail.
These discounts will be available
only to registered participants wearing
the official Meetings badge. Most
major credit cards will be accepted
for book sale purchases at the
Meetings. Stop by the MAA JSTOR
demonstration. Also, AMS electronic
products and e-MATH will be
demonstrated. Participants visiting
the exhibits will be asked to display
their Meetings badge or acknowledg-
ment of advance registration from the
Mathematics Meetings Service Bureau
in order to enter the exhibit area.

MATHEMATICAL SCIENCES EMPLOYMENT CENTER
Those wishing to participate in the
Mathematical Sciences Employment
Center should read carefully the
important article about the Center
beginning on page 1179 in the
October issue of the Notices or at
http://www.ams.org/emp-reg/.

SOCIAL EVENTS

GALA OPENING BANQUET
Tuesday, 6:30 p.m. - 10:30 p.m.

The International Mathematical Union has declared 2000 to be World Mathematical Year, a year-long celebration of mathematics as it moves into the new millenium. One of the first events of WMY 2000 is the Opening Banquet on Tuesday, January 18. A cash bar reception at 6:30 p.m. will be followed by dinner at 7:30 p.m. Representatives from more than twenty mathematics-related organizations have been invited to participate and extend special greetings to others in the mathematics community. Several surprises are being planned, including a special MC, unique entertainment and some very interesting door prizes. Come join your colleagues and friends at this truly momentous occasion as we move into the future together. Tickets are $43.00 each, including tax and gratuity.

It is strongly recommended that for any event requiring a ticket, tickets should be purchased through advance registration. Only a very limited number of tickets, if any, will be available for sale on site. If you must cancel your participation in a ticketed event, you may request a 50% refund by returning your ticket(s) to the Mathematics Meetings Service Bureau (MMSB) by January 5. After that date no refunds can be made. Special meals are available at the banquet or luncheon upon advance request, but this must be indicated on the Advance Registration/ Housing Form.

DINNER IN HONOR OF RETIRING MAA EXECUTIVE DIRECTOR MARCIA P. SWARD
Saturday, 7:00 p.m. - 10:00 p.m.

Marcia Sward served as Executive Director of the MAA from 1989 to 1999. Her service has been of great benefit to the MAA and the larger mathematical community. Come wish Marcia well on the next chapter of her life. Cocktails at 7 p.m. (cash bar) followed by dinner at 7:30 p.m. Tickets are $46, including tax and gratuity.

GRADUATE STUDENT RECEPTION
Wednesday, 5:00 p.m. - 6:30 p.m.

Mathematicians representing a wide range of disciplines will join interested graduate students at an informal reception. Complimentary food and beverages will be served. NOTE: This event is only for students who sign up on the Advance Registration/Housing (ARH) form.

SIGMAA RECEPTION
Wednesday, 5:00 p.m. - 6:00 p.m.

Special Interest Groups of the MAA (SIGMAAs) are now a reality. Join us in inaugurating the SIGMAA program.

MATHEMATICAL SCIENCES INSTITUTES RECEPTION
Wednesday, 5:30 p.m. - 7:30 p.m.

CRM, DIMACS, the Fields Institute, IMA, IPAM, MSRI, and PIMS invite you to a reception where you can talk to their representatives, and learn about their current and future programs and activities (or reminisce about their past ones). The participating institutes are Centre de Recherches Mathématiques (Montréal), the Center for Discrete Mathematics and Theoretical Computer Science (New Jersey), the Fields Institute (Toronto), the Institute for Mathematics and Its Applications (Minneapolis), the Institute for Pure and Applied Mathematics at UCLA (Los Angeles), the Mathematical Sciences Research Institute (Berkeley), and the Pacific Institute for the Mathematical Sciences (Vancouver).

DINNER TO HONOR AWM'S NOETHER LECTURER
Wednesday evening

A sign-up sheet for those interested will be located at the AWM table in the exhibit area and also at the AWM panel discussion.

AWM RECEPTION
Wednesday, 9:30 p.m.

This has been a popular, well-attended event in the past.

WELCOME RECEPTION FOR MATHEMATICIANS WORKING IN BUSINESS, INDUSTRY OR GOVERNMENT
sponsored by the
MAA Committee on Industrial and Governmental Mathematics
Thursday, 5:30 p.m. - 7:00 p.m.

MAA TWO-YEAR COLLEGE RECEPTION
sponsored by
Addison Wesley Longman
Thursday, 5:30 p.m. - 7:00 p.m.

RETIREMENT LUNCHEON IN HONOR OF H. HOPE DALY
Friday, noon - 2:00 p.m.

Hope has been involved in the planning of your annual and summer meetings for the past 30 years, and Director of the AMS Meetings and Conferences Department for the past 25! You are invited to join her friends and colleagues as we wish her well in her retirement. Tickets are $28, including tax and gratuity.

SIXTY YEARS OF MATHEMATICAL REVIEWS RECEPTION
Friday, 4:00 p.m. - 5:00 p.m.

After the conclusion of the Special Session talks on Friday afternoon. All friends of MR are invited to join reviewers and MR editors and staff (past and present) in celebrating the 60th anniversary of the founding of Mathematical Reviews. Refreshments will be served.

UNIVERSITY OF ILLINOIS GATHERING
Friday, 5:00 p.m. - 7:00 p.m.

Alumni, current and former faculty, students, and friends of the Department of Mathematics at the University of Illinois Champaign-Urbana are invited to renew acquaintances, meet new friends, and enjoy some snacks and drinks.

RECEPTION IN HONOR OF THE AMS-MAA GOVERNMENT SPEAKER
sponsored by the
Science Policy Committees of the AMS and the MAA
Friday, 5:50 p.m. - 6:50 p.m.

NAM RECEPTION
Friday, 6:00 p.m. - 8:00 p.m.

Tours

Participants are encouraged to come to the meetings early and tour our nation's capital. There are free public tours of the White House, U.S. Capitol, Supreme Court, and other landmarks; special tours of these and other sites may be available by contacting your Senator or Congressman in advance.

Plans are underway for special exhibits at the Smithsonian's National Museum of American History. Dr. Peggy Kidwell, Curator of Mathematics, cares for a collection of some 5,000 objects. A few of these will be on exhibit in a small display entitled "Mathematics in the Information Age". This exhibit will open January 15 and be up throughout the meetings. Museum hours are 10:00 a.m. to 5:30 p.m., seven days a week. Also visit http://www.si.edu/nmahcsr/cadits.htm for information about the Division of Information Technology and Society of the museum. Dr. Ronald Brashear, Rare Books Curator at the Dibner Library (located in but not a part of the National Museum of American History), plans to assemble a display of some of his favorite rare books (e.g., Euclid's Elements from 1482 and Kepler's Harmonices Mundi) expressly for meetings participants. The display will be open Tuesday-Friday, 10:00 a.m. to noon, and 2:00 p.m.- 4:00 p.m. The Dibner Library is usually open by appointment only; please ring the doorbell to gain entrance. More information is available at http://www.sil.si.edu/Branches/Dibner.htm. The Dibner Library is quite small so access to the book display will be limited.

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REGISTRATION

Registering in Advance and Hotel Accommodations

HOW TO REGISTER IN ADVANCE

The importance of advance registration cannot be overemphasized. Advance registration fees are considerably lower than the fees that will be charged for registration at the meeting. Participants registering by November 22 will receive their badges, programs, and tickets purchased in advance by mail approximately three weeks before the Meetings, unless they check the appropriate box to the contrary on the Advance Registration/Housing Form. Because of delays that occur in U.S. mail to Canada, it is strongly suggested that advance registrants from Canada choose to pick up their materials at the Meetings. Because of delays that occur in U.S. mail to overseas, materials are never mailed overseas. There will be a special Registration Assistance Desk at the Joint Meetings to assist individuals who either do not receive this mailing or who have a problem with their registration. Please note that a $5 replacement fee will be charged for programs and badges that are mailed but not taken to Washington, D.C. Acknowledgments of registrations will be sent by email to the email addresses given on the Advance Registration/Housing Form. If you do not wish your registration acknowledged by email, please mark the appropriate box on the form.

EMAIL ADVANCE REGISTRATION

This service is available for advance registration and housing arrangements by requesting the forms via email from meetreg-request@ams.org, or see http://www.ams.org/amsmtgs/2026_registration.html or http://www.ams.org/amsmtgs/2026_intro.html and look for "Registration". VISA, MasterCard, Discover, and American Express are the only methods of payment which can be accepted for email advance registration, and charges to credit cards will be made in U.S. funds. Completed email forms should be sent to meetreg-submit@ams.org. All advance registrants will receive acknowledgment of payment prior to the Meetings.

INTERNET ADVANCE REGISTRATION

This service is available for advance registration and housing arrangements at http://www.ams.org/amsmtgs/2026_registration.html. VISA, MasterCard, Discover, and American Express are the only methods of payment that can be accepted for Internet advance registration, and charges to credit cards will be made in U.S. funds. All Internet advance registrants will receive acknowledgment of payment upon submission of this form.

CANCELLATION POLICY

Those who cancel their advance registration for the meeting, MAA Minicourses, or Short Courses by January 14 (the deadline for refunds for banquet tickets is January 5) will receive a 50% refund of fees paid. No refunds will be issued after this date.

Joint Mathematics Meetings Registration Fees

	BY DEC. 20	AT MEETING
Member of AMS, ASL, Canadian Mathematical Society, MAA, SIAM	$165	$215
Temporarily Employed	125	140
Emeritus Member of AMS, MAA; Graduate Student; Unemployed; Librarian; High School Teacher; Developing Countries Special Rate	35	45
Undergraduate Student	20	26
Nonmember	256	332
High School Student	2	5
One Day Member of AMS, CMS, MAA, SIAM	n/a	118
One Day Nonmember	n/a	183
Nonmathematician Guest	5	5

EMPLOYMENT CENTER

	BY DEC. 20	AT MEETING
Employer (first table)	$200	$250
Employer (each additional table)	50	75
Applicants (all services)	40	75
Applicants (Winter List & message center only)	20	20
Employer Posting Fee	50	N/A

AMS SHORT COURSE

	BY DEC. 20	AT MEETING
Student/Unemployed/Emeritus	$35	$45
All other participants	80	95

MAA MINICOURSES

	BY DEC. 20	AT MEETING
Minicourses #7–16	$55	$55*
Minicourses #1–6	80	80*

*if space is available

MAA SHORT COURSE

	BY DEC. 20	AT MEETING
MAA Member	$125	$140
Nonmember	175	190
Student/Unemployed/Emeritus	50	60

Full-Time Students:
Those currently working toward a degree or diploma. Students are asked to determine whether their status can be described as graduate (working toward a degree beyond the bachelor's), undergraduate (working toward a bachelor's degree), or high school (working toward a high school diploma) and to mark the Advance Registration/Housing Form accordingly.

Emeritus:
Persons who qualify for emeritus membership in either the Society or the Association. The emeritus status refers to any person who has been a member of the AMS or MAA for twenty years or more and who retired because of age or long-term disability from his or her latest position.

Librarian:
Any librarian who is not a professional mathematician.

Unemployed:
Any person currently unemployed, actively seeking employment, and not a student. It is not intended to include any person who has voluntarily resigned or retired from his or her latest position.

Developing Country Participant:
Any person employed in developing countries where salary levels are radically noncommensurate with those in the U.S.

Temporarily Employed:
Any person currently employed but who will become unemployed by June 1, 2000, and who is actively seeking employment.

Non-mathematician Guest:
Any family member or friend who is not a mathematician and who is accompanied by a participant of the meetings. These official guests will receive a badge and may attend all sessions and the exhibits. Participants who are not members of the AMS and/or the MAA will receive mailings after the meetings are over with a special membership offer from AMS and MAA.

Advance registration and on-site registration fees only partially cover the expenses of holding meetings. All mathematicians who wish to attend sessions are expected to register and should be prepared to show their badges if so requested. Badges are required to enter the exhibit area, to obtain discounts at the AMS and MAA Book Sales, and to cash a check with the Joint Meetings cashier. If a registrant should arrive too late in the day to pick up his/her badge, he/she may show the acknowledgment of advance registration received from the MMSB as proof of registration.

Advance registration forms accompanied by insufficient payment will either be returned, thereby delaying the processing of any housing request, or a $5 charge will be assessed if an invoice must be prepared to collect the delinquent amount. Overpayments of less than $5 will not be refunded.

For each invalid check or credit card transaction that results in an insufficient payment for registration or housing, a $5 charge will be assessed. Participants should check with their tax preparers for applicable deductions for education expenses as they pertain to these Meetings.

If you wish to be included in a list of individuals sorted by mathematical interest, please provide the one mathematical subject classification number of your major area of interest on the Advance Registration/Housing Form. (A list of these numbers is available by sending an empty email message to abs-submit@ams.org; include the number 950 as the subject of the message.) Copies of this list will be available for your perusal in the Networking Center.

If you do not wish to be included in any mailing list used for promotional purposes, please indicate this in the appropriate box on the Advance Registration/Housing Form.

Advance Registration Deadlines

There are three separate advance registration deadlines, each with its own advantages and benefits.

Early advance registration . . . .**NOVEMBER 8**
(room lottery, inclusion in the Winter Lists for the Employment Center)

Ordinary advance registration . . . .**NOVEMBER 22**
(hotel reservations, materials mailed)

Final advance registration . . . .**DECEMBER 20**
(advance registration, Short Courses, Employment Center, MAA Minicourses, banquets) . . .

Early Advance Registration

Those who register by the early deadline of November 8 will be included in a random drawing to select winners of complimentary hotel rooms in Washington, D.C. Multiple occupancy is permissible. The location of rooms to be used in this lottery will be based on the number of complimentary rooms available in the various hotels. Therefore, the free room may not necessarily be in the winner's first-choice hotel. The winners will be notified by mail prior to January 3. So register early!

Also, applicant and employer forms must be received by November 8 in order to be reproduced in the Winter Lists for the Employment Center.

Ordinary Advance Registration

Those who register after November 8 and by the ordinary deadline of November 22 may use the housing services offered by the MMSB but are not eligible for the room lottery. You may also elect to receive your badge and program by mail in advance of the meetings.

Final Advance Registration

Those who register after November 22 and by the final deadline of December 20 must pick up their badges, programs, and any tickets for social events at the meetings. Unfortunately, it is not possible to provide final advance registrants with housing. Please note that the December 20 deadline is firm; any forms received after that date will be returned and full refunds issued. Please come to the Registration Desk in Exhibit Hall C in the Marriott Wardman Park Hotel to register on site.
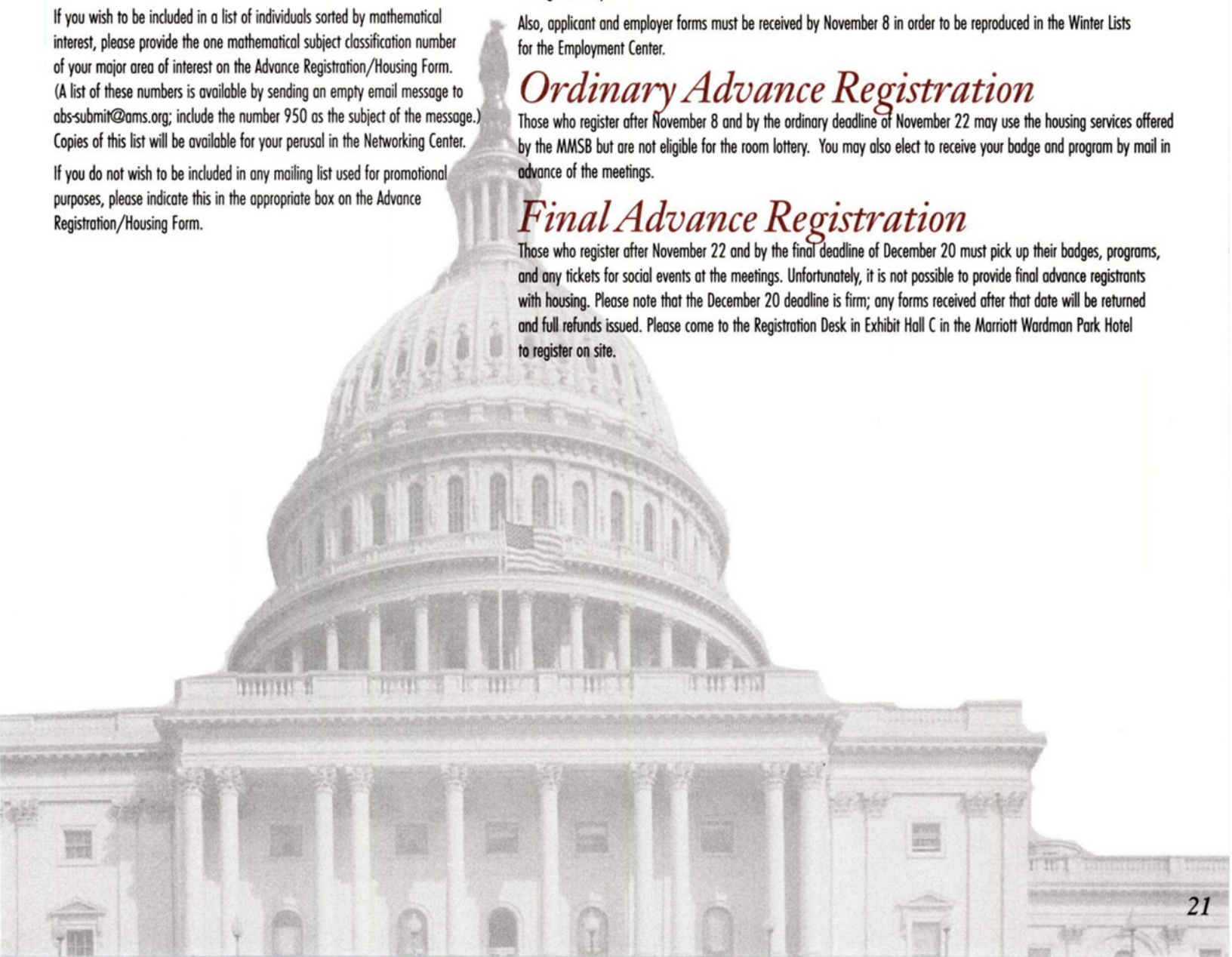
Hotel Reservations

Participants should be aware that the AMS and MAA only contract with facilities who are working toward being in compliance with the pubic accommodations requirements of the ADA.

Participants requiring hotel reservations should read the instructions on the following hotel pages. Participants who did not reserve a room during advance registration and would like to obtain a room at one of the hotels listed on the following pages should call the hotels directly after December 29. However, after that date the MMSB can no longer guarantee availability of rooms or special convention rates. Participants should be aware that most hotels are starting to charge a penalty fee to guests for departure changes made after guests have checked into their rooms. Participants should inquire about this at check-in and make their final plans accordingly.

Participants should also be aware that it is general hotel practice in most cities to hold a nonguaranteed reservation until 6:00 p.m. only. When one guarantees a reservation by paying a deposit or submitting a credit card number as a guarantee in advance, however, the hotel usually will honor this reservation up until checkout time the following day. If the individual holding the reservation has not checked in by that time, the room is then released for sale, and the hotel retains the deposit or applies one night's room charge to the credit card number submitted.

If you hold a guaranteed reservation at a hotel but are informed upon arrival that there is no room for you, there are certain things you can request the hotel do. First, they should provide for a room at another hotel in town for that evening at no charge. (You already paid for the first night when you made your deposit.) They should pay for taxi fares to the other hotel that evening and back to the Meetings the following morning. They should also pay for one telephone toll call so that you can let people know you are not at the hotel you expected. They should make every effort to find a room for you in their hotel the following day and, if successful, pay your taxi fares to and from the second hotel so that you can pick up your baggage and bring it to the first hotel. Not all hotels in all cities follow this practice, so your request for these services may bring mixed results or none at all.

Miscellaneous Information

AUDIO-VISUAL EQUIPMENT

Standard equipment in all session rooms is one overhead projector and screen. (Invited 50-minute speakers are automatically provided with two overhead projectors.) Blackboards are not available. Organizers of sessions that by their nature demand additional equipment (e.g., VCR and monitor or projection panel) and where the majority of speakers in the session require this equipment should contact the audio-visual coordinator for the meetings at the AMS office in Providence at 401-455-4140 or by email at wsd@ams.org, to obtain the necessary approvals. Individual speakers must consult with the session organizer(s) if additional equipment or services are needed. If your session has no organizer, please contact the audio-visual coordinator directly. All requests should be received by November 4.

Equipment requests made at the Meetings most likely will not be granted because of budgetary restrictions. Unfortunately no audio-visual equipment can be provided for committee meetings or other meetings or gatherings not on the scientific program.

CHILD CARE

The Marriott Wardman Park Hotel and the Omni Shoreham Hotel will provide recommendations for in-room child care for guests through their concierge desks. Call 202-328-2000 (Marriott) or 202-234-0700 (Omni) at least one day in advance. Arrangements represent a contractual agreement between each individual and the child care provider. The Joint Meetings assumes no responsibility for the services rendered.

INFORMATION DISTRIBUTION

Tables are set up in the exhibit area for dissemination of general information of possible interest to the members and for the dissemination of information of a mathematical nature not promoting a product or program for sale.

If a person or group wishes to display information of a mathematical nature promoting a product or program for sale, they may do so in the exhibit area at the Joint Books, Journals, and Promotional Materials exhibit for a fee of $50 per item. Please contact the exhibits manager, MMSB, P.O. Box 6887, Providence, RI 02940, for further details.

If a person or group would like to display material in the exhibit area separate from the Joint Books table, the proponent must reimburse the AMS and MAA for any extra furnishings requested (tables, chairs, easels, etc.) in addition to payment of the $50 per item fee. (This latter display is also subject to space availability.) The administration of these tables is in the hands of the AMS-MAA Joint Meetings Committee, as are all arrangements for Joint Mathematics Meetings.

LOCAL INFORMATION

The Washington, D.C. Convention and Visitors Association maintains a homepage on the WWW. Visit it at http://www.washington.org/. For those who like to plan ahead, information on things to do can and special events be found at www.washingtonpost.com or www.washingtoncitypaper.com

PETITION TABLE

At the request of the AMS Committee on Human Rights of Mathematicians, a table will be made available in the exhibit area at which petitions on behalf of named individual mathematicians suffering from human rights violations may be displayed and signed by meetings participants acting in their individual capacities. For details contact the director of meetings in the Providence office at 401-455-4137 or by email at dms@ams.org.

Signs of moderate size may be displayed at the table but must not represent that the case of the individual in question is backed by the Committee on Human Rights unless it has, in fact, so voted. Volunteers may be present at the table to provide information on individual cases, but notice must be sent at least seven days in advance of the Meetings to the director of meetings in the Providence office. Since space is limited, it may also be necessary to limit the number of volunteers present at the table at any one time. The Committee on Human Rights may delegate a person to be present at the table at any or all times, taking precedence over other volunteers.

Any material that is not a petition (e.g., advertisements, résumés) will be removed by the staff. At the end of registration on Saturday any material on the table will be discarded, so individuals placing petitions on the table should be sure to remove them prior to the close of registration.

TELEPHONE MESSAGES

The most convenient method for leaving a message is to do so with the participant's hotel. Another method would be to leave a message at the Meeting Registration Desk from January 19 through 22 during the hours that the desk is open. These messages will be posted on the Math Meetings Message Board; however, staff at the desk will try to locate a participant in the event of a bona fide emergency. The telephone number will be published in the program.

Travel

The closest airport to the meetings is Ronald Reagan National Airport (seven miles away). Participants may also find it convenient to use Washington Dulles International Airport (32 miles away), or Baltimore/Washington International Airport (40 miles away).

US Airways has been selected as the official airline for these meetings because of its generally convenient schedules to Washington, D.C. Given the volatility in airfares because of "fare wars," we cannot guarantee that these will be the lowest fares when you make your arrangements. However, we strongly urge participants to make use of this special deal if at all possible, since the AMS and MAA can earn complimentary tickets on US Airways. These tickets are used to send meetings' staff (not officers or other staff) to the Joint Mathematics Meetings, thereby keeping the costs of the meetings (and registration fees) down.

The following specially negotiated rates are available only for these meetings and exclusively to mathematicians and their families for the period January 16–25, 2000. Discounts apply only to travel within the continental U.S. Other restrictions may apply and seats are limited.

- 5% discount off First or Envoy Class and any published US Airways promotional round-trip fare. By purchasing your ticket 60 days or more prior to departure, you can receive an additional 5% bonus discount.
- 10% discount off unrestricted coach fares with seven-day advance purchase. By purchasing your ticket 60 days or more prior to departure, you can receive an additional 5% bonus discount.

For reservations call (or have your travel agent call)
US Airways Group and Meeting Reservation Office toll-free at 877-874-7687 between 8:00 a.m. and 9:30 p.m. Eastern Time. Refer to Gold File number 18611161.

From the Airports to Downtown
Driving rental cars is not advisable in Washington, D.C.; the Metro provides easy, inexpensive transportation throughout the city. All fares are approximate and are for a one-way trip. Taxi fare is charged by zone system, with surcharges for extra passengers. The fare from Reagan National is approximately $12–15 (plus tip) for one passenger (extra passenger is $1.50) from the airport to the hotels; from Dulles, it's about $48.

FROM REAGAN NATIONAL

The Metro is the least expensive way to get to the hotels (about $1.75). Take the Yellow line and transfer to the Red line at Gallery Place; exit at Woodley Park-Zoo. The Super Shuttle provides service to the hotels for approximately $8/person (1-800-BLUEVAN for reservations).

FROM DULLES

The least expensive shuttle service is provided by Washington Flyer, about $16/person (202-331-9393 for reservations).

FROM BWI

Shuttle service is provided by World Transportation Airport Shuttle. The fares are $29/one person, $34/two people, $39/three people, $44/four people. Call 301-587-7778 for reservations.

DRIVING DIRECTIONS

Take I-495 Capital Beltway to Exit 33/Connecticut Avenue South.
Continue 5.5 miles to the hotels, at the intersection of Connecticut Avenue and Woodley Road.

RAILWAY TRANSPORTATION

For information on AMTRAK call 800-872-7245.

BY BUS

Greyhound, 800-231-2222, or Peter Pan Trailways, 800-343-9999.

WEATHER

January weather in Washington, D.C. is generally cool. Normal daily maximum and minimum temperatures are 42°F (5°C) and 27°F (-2°C). Average precipitation is about 2.8 inches.
For more current information use your favorite net search engine or try the sites:
http://www.usatoday.com/weather/basemaps/nw724050.htm or
http://www.weather.com/weather/cities/us_dc_Washington.html.

MONDAY, JANUARY 17

9:00 a.m. -	5:00 p.m.	AMS SHORT COURSE ON QUANTUM COMPUTATION: THE GRAND MATHEMATICAL CHALLENGE FOR THE 21ST CENTURY AND THE MILLENNIUM
9:00 a.m. -	5:00 p.m.	AMS SHORT COURSE ON ENVIRONMENTAL MATHEMATICS
9:00 a.m. -	5:00 p.m.	MAA SHORT COURSE ON FUZZY MATHEMATICS

TUESDAY, JANUARY 18

8:30 a.m. -	4:00 p.m.	MAA BOARD OF GOVERNORS
9:00 a.m. -	5:00 p.m.	AMS SHORT COURSE ON QUANTUM COMPUTATION: THE GRAND MATHEMATICAL CHALLENGE FOR THE 21ST CENTURY AND THE MILLENNIUM
9:00 a.m. -	5:00 p.m.	AMS SHORT COURSE ON ENVIRONMENTAL MATHEMATICS
9:00 a.m. -	5:00 p.m.	MAA SHORT COURSE ON FUZZY MATHEMATICS
1:00 p.m. -	6:00 p.m.	AMS COUNCIL
3:00 p.m. -	7:00 p.m.	JOINT MEETINGS REGISTRATION
6:30 p.m. -	10:00 p.m.	GALA RECEPTION AND BANQUET

WEDNESDAY, JANUARY 19

7:30 a.m. -	4:00 p.m.	JOINT MEETINGS REGISTRATION
7:30 a.m. -	5:00 p.m.	MATHEMATICAL SCIENCES EMPLOYMENT CENTER
8:00 a.m. -	10:55 a.m.	AMS-MAA-MER SPECIAL SESSION ON MATHEMATICS AND EDUCATION REFORM, AMS SPECIAL SESSIONS, I
8:00 a.m. -	10:55 a.m.	Mathematical Aspects of Consensus Theory, I
8:00 a.m. -	10:55 a.m.	Geometric Analysis, I
8:00 a.m. -	10:55 a.m.	Beautiful Graph Theory, I
8:00 a.m. -	10:55 a.m.	Invariants of Knots and 3-Manifolds, I
8:00 a.m. -	10:55 a.m.	Nonlinear Eigenvalue Problems and Applications, I
8:00 a.m. -	10:55 a.m.	Ergodic Theory and Topological Dynamics of Zd and Rd Actions, I
8:00 a.m. -	10:55 a.m.	Singularities in Algebraic and Analytic Geometry, I
8:00 a.m. -	10:55 a.m.	Integral Equations and Applications, I
8:00 a.m. -	10:55 a.m.	Operator Algebras, I
8:00 a.m. -	10:55 a.m.	Holomorphic Dynamics and Related Issues, I
8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #12: PART A Transforming anxiety into hatred: Rethinking this standard model of reaching liberal arts students and the general public.
8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #1: PART A Mathematical finance.
8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #7: PART A Getting students involved in undergraduate research.

MAA Contributed Paper Sessions

8:00 a.m. -	10:50 a.m.	The Use of History in the Teaching of Mathematics, I
8:00 a.m. -	10:50 a.m.	Integrating Mathematics and Other Disciplines, I
8:00 a.m. -	10:50 a.m.	Innovative Uses of the World Wide Web in Teaching Mathematics, I
8:00 a.m. -	10:55 a.m.	AMS SESSIONS FOR CONTRIBUTED PAPERS
9:00 a.m. -	10:20 a.m.	MAA PRESENTATION Building mathematical leadership among women.
9:00 a.m. -	10:20 a.m.	MAA PANEL DISCUSSION Tenure and post-tenure review policies.

WEDNESDAY, JANUARY 19 *(continued)*

10:05 a.m. -	10:55 a.m.	AMS INVITED ADDRESS The proof of the Kepler conjecture. Thomas C. Hales
11:10 a.m. -	noon	AMS-MAA-SIAM INVITED ADDRESS Title to be announced. Brian Greene
12:00 p.m. -	5:30 p.m.	EXHIBITS AND BOOK SALE
1:00 p.m. -	2:00 p.m.	AMS COLLOQUIUM LECTURE: LECTURE 1 Title to be announced. Curtis T. McMullen
2:15 p.m. -	3:05 p.m.	MAA INVITED ADDRESS Combinatorics at the crossroads: Progress, problems and prospects. Ronald L. Graham
2:15 p.m. -	4:15 p.m.	AMS-MAA-MER SPECIAL SESSION ON MATHEMATICS AND EDUCATION REFORM, AMS SPECIAL SESSIONS, II
2:15 p.m. -	6:00 p.m.	Effective Methods and Commutative Algebra, I
2:15 p.m. -	6:00 p.m.	Geometric Analysis, II
2:15 p.m. -	6:00 p.m.	Beautiful Graph Theory, II
2:15 p.m. -	6:00 p.m.	Invariants of Knots and 3-Manifolds, II
2:15 p.m. -	6:00 p.m.	Quantum Computation and Information, I
2:15 p.m. -	6:00 p.m.	Nonlinear Eigenvalue Problems and Applications, II
2:15 p.m. -	6:00 p.m.	Ergodic Theory and Topological Dynamics of Zd and Rd Actions, II
2:15 p.m. -	6:00 p.m.	Singularities in Algebraic and Analytic Geometry, II
2:15 p.m. -	6:00 p.m.	Integral Equations and Applications, II
2:15 p.m. -	6:00 p.m.	Operator Algebras, II
2:15 p.m. -	6:00 p.m.	Holomorphic Dynamics and Related Issues, II
2:15 p.m. -	4:15 p.m.	MAA MINICOURSE #13: PART A Teaching contemporary statistics with active learning.
2:15 p.m. -	4:15 p.m.	MAA MINICOURSE #2: PART A Projects in precalculus, calculus, and differential equations using biology and chemistry applications.
2:15 p.m. -	4:15 p.m.	MAA MINICOURSE #8: PART A Facilitating active learning: Concrete ways to foster student participation.

MAA Contributed Paper Sessions

2:15 p.m. -	6:15 p.m.	Mathematical Modeling in Biology Via Differential Equations
2:15 p.m. -	6:00 p.m.	Interdisciplinary Applications for College Algebra, I
2:15 p.m. -	6:00 p.m.	Interdisciplinary Collaborations to Improve Service Courses in Mathematics and Statistics, I
2:15 p.m. -	4:15 p.m.	AMS PANEL DISCUSSION Putting and finding mathematics on the Web.
2:15 p.m. -	6:00 p.m.	AMS SESSIONS FOR CONTRIBUTED PAPERS
2:15 p.m. -	-3:35 p.m.	SUMMA SPECIAL PRESENTATION
2:15 p.m. -	3:35 p.m.	MAA COMMITTEE ON COMPUTERS IN MATHEMATICS EDUCATION PANEL DISCUSSION Through the looking glass.
2:15 p.m. -	3:05 p.m.	MAA SPECIAL PRESENTATION Why study the history of mathematics?
2:45 p.m. -	4:05 p.m.	AWM PANEL DISCUSSION How to increase the number of tenured women in mathematics departments.
3:15 p.m. -	4:05 p.m.	MAA SPECIAL PRESENTATION A Metaphorical Unveiling of Archimedes' Palimpsest "On the Method": In Memoriam to Wilbur Knorr.
3:20 p.m. -	4:10 p.m.	MAA INVITED ADDRESS Mathematics and modeling. Wade Ellis Jr.

WEDNESDAY, JANUARY 19 (continued)

3:45 p.m. -	6:00 p.m.	MAA CONTRIBUTED PAPER SESSION Association for Research on Undergraduate Mathematics Education, I
3:45 p.m. -	5:05 p.m.	MAA-YOUNG MATHEMATICIANS NETWORK PANEL DISCUSSION
4:05 p.m. -	4:25 p.m.	AWM BUSINESS MEETING
4:15 p.m. -	5:05 p.m.	MAA SPECIAL PRESENTATION Composing the history of twentieth-century mathematics.
4:30 p.m. -	6:30 p.m.	MAA MINICOURSE #3: PART A The curves and surfaces of the digital age.
4:30 p.m. -	6:30 p.m.	MAA MINICOURSE #9: PART A Generating functions: Techniques and tricks.
4:30 p.m. -	6:30 p.m.	MAA SECTION OFFICERS
4:35 p.m. -	5:25 p.m.	AMS-MAA-MSEB JOINT INVITED ADDRESS Mathematics and science education: Some roles for mathematicians and scientists. Bruce Alberts
5:00 p.m. -	6:30 p.m.	GRADUATE STUDENT RECEPTION
5:00 p.m. -	6:00 p.m.	SIGMAA RECEPTION
5:15 p.m. -	6:05 p.m.	MAA SPECIAL PRESENTATION Mathematics, computers, and other calculating instruments.
5:30 p.m. -	7:00 p.m.	AMS-MAA-SIAM JOINT COMMITTEE ON EMPLOYMENT OPPORTUNITIES WORKSHOP Making the most of the job search process.
5:30 p.m. -	7:30 p.m.	MATHEMATICAL SCIENCES INSTITUTES RECEPTION
7:15 p.m. -	8:15 p.m.	YOUNG MATHEMATICIANS NETWORK DISCUSSION Concerns of young mathematicians: A town meeting.
8:30 p.m. -	9:30 p.m.	AMS JOSIAH WILLARD GIBBS LECTURE Title to be announced. Sir Roger Penrose
9:30 p.m. -	11:00 p.m.	AWM RECEPTION

THURSDAY, JANUARY 20

7:00 a.m. -	7:30 p.m.	MATHEMATICAL SCIENCES EMPLOYMENT CENTER
7:30 a.m. -	4:00 p.m.	JOINT MEETINGS REGISTRATION
8:00 a.m. -	10:55 a.m.	AMS-MAA-MER SPECIAL SESSION ON MATHEMATICS AND EDUCATION REFORM, AMS-MAA SPECIAL SESSIONS, II
8:00 a.m. -	10:55 a.m.	Mathematics in Business, Government and Industry, I
8:00 a.m. -	10:55 a.m.	In Memory of Gian-Carlo Rota, I

AMS Special Sessions

8:00 a.m. -	10:55 a.m.	Mathematical Aspects of Concensus Theory, II
8:00 a.m. -	10:55 a.m.	Effective Methods and Commutative Algebra, II
8:00 a.m. -	10:55 a.m.	Geometric Analysis, III
8:00 a.m. -	10:55 a.m.	Invariants of Knots and 3-Manifolds, III
8:00 a.m. -	10:55 a.m.	Quantum Computation and Information, II
8:00 a.m. -	10:55 p.m.	Nonlinear Eigenvalue Problems and Applications, III
8:00 a.m. -	10:55 a.m.	Ergodic Theory and Topological Dynamics of Zd and Rd Actions, III
8:00 a.m. -	10:55 a.m.	Singularities in Algebraic and Analytic Geometry, III
8:00 a.m. -	10:55 a.m.	Integral Equations and Applications, III
8:00 a.m. -	10:55 a.m.	Operator Algebras, III
8:00 a.m. -	10:55 a.m.	Holomorphic Dynamics and Related Issues, III

THURSDAY, JANUARY 20 (continued)

8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #10: PART A Interdisciplinary lively applications projects.
8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #15: PART A The Fibonacci and Catalan numbers.
8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #4: PART A Computer-based modeling with difference equations and matrices.
8:00 a.m. -	10:00 a.m.	SIAM MINISYMPOSIUM

MAA Contributed Paper Sessions

8:00 a.m. -	10:50 a.m.	The Use of History in the Teaching of Mathematics, II
8:00 a.m. -	10:50 a.m.	Integrating Mathematics and Other Disciplines, II
8:00 a.m. -	10:50 a.m.	Innovative Uses of the World Wide Web in Teaching Mathematics, II
8:00 a.m. -	10:55 a.m.	AMS SESSIONS FOR CONTRIBUTED PAPERS
9:00 a.m. -	9:50 a.m.	AWM EMMY NOETHER LECTURE The mathematics of optimization. Margaret H. Wright
9:00 a.m. -	10:20 a.m.	MAA-PROJECT NEXT PANEL DISCUSSION Making connections with faculty in other disciplines.
9:00 a.m. -	11:00 a.m.	MAA WOMEN IN MATHEMATICS POSTER SESSION Outreach programs for women and girls in mathematics.
9:30 a.m. -	5:30 p.m.	EXHIBITS AND BOOK SALE
10:05 a.m. -	10:55 a.m.	MAA INVITED ADDRESS Looking back: An historian's perspective on American mathematics. Karen H. Parshall
11:10 a.m. -	noon	AMS-MAA-SIAM INVITED ADDRESS Speaker and title to be announced.
1:00 p.m. -	2:00 p.m.	AMS COLLOQUIUM LECTURE: LECTURE 2 Title to be announced. Curtis T. McMullen
1:00 p.m. -	3:50 p.m.	AMS-MAA-MER SPECIAL SESSION ON MATHEMATICS AND EDUCATION REFORM, IV

AMS-MAA Special Sessions

8:00 a.m. -	10:55 a.m.	Mathematics in Business, Government and Industry, II
8:00 a.m. -	10:55 a.m.	In Memory of Gian-Carlo Rota, II

AMS Special Sessions

1:00 p.m. -	3:50 p.m.	Mathematical Aspects of Concensus Theory, III
1:00 p.m. -	3:50 p.m.	Effective Methods and Commutative Algebra, III
1:00 p.m. -	3:50 p.m.	Geometric Analysis, IV
1:00 p.m. -	3:50 p.m.	Beautiful Graph Theory, III
1:00 p.m. -	3:50 p.m.	Invariants of Knots and 3-Manifolds, IV
1:00 p.m. -	3:50 p.m.	Quantum Computation and Information, III
1:00 p.m. -	3:50 p.m.	Nonlinear Eigenvalue Problems and Applications, IV
1:00 p.m. -	3:50 p.m.	Ergodic Theory and Topological Dynamics of Zd and Rd Actions, IV
1:00 p.m. -	3:50 p.m.	Singularities in Algebraic and Analytic Geometry, IV
1:00 p.m. -	3:50 p.m.	Integral Equations and Applications, IV
1:00 p.m. -	3:50 p.m.	Operator Algebras, IV
1:00 p.m. -	3:00 p.m.	MAA MINICOURSE #11: PART A Discrete dynamical systems: Mathematics, methods, and models.
1:00 p.m. -	3:00 p.m.	MAA MINICOURSE #14: PART A Modern Physics and the Mathematical World
1:00 p.m. -	3:00 p.m.	MAA MINICOURSE #5: PART A Exploring abstract algebra topics through interactive labs.
1:00 p.m. -	3:45 p.m.	SIAM MINISYMPOSIUM

THURSDAY, JANUARY 20 (continued)

MAA Contributed Paper Sessions

1:00 p.m. -	3:45 p.m.	Interdisciplinary Applications for College Algebra, II
1:00 p.m. -	3:45 p.m.	Interdisciplinary Collaborations to Improve Service Courses in Mathematics and Statistics, II
1:00 p.m. -	3:45 p.m.	The Role of Mathematicians in the Development of Mathematics Teachers and Their Students
1:00 p.m. -	3:45 p.m.	AMS SESSIONS FOR CONTRIBUTED PAPERS
1:00 p.m. -	2:20 p.m.	MAA PANEL DISCUSSION CBMS mathematics education of teachers report.
1:00 p.m. -	3:45 p.m.	MAA STUDENT PAPERS Graduate student paper session.
1:00 p.m. -	2:20 p.m.	MAA CRAFTY-CUPM-COMMITTEE ON TWO-YEAR COLLEGES PANEL DISCUSSION What does algebra mean in the twenty-first century?
2:00 p.m. -	3:45 p.m.	MAA-PROJECT NExT-YMN POSTER SESSION
2:00 p.m. -	3:45 p.m.	MAA STUDENT WORKSHOP Theorems in stone and bronze.
2:15 p.m. -	3:05 p.m.	AMS RETIRING PRESIDENTIAL ADDRESS Reflections and twists. Arthur M. Jaffe
2:30 p.m. -	3:50 p.m.	MAA SPECIAL PRESENTATION Great theorems of mathematics.
2:15 p.m. -	3:45 p.m.	AMS-MAA-MSEB JOINT PANEL DISCUSSION Projects of the Mathematical Sciences Education Board
4:00 p.m. -	6:00 p.m.	JOINT PRIZE SESSION AND RECEPTION
5:15 p.m. -	6:00 p.m.	MAA VIDEO PRESENTATION The Four Color Conjecture Theorem.
5:30 p.m. -	7:30 p.m.	MAA MINICOURSE #6: PART A Teaching with Web-based interactive modular materials.
5:30 p.m. -	6:30 p.m.	MAA COMMITTEE ON INDUSTRIAL AND GOVERNMENTAL MATHEMATICS RECEPTION Welcome reception for mathematicians working in business, industry, or government.
5:30 p.m. -	7:00 p.m.	MAA TWO YEAR COLLEGE RECEPTION
7:00 p.m. -	8:30 p.m.	MAA SPECIAL PRESENTATION The number years: A mathematical game show.

FRIDAY, JANUARY 21

7:00 a.m. -	8:00 a.m.	JOINT PI MU EPSILON AND MAA STUDENT CHAPTER ADVISORS' BREAKFAST
7:30 a.m. -	4:00 p.m.	JOINT MEETINGS REGISTRATION

AMS-MAA Special Sessions

8:00 a.m. -	10:55 a.m.	Innovative Development Programs for Teaching Assistants and Part-Time Instructors, I
8:00 a.m. -	10:55 a.m.	The History of Mathematics, I
8:00 a.m. -	10:55 a.m.	In Memory of Gian-Carlo Rota, III
8:00 a.m. -	10:55 a.m.	AMS-AWM-SIAM SPECIAL SESSION ON LINEAR ALGEBRA AND OPTIMIZATION, I

AMS Special Sessions

8:00 a.m. -	10:55 a.m.	Mathematical Aspects of Concensus Theory, IV
8:00 a.m. -	10:55 a.m.	Effective Methods and Commutative Algebra, IV
8:00 a.m. -	10:55 a.m.	Recent Advances in Complex and Harmonic Analysis, I
8:00 a.m. -	10:55 a.m.	Control Theory for Partial Differential Equations, I
8:00 a.m. -	10:55 a.m.	Beautiful Graph Theory, IV
8:00 a.m. -	10:55 a.m.	Quantum Computation and Information, IV
8:00 a.m. -	10:55 a.m.	Homotopy Theory, I
8:00 a.m. -	10:55 a.m.	Holomorphic Dynamics and Related Issues, IV

FRIDAY, JANUARY 21 (continued)

8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #12: PART B Transforming anxiety into hatred: Rethinking this standard model of reaching liberal arts students and the general public.
8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #1: PART B Mathematical finance.
8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #7: PART B Getting students involved in undergraduate research.
8:00 a.m. -	10:00 a.m.	SIAM MINISYMPOSIUM

MAA Contributed Paper Sessions

8:00 a.m. -	10:50 a.m.	Graduate Student Paper Session
8:00 a.m. -	10:50 a.m.	Looking to Our Future: Recruiting and Preparing the Next Generation of Mathematics Teachers, I
8:00 a.m. -	10:50 a.m.	Establishing and Maintaining Undergraduate Research Programs in Mathematics, I
8:00 a.m. -	10:50 a.m.	Innovations in the Use of Technology in Teaching Ordinary and Partial Differential Equations, I
8:00 a.m. -	11:00 a.m.	ASL CONTRIBUTED PAPER SESSION
8:00 a.m. -	10:55 a.m.	AMS SESSIONS FOR CONTRIBUTED PAPERS
8:00 a.m. -	11:00 a.m.	PME COUNCIL
8:15 a.m. -	7:30 p.m.	MATHEMATICAL SCIENCES EMPLOYMENT CENTER
8:30 a.m. -	10:00 a.m.	MAA COMMITTEE ON STUDENT CHAPTERS PRESENTATION Mathematical experiences for students outside the classroom
9:00 a.m. -	9:50 a.m.	AMS INVITED ADDRESS Title to be announced. Sun-Yung Alice Chang
9:00 a.m. -	11:00 a.m.	MAA POSTER SESSION Environmental mathematics.
9:00 a.m. -	10:50 a.m.	MAA COMMITTEE ON COMPUTERS IN MATHEMATICS EDUCATION PANEL DISCUSSION Pedagogical use of computer algebra in mathematics teaching.
9:00 a.m. -	10:20 a.m.	MAA PANEL DISCUSSION Quantitative literacy: National questions and local solutions.
9:30 a.m. -	5:30 p.m.	EXHIBITS AND BOOK SALE
10:05 a.m. -	10:55 a.m.	SIAM INVITED ADDRESS
11:10 a.m. -	noon	AMS-MAA-SIAM INVITED ADDRESS Stochastic differential equations in financial mathematics: From Black-Scholes to the present. George C. Papinicolaou
12:00 p.m -	2:00 p.m.	RETIREMENT LUNCHEON IN HONOR OF H. HOPE DALY
1:00 p.m. -	2:00 p.m.	AMS COLLOQUIUM LECTURE: LECTURE 3 Title to be announced. Curtis T. McMullen
1:00 p.m. -	1:50 p.m.	ASL INVITED ADDRESS

AMS-MAA Special Sessions

1:00 p.m. -	6:00 p.m.	Innovative Development Programs for Teaching Assistants and Part-Time Instructors, II
1:00 p.m. -	3:00 p.m.	History of Mathematics, II
1:00 p.m. -	6:00 p.m.	In Memory of Gian-Carlo Rota, IV
1:00 p.m. -	6:00 p.m.	AMS-AWM-SIAM SPECIAL SESSION ON LINEAR ALGEBRA AND OPTIMIZATION, II

FRIDAY, JANUARY 21 (continued)

AMS Special Sessions

1:00 p.m. -	6:00 p.m.	The Feynman Integral and Applications, I
1:00 p.m. -	6:00 p.m.	Algebraic Geometry and Commutative Algebra, I
1:00 p.m. -	6:00 p.m.	Recent Advances in Complex and Harmonic Analysis, II
1:00 p.m. -	6:00 p.m.	Control Theory for Partial Differential Equations, II
1:00 p.m. -	6:00 p.m.	Sixty Years of Mathematical Reviews
1:00 p.m. -	6:00 p.m.	Analytic Aspects of Jordan Theory, I
1:00 p.m. -	6:00 p.m.	Operator Theory, Systems Theory, and Interpolation in Several Complex Variables, I
1:00 p.m. -	6:00 p.m.	Complex Hyperbolic Geometry and Conformal Geometry of the Heisenberg Group, I
1:00 p.m. -	6:00 p.m.	the History of Topology (in honor of Ralph Krause)
1:00 p.m. -	6:00 p.m.	Difference Equations and Their Applications in Social and Natural Sciences, I
1:00 p.m. -	3:00 p.m.	MAA MINICOURSE #13: PART B Teaching contemporary statistics with active learning.
1:00 p.m. -	3:00 p.m.	MAA MINICOURSE #2: PART B Projects in precalculus, calculus, and differential equations using biology and chemistry applications.
1:00 p.m. -	3:00 p.m.	MAA MINICOURSE #8: PART B Facilitating active learning: Concrete ways to foster student participation.
1:00 p.m. -	5:00 p.m.	SIAM MINISYMPOSIUM

MAA Contributed Paper Sessions

1:00 p.m. -	3:15 p.m.	Math and Math Sciences in 2010: What Should Graduates Know?, I
1:00 p.m. -	3:45 p.m.	Teaching Statistical Reasoning, I
1:00 p.m. -	6:00 p.m.	AMS SESSIONS FOR CONTRIBUTED PAPERS
1:00 p.m. -	2:20 p.m.	MAA PANEL DISCUSSION Changing the academic culture.
1:00 p.m. -	2:30 p.m.	MAA CUPM-CRAFTY PANEL DISCUSSION Curricular reforms in client disciplines: Implications for post-calculus mathematics
1:00 p.m. -	3:00 p.m.	MAA COMMITTEE ON THE MATHEMATICAL EDUCATION OF TEACHERS POSTER SESSION Innovations in mathematics programs which benefit future teachers.
1:00 p.m. -	2:20 p.m.	MAA COMMITTEE ON THE UNDERGRADUATE PROGRAM IN MATHEMATICS PANEL DISCUSSION Mathematics and mathematical sciences in 2010: What should graduates know?
2:00 p.m. -	2:50 p.m.	ASL INVITED ADDRESS
2:15 p.m. -	3:05 p.m.	MAA INVITED ADDRESS Prime numbers: What we still don't know. Carl Pomerance
2:15 p.m. -	4:00 p.m.	NAM CONTRIBUTED PAPER SESSION
2:15 p.m. -	4:15 p.m.	RMMC BOARD OF DIRECTORS
2:30 p.m. -	4:00 p.m.	AMS COMMITTEE ON SCIENCE POLICY PANEL DISCUSSION
3:00 p.m. -	3:50 p.m.	ASL INVITED ADDRESS
3:30 p.m. -	5:00 p.m.	MAA PRESENTATIONS BY TEACHING AWARD RECIPIENTS
4:00 p.m. -	6:00 p.m.	ASL CONTRIBUTED PAPER SESSION
5:00 p.m. -	5:50 p.m.	AMS CSP AND MAA SCP GOVERNMENT SPEAKER Title and speaker to be announced
5:00 p.m. -	7:00 p.m.	MAA INFORMAL SESSION Actuarial education.
5:00 p.m. -	7:00 p.m.	MAA-ARUME SPECIAL PRESENTATION Research on undergraduate mathematics education.
5:00 p.m. -	6:30 p.m.	MAA PANEL DISCUSSION A guided tour of Project INTERMATH application projects.

FRIDAY, JANUARY 21 (continued)

5:00 p.m. -	7:00 p.m.	MAA WORKSHOP A workshop for teaching-assistant trainers.
5:00 p.m. -	8:00 p.m.	MAA-CUPM POSTER SESSION Undergraduate research student poster session.
5:00 p.m. -	7:00 p.m.	UNIVERSITY OF ILLINOIS GATHERING
6:00 p.m. -	8:00 p.m.	MAA MINICOURSE #3: PART B The curves and surfaces of the digital age.
6:00 p.m. -	8:00 p.m.	MAA MINICOURSE #9: PART B Generating functions: Techniques and tricks.
6:00 p.m. -	8:00 p.m.	NAM RECEPTION
6:30 p.m. -	7:30 p.m.	THREE ENVIRONMENTAL MATHEMATICS SKITS
7:30 p.m. -	8:20 p.m.	MAA STUDENT LECTURER, Interactive geometry on the Internet, Thomas F. Banchoff

SATURDAY, JANUARY 22

7:30 a.m. -	2:00 p.m.	JOINT MEETINGS REGISTRATION

AMS-MAA Special Sessions

8:00 a.m. -	10:55 a.m.	The History of Mathematics, III
8:00 a.m. -	10:55 a.m.	In Memory of Gian-Carlo Rota, V

AMS Special Sessions

8:00 a.m. -	10:55 a.m.	The Feynman Integral and Applications, II
8:00 a.m. -	10:55 a.m.	Algebraic Geometry and Commutative Algebra, II
8:00 a.m. -	10:55 a.m.	Recent Advances in Complex and Harmonic Analysis, III
8:00 a.m. -	10:55 a.m.	Modular Forms and Elliptic Curves, and Related Topics, I
8:00 a.m. -	10:55 a.m.	Analytic Aspects of Jordan Theory, II
8:00 a.m. -	10:55 a.m.	Operator Theory, Systems Theory, and Interpolation in Several Complex Variables, II
8:00 a.m. -	10:55 a.m.	Complex Hyperbolic Geometry and Conformal Geometry of the Heisenberg Group, II
8:00 a.m. -	10:55 a.m.	Homotopy Theory, II
8:00 a.m. -	10:55 a.m.	Difference Equations and Their Applications in Social and Natural Sciences, II
8:00 a.m. -	10:55 a.m.	Research in Mathematics by Undergraduates, I
8:00 a.m. -	10:55 a.m.	Mistaken Philosophies in Mathematics Education, I
8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #10: PART B Interdisciplinary lively applications projects.
8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #15: PART B The Fibonacci and Catalan numbers.
8:00 a.m. -	10:00 a.m.	MAA MINICOURSE #4: PART B Computer-based modeling with difference equations and matrices.

MAA Contributed Paper Sessions

8:00 a.m. -	10:50 a.m.	Looking to Our Future: Recruiting and Preparing the Next Generation of Mathematics Teachers, II
8:00 a.m. -	10:50 a.m.	Establishing and Maintaining Undergraduate Research Programs in Mathematics, II
8:00 a.m. -	10:50 a.m.	Innovations in the Use of Technology in Teaching Ordinary and Partial Differential Equations, II
8:00 a.m. -	10:00 a.m.	ASL CONTRIBUTED PAPER SESSION
8:00 a.m. -	10:55 a.m.	AMS SESSIONS FOR CONTRIBUTED PAPERS
8:30 a.m. -	5:00 p.m.	AWM WORKSHOP

SATURDAY, JANUARY 22 *(continued)*

8:30 a.m. - 10:00 a.m.	AMS COMMITTEE ON EDUCATION PANEL DISCUSSION
9:00 a.m. - 9:50 a.m.	MAA INVITED ADDRESS The Y2.1K Problem: What can the research and teaching community do to inspire a song other than "Math Suks"? Edward B. Burger
9:00 a.m. - 10:20 a.m.	MAA-CRAFTY PANEL DISCUSSION Compromise and calculus reform—calculus reform in the long run.
9:00 a.m. - 10:20 a.m.	MAA-CRUME PANEL DISCUSSION Improving mathematics education in the new century: Learning from the past, looking to the future.
2:30 p.m. - 4:00 p.m.	MAA SPECIAL PRESENTATION Mathematics across the discipline projects.
2:30 p.m. - 4:00 p.m.	Special Session for Chairs of Mathematics Departments in Comprehensive Universities, 4-year Liberal Arts and Two-year colleges
9:00 a.m. - 9:50 a.m.	NAM PANEL DISCUSSION Trends and assessments of minority students studying mathematics at the graduate level.
9:00 a.m. - 2:00 p.m.	MATHEMATICAL SCIENCES EMPLOYMENT CENTER
9:00 a.m. - 12:00 p.m.	EXHIBITS AND BOOK SALE
10:00 a.m. - 10:50 a.m.	ASL INVITED ADDRESS
10:00 a.m. - 10:50 a.m.	NAM BUSINESS MEETING
10:05 a.m. - 10:55 a.m.	AMS INVITED ADDRESS Dynamics of quadratic polynomials. Mikhail Lyubich
11:10 a.m. - 11:40 a.m.	MAA BUSINESS MEETING
11:45 a.m. - 12:15 p.m.	AMS BUSINESS MEETING
1:00 p.m. - 1:50 p.m.	NAM WILLIAM W. S. CLAYTOR LECTURE Notes on quantum electrodynamics on a negatively curved surface and the Selberg-Maass trace formula. Floyd Williams.
1:00 p.m. - 1:50 p.m.	ASL INVITED ADDRESS

AMS-MAA Special Sessions

1:00 p.m. - 5:00 p.m.	The History of Mathematics, IV
1:00 p.m. - 5:00 p.m.	In Memory of Gian-Carlo Rota, VI

AMS Special Sessions

1:00 p.m. - 5:00 p.m.	The Feynman Integral and Applications, III
1:00 p.m. - 5:00 p.m.	Algebraic Geometry and Commutative Algebra, III
1:00 p.m. - 5:00 p.m.	Recent Advances in Complex and Harmonic Analysis, IV
1:00 p.m. - 5:00 p.m.	Modular Forms and Elliptic Curves, and Related Topics, II
1:00 p.m. - 5:00 p.m.	Analytic Aspects of Jordan Theory, III
1:00 p.m. - 5:00 p.m.	Operator Theory, Systems Theory, and Interpolation in Several Complex Variables, III
1:00 p.m. - 5:00 p.m.	Complex Hyperbolic Geometry and Conformal Geometry of the Heisenberg Group, III
1:00 p.m. - 5:00 p.m.	Homotopy Theory, III
1:00 p.m. - 5:00 p.m.	Difference Equations and Their Applications in Social and Natural Sciences, III
1:00 p.m. - 5:00 p.m.	Research in Mathematics by Undergraduates, II
1:00 p.m. - 5:00 p.m.	Mistaken Philosophies in Mathematics Education, II
1:00 p.m. - 3:00 p.m.	MAA MINICOURSE #11: PART B Discrete dynamical systems: Mathematics, methods, and models.

SATURDAY, JANUARY 22 *(continued)*

1:00 p.m. - 3:00 p.m.	MAA MINICOURSE #14: PART B Modern Physics and the Mathematical World
1:00 p.m. - 3:00 p.m.	MAA MINICOURSE #5: PART B Exploring abstract algebra topics through interactive labs.

MAA Contributed Paper Sessions

1:00 p.m. - 5:00 p.m.	Math and Math Sciences in 2010: What Should Graduates Know?, II
1:00 p.m. - 5:00 p.m.	Teaching Statistical Reasoning, II
1:00 p.m. - 5:00 p.m.	Research on the Use of Hand-Held Technology in Teaching Mathematics
1:00 p.m. - 5:00 p.m.	AMS SESSIONS FOR CONTRIBUTED PAPERS
1:00 p.m. - 2:20 p.m.	MAA PANEL DISCUSSION If "less is more" in the K–12 curriculum, then which "less" do we choose?
1:00 p.m. - 2:20 p.m.	MAA SPECIAL PRESENTATION Stamping through the millennium.
1:00 p.m. - 2:00 p.m.	MAA SPECIAL PRESENTATION School mathematics CDs from Singapore.
2:00 p.m. - 2:50 p.m.	ASL INVITED ADDRESS
2:15 p.m. - 3:05 p.m.	AMS INVITED ADDRESS The Riemann-Hilbert Problem and integrable systems. Alexander R. Its
2:30 p.m. - 4:30 p.m.	ASSOCIATION FOR RESEARCH ON UNDERGRADUATE MATHEMATICS EDUCATION CONTRIBUTED PAPERS, II
2:30 p.m. - 4:00 p.m.	MAA SPECIAL PRESENTATION Doctoral programs in mathematics education—Results from a national conference.
3:00 p.m. - 3:50 p.m.	ASL INVITED ADDRESS
3:15 p.m. - 5:15 p.m.	MAA MINICOURSE #6: PART B Teaching with Web-based interactive modular materials.
7:00 p.m. - 10:00 p.m.	Dinner in Honor of Retiring MAA Director Marcia P. Sward

Washington, DC Advance Registration/Housing Form

Name _____
(please write name as you would like it to appear on your badge)

Mailing Address _____

_____

Telephone _____ Fax _____

Email Address _____
(Acknowledgment of this registration will be sent to the email address given here,
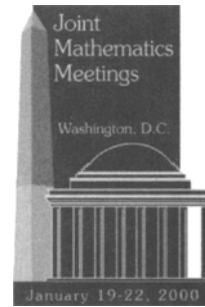unless you check this box: *Send by US Mail* ☐)

Badge Information: Affiliation for badge _____

Nonmathematician guest badge name _____
(please note charge below)

Membership
✓ all that apply
AMS ☐
ASA ☐
ASL ☐
AWM ☐
CMS ☐
MAA ☐
NAM ☐
SIAM ☐
YMN ☐

Joint Mathematics Meetings
Washington, D.C.
January 19-22, 2000

☐ **I DO NOT want my program and badge to be mailed to me on 12/15/99.**

Registration Fees

Joint Meetings

	by Dec 20	at mtg	Subtotal
☐ Member AMS, ASL, CMS, MAA, SIAM	$165	$215	
☐ Nonmember	$256	$332	
☐ Graduate Student	$ 35	$ 45	
☐ Undergraduate Student	$ 20	$ 26	
☐ High School Student	$ 2	$ 5	
☐ Unemployed	$ 35	$ 45	
☐ Temporarily Employed	$125	$140	
☐ Developing Countries Special Rate	$ 35	$ 45	
☐ Emeritus Member of AMS or MAA	$ 35	$ 45	
☐ High School Teacher	$ 35	$ 45	
☐ Librarian	$ 35	$ 45	
☐ Nonmathematician Guest	$ 5	$ 5	

$ _____

AMS Short Course: *Quantum Computation (1/17–1/18)*

☐ Member, Nonmember	$ 80	$ 95	
☐ Student, Unemployed, Emeritus	$ 35	$ 45	

$ _____

AMS Short Course: *Environmental Mathematics (1/17–1/18)*

☐ Member, Nonmember	$ 80	$ 95	
☐ Student, Unemployed, Emeritus	$ 35	$ 45	

$ _____

MAA Short Course: *Fuzzy Mathematics (1/17–1/18)*

☐ Member of MAA	$125	$140	
☐ Nonmember	$175	$190	
☐ Student, Unemployed, Emeritus	$ 50	$ 60	

$ _____

MAA Minicourses (see listing in text)

I would like to attend: ☐ One Minicourse ☐ Two Minicourses
Please enroll me in MAA Minicourse(s) #_____ and/or #_____
In order of preference, my alternatives are: #_____ and/or #_____
Prices: $80 for Minicourses #1-6 and $55 for Minicourses #7-16

$ _____

Employment Center

Applicant résumé forms and employer job listing forms will be
on e-MATH and in *Notices* in September.

Employer—First Table	$200	$250	
☐ Regular ☐ Self-scheduled ☐ Information Table			
Employer—Second Table	$ 50	$ 75	
☐ Regular ☐ Self-scheduled ☐ Information Table			
☐ Employer—Posting Only	$ 50	N/A	
☐ Applicant (all services)	$ 40	$ 75	
☐ Applicant (Winter List & Message Ctr only)	$ 20	$ 20	

$ _____

Events with Tickets

Opening Banquet $43 #___Regular #___Veg #___Kosher
Hope Daly Luncheon $28 #___Regular #___Veg #___Kosher
Marcia Sward Dinner $46 #___Regular #___Veg #___Kosher

$ _____

Other Events (no charge)

☐ Workshop: *Teaching Assistant Trainers* (1/21)
☐ MAA Student Workshop: *Theorems in Stone & Bronze* (1/20)
☐ Graduate Student Reception (1/19)

Total for Registrations and Events $ _____

Payment

Registration & Event Total (total from other column) $ _____

Hotel Deposit (only if paying by check) $ _____

Total Amount To Be Paid $ _____
(Note: A $5 processing fee will be charged for each returned check or invalid credit card.)

Method of Payment
☐ Check. Make checks payable to the AMS. Checks drawn on foreign banks must be in equivalent foreign currency at current exchange rates.
☐ Credit Card. VISA, MasterCard, AMEX, Discover (no others accepted).

Card number: _____

Exp. date: _____ Zipcode of credit card billing address: _____

Signature: _____

Name on card: _____

☐ Purchase order #_____ (please enclose copy)

Registration for the Joint Meetings is not required for the Short Courses, but it is required for the Minicourses and the Employment Center.

Other Information

Mathematical Reviews field of interest # _____
How did you hear about this meeting? Check one: ☐ Colleague(s) ☐ *Focus*
☐ *Notices* ☐ SIAM News ☐ Special Mailing ☐ WWW
☐ I am a mathematics department chair.
☐ Please do not include my name on any promotional mailing list.
☐ Please ✓ this box if you have a disability requiring special services. ♿

Mail to:

Mathematics Meetings Service Bureau (MMSB)
P. O. Box 6887
Providence, RI 02940-6887
Fax: 401-455-4004
Questions/changes call: 401-455-4143 or 1-800-321-4267 x4143

Deadlines

For room lottery and/or résumés/job descriptions printed
in the *Winter Lists*, return this form by: **Nov. 8, 1999**
For housing reservations, badges/programs mailed: **Nov. 22, 1999**
For housing changes/cancellations through MMSB: **Dec. 17, 1999**
For advance registration for the Joint Meetings, Employment
Center, Short Courses, MAA Minicourses, & Tickets: **Dec. 20, 1999**
For 50% refund on banquets, cancel by: **Jan 5, 2000***
For 50% refund on advance registration, Minicourses &
Short Courses, cancel by: **January 14, 2000***
*no refunds after this date

Hotel Reservations

To ensure accurate assignments, please rank hotels in order of preference by writing 1, 2, 3, etc., in the spaces at the left of the form and by circling the requested room type and rate. If the rate or the hotel requested is no longer available, you will be assigned a room at a ranked or unranked hotel at a comparable rate. Participants are urged to call the hotels directly for details on suite configurations, sizes, etc. Reservations at the following hotels must be made through the MMSB to receive the convention rates listed. All rates are subject to a 14.5% sales occupancy tax. **Guarantee requirements: First night deposit by check (add to payment on reverse of form) or a credit card guarantee.**

☐ Deposit enclosed ☐ Hold with my credit card   Card Number _____ Exp. Date _____ Signature _____

Date and Time of Arrival _____ **Date and Time of Departure** _____

Name of Other Room Occupant _____ **Arrival Date** _____ **Departure Date** _____ **Spouse** ☐ **Child** ___ **(give age)**

Order of choice	Hotel	Single	Double 1 bed	Double 2 beds	Triple 2 beds	Triple 2 beds w/cot	Quad 2 beds	Quad 2 beds w/cot	Suites Starting rates
	Marriott Wardman Park (co-headquarters)								
	Superior	$139	$149	$149	$169	$169	$189	$189	$350
	Regular	$126	$136	$136	$156	$156	$176	$176	$350
	Student	$114	$114	$114	$134	$134	$154	$154	N/A
	Omni Shoreham (co-headquarters)								
	Regular	$119	$119	$119	$139	$164	$139	$164	$229
	Student	$108	$108	$108	$128	$153	$128	$153	N/A
	Hotel Sofitel	$99	$99	$99	$119	$119	$139	$139	$155
	Doyle Washington	$99	$99	$99	$114	$129	$129	$144	$400
	Washington Plaza								
	Regular	$92	$92	$92	$112	$132	$132	$152	$165
	Student	$82	$82	$82	$102	$122	$122	$142	N/A
	Howard Johnson Plaza Hotel & Suites	$79	$79	$79	$89	$100	$99	$110	(all suites)
	Doyle Normandy	$79	$79	$79	$94	$104	$109	$119	N/A
	Days Inn Connecticut Avenue	$79	$79	$79	$89	$99	$99	$109	$134

Special Housing Requests:

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

☐ Other requests: _____

☐ If you are a member of a hotel frequent-travel club and would like to receive appropriate credit, please include the hotel chain and card number here: _____

If you are not making a reservation, please check off one of the following:

☐ I plan to make a reservation at a later date.

☐ I will be making my own reservations at a hotel not listed.   Name of hotel: _____

☐ I live in the area or will be staying privately with family or friends.

☐ I plan to share a room with _____, who is making reservations.

THE MATHEMATICAL ASSOCIATION OF AMERICA

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Mathfest 2000

LOS ANGELES
AUGUST 3-5

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THE MATHEMATICAL ASSOCIATION OF AMERICA

How to Obtain Hotel Accommodations

Room Lottery: (See the *How to Register in Advance* section to learn how to qualify for this year's lottery.) Here are last year's winners:

Radu Balan, David Dewsnap, Stefania Gabelli, Patrick Headley, Mike Hitchman, Alan Hopenwasser, Nora Hopkins, David Hunter, Candace Kent, Colleen Kirk, Davina Kunvipusilkul, Agnes Rash, Darin Stephenson, Candace Todd, Melanie Wahlberg

$ Rates:

- subject to 14.5% sales/occupancy tax
- only certified students or unemployed mathematicians qualify for student rates
- see ARH Form for detailed rate structure of each property

⚓ Hotel Information:

- children free, where appropriate, in existing beds only
- limited availability of cribs, but provided free unless otherwise noted
- check-in: 3:00 p.m. / check-out: noon
- distances to Marriott and Omni Shoreham (co-headquarters and location of sessions) will be indicated under each caption
- distances to Metro Subway System indicated under each caption
- parking rates listed below are daily and include in/out privileges
- windows do not open in most hotels unless otherwise indicated

General Instructions: Participants must register in advance in order to obtain hotel accommodations through the Mathematics Meetings Service Bureau (MMSB). Special meeting rates at the hotels listed below can be obtained only by making reservations through the MMSB. Reservations mistakenly taken by hotels directly may be subject to an increased rate. Participants interested in suites are urged to call the hotels directly for details on configurations, prices, etc.; however, all hotel reservations can only be made by completing the Housing section of the **Advance Registration/Housing (ARH) Form** by **November 22.** Hotels will accept reservations, based on availability, directly after **December 29.**

$ Room Payments/Cancellations:

- all major credit cards
- personal checks with personal ID and/or credit card backup at all properties, except the Doyle Normandy (does not accept checks).
- 48-hour cancellation policy for all hotels except Marriott (24 hours), the Hotel Sofitel (72 hours) and Days Inn (4:00 p.m.on day of arrival)

♿ Special Services:

- all hotels are working toward being in compliance with the Americans with Disabilities Act (ADA); problem properties are indicated below
- special needs should be clearly indicated on the ARH form
- nonsmoking rooms available at all properties

$ Guarantee Requirements:

- one night deposit by check or
- credit card: VISA, MC, AMEX (cards may be charged one night deposit)

Deadlines:

- room lottery qualification: November 8
- reservations through MMSB: November 22
- changes/cancellations through MMSB: **December 17 (Days Inn – December 10)**
- convention rates after **December 29 based on availability only**

| Marriott Wardman Park (co-headquarters)	Omni Shoreham (co-headquarters)	Hotel Sofitel	Doyle Washington	Washington Plaza
(Across street from Omni Shoreham) (.5 block to Metro/on Red Line)	(Across street from Marriott) (.5 block to Metro/on Red Line)	(.5 mile to Marriott and Omni) (4 blocks to Metro/on Red Line)	(1 mile to Marriott and Omni) (1 block to Metro/on Red Line)	(1.5 miles to Marriott and Omni) (3 blocks to Metro/transfer needed)
2660 Woodley Road at Connecticut Avenue N.W. Washington, D.C. 20008 (202) 328-2000	2500 Calvert Street, N.W. Washington, D.C. 20008 (202) 234-0700	1914 Connecticut Avenue, N.W. Washington, D.C. 20009 (202) 797-2000	1500 New Hampshire Avenue, N.W. Washington, D.C. 20036 (202) 483-6000	10 Thomas Circle, N.W. Washington, D.C. 20005 (202) 842-1300
superior single - $139, double - $149 regular single - $126, double - $136 student single/double - $114	single/double - $119 student single/double - $108	single/double - $99	single/double - $99	single/double - $92 student single/double - $82
restaurants; lobby bar; outdoor pools; fitness center; business center; gourmet deli; gift shop; parking - $14 (self), $17 (valet); in all rooms – coffee maker, hair dryer, iron/ironing board, desk, dataport, some windows open; all student rooms have two beds; children under 17 years free; start-up checks are not acceptable for payment.	restaurant; bars/lounges; outdoor pool; fitness room; shops; business center; gift shop; parking - $14 (self), $17 (valet); in all rooms - hair dryer, iron/ironing board, desk, dataport, bathrobe, some windows open on higher floors; children under 18 years free.	**not recommended for physically challenged;** limited amount of rooms; café; bar; gift shop; parking - $17 (valet); rooms are oversized, in all rooms – separate studios, safes, iron/ironing board, hair dryer, desk, modem, windows open; children under 16 years free; late cancellations will be charged one night.	restaurant; bar; health club; business center; gift shop; parking - $16.80 (self); in all rooms – hair dryer, coffee maker, iron/ironing board, dataport, windows open; children under 17 years free.	**not recommended for physically challenged with wheelchairs;** restaurants; lounge/bar; game room; fitness center; outdoor pool; gift shop; parking - $14.56 (self or valet); in all rooms – maid service twice daily; hair dryer, coffee maker, iron/ironing board, dataport; children under 16 years free; early check-out after arrival will be charged one night.

Howard Johnson Plaza & Suites
(1.35 miles to Marriott and Omni)
(5 blocks to Metro/transfer needed)

1430 Rhode Island Avenue, N.W.
Washington, D.C. 20005
(202) 462-7777
single/double - $79

all-suites hotel; restaurant; lounge; fitness center; outdoor pool; laundry room; game room; parking - $11 (valet); in most suites – two double beds and kitchen; coffee maker, iron/ironing board; dataport, safe, some windows open slightly; children under 16 years free.

Days Inn – Connecticut Avenue
(1 mile to Marriott and Omni)
(1.5 blocks to Metro/on Red Line)

4400 Connecticut Avenue, N.W.
Washington, D.C. 20008
(202) 244-5600
single/double - $79

restaurant not on property, located next door; located near a variety of restaurants; parking - $6 (self); in all rooms – safe, coffee maker, windows open, modem; children under 17 years free.

Doyle Normandy
(.5 mile to Marriott and Omni)
(1 block to Metro/on Red Line)

2118 Wyoming Avenue
Washington, D.C. 20008
(202) 483-1350
single/double - $79

limited amount of rooms; restaurant; lounge/bar; parking - $11.20 (self, no valet); no pool; most rooms have one bed (queen-sized), doubles have twin-sized beds, coffee maker, mini-refrigerator, safe in room, iron/ironing board, voice mail, windows open; all children under 17 years free.

Attention Students!

As an alternative housing choice, the following student hostel is located in Washington, D.C.:

Hostelling International Washington, DC
(1.75 miles to Marriott and Omni)
(3 blocks to Metro/on Red Line)
1009 11th Street, N.W.
Washington, D.C. 20001
(202) 783-2333; FAX: 202-737-1508
dchostel@erols.com

Rates, including tax, range from $20 to $23 per night, depending on status of hostel membership. All rooms must be reserved directly with the hostel. Please call the number listed above for further information.
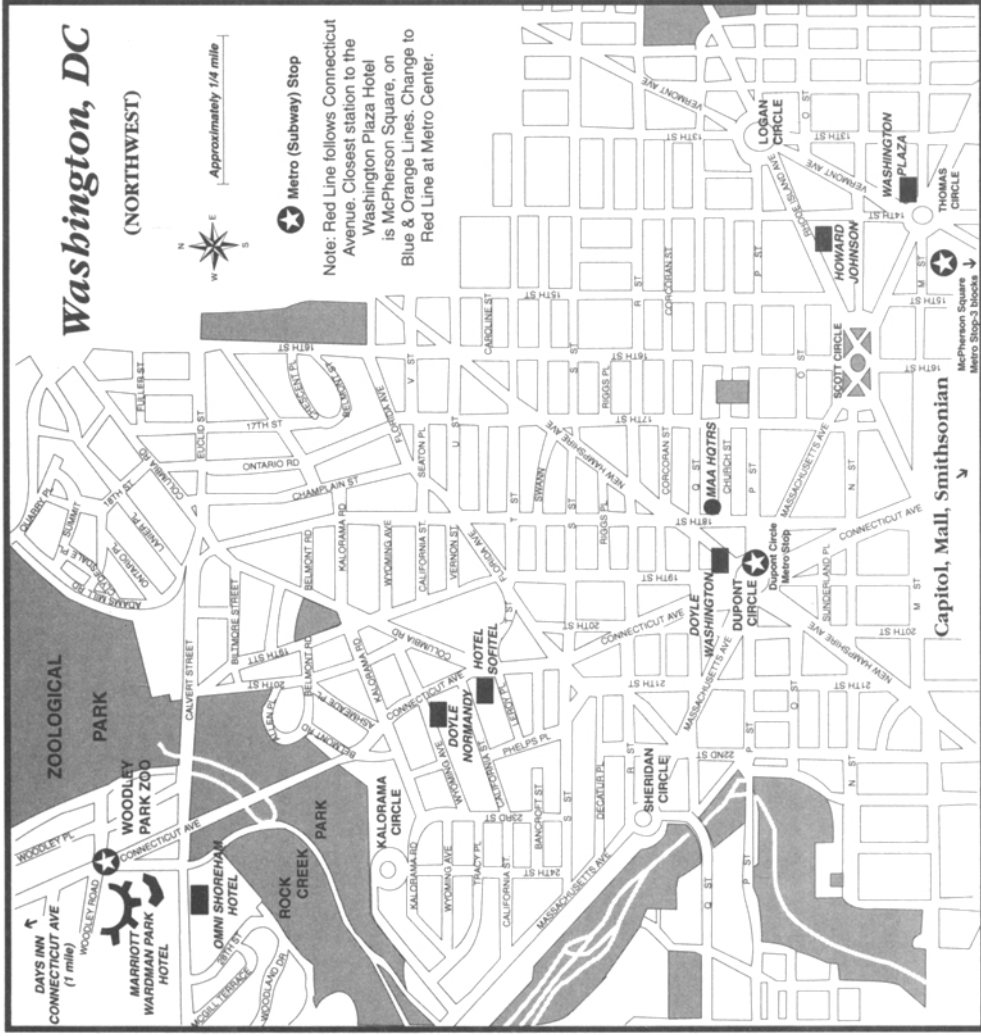
EMPLOYMENT OPPORTUNITIES

CALIFORNIA

Soka University of America, Aliso Viejo
MATHEMATICS:
Rare faculty opportunity to help build a new undergraduate liberal arts university. The successful candidate will join our faculty planning team one year before opening to participate in collaborative and multi-disciplinary curriculum development. S/he will develop, teach, and oversee the General Education Math program, teach University Core courses and research practica. Applicants should have an earned doctorate and broad knowledge in the field, and should have at least three years undergraduate teaching experience. The position is open to applicants from all ranks. SUA employs the single academic title, "Professor," and offers faculty a continuous appointment. Please see our website at www.soka.edu for further information about our institution and this opportunity. Applications should include cover letter, CV, and names and contact information for three references. Deadline: December 1, 1999. SUA is an equal opportunity employer. Send to: Gail Thomas, Dean of Faculty, Soka University of America, 85 Argonaut, Suite 200, Aliso Viejo, CA 92656

ILLINOIS

University of Illinois at Chicago
Dept. of Mathematics, Statistics, and
Computer Science
The Department has active research programs in all areas of pure mathematics, computational and applied mathematics, combinatorics and computer science, statistics, and mathematics education. See http://www.math.uic.edu for more information.

Applications are invited for a tenure track or tenured position, effective August 21, 2000, in Computer Science, broadly defined. Current areas of interest include algorithms, coding theory, combinatorial optimization, combinatorics, complexity, computational mathematics, computational statistics, cryptography, data mining, graph theory, language design, learning theory, logic, numerical analysis, and universal algebra. The position is initially budgeted at the Assistant Professor level, but candidates with a sufficiently outstanding research record may be considered at higher levels. Applicants must have a Ph.D. or equivalent degree in mathematics, computer science, or a related field, an outstanding research record, and evidence of strong teaching ability, with particular interest in programming and algorithms. Salary negotiable.

Send vita and direct 3 letters of recommendation, indicating the position being applied for, to **Henri Gillet, Head; Dept. of Mathematics, Statistics, and Computer Science; University of Illinois at Chicago; 851 S. Morgan (M/C 249); Chicago, IL 60607.** No e-mail applica-

tions will be accepted. To ensure full consideration, materials must be received by **December 21, 1999**. Minorities, persons with disabilities, and women are particularly encouraged to apply. UIC is an AA/EOE.

University of Illinois at Chicago
Dept. of Mathematics, Statistics, and
Computer Science
The Department has active research programs in all areas of pure mathematics, computational and applied mathematics, combinatorics and computer science, statistics, and mathematics education. See http://www.math.uic.edu for more information.

Applications are invited for the following positions, effective August 21, 2000.

First, a tenure track or tenured position. Candidates in all areas of interest to the Department will be considered. The position is initially budgeted at the Assistant Professor level, but candidates with a sufficiently outstanding research record may be considered at higher levels. Applicants must have a Ph.D. or equivalent degree in mathematics, computer science, statistics, mathematics education or related field, an outstanding research record, and evidence of strong teaching ability. Salary negotiable.

Second, a Research Assistant Professorship. This is a non-tenure track position normally renewable annually to a maximum of three years. The position carries a teaching load of one course per semester, with the requirement that the incumbent play a significant role in the research life of the Department. The salary for AY 2000-2001 for this position is expected to be $40,000. Applicants must have a Ph.D. or equivalent degree in mathematics, computer science, statistics, mathematics education or related field, and evidence of outstanding research potential.

Send vita and direct 3 letters of recommendation, indicating the position being applied for, to **Henri Gillet, Head; Dept. of Mathematics, Statistics, and Computer Science; University of Illinois at Chicago; 851 S. Morgan (M/C 249); Chicago, IL 60607.** No e-mail applications will be accepted. To ensure full consideration, materials must be received by **December 21, 1999**. Minorities, persons with disabilities, and women are particularly encouraged to apply. UIC is an AA/EOE.

MICHIGAN

GRAND VALLEY STATE UNIVERSITY
Grand Valley State University, in Allendale, Michigan, is accepting applications for the position of Assistant Professor of Mathematics, with employment to begin August 2000.

Qualifications are a Ph. D. in Mathematics; demonstrated excellence in teaching undergraduate mathematics; strong teaching recommendations; commitment to continued scholarly and professional growth; and commitment to engaging stu-

dents in mathematics beyond the classroom. All candidates must be interested in teaching courses throughout the curriculum, including precalculus mathematics. We are especially interested in candidates with a preference for teaching service courses for our engineering and computer science programs.

For more information, including important details on how to apply, see our position description at www.gvsu.edu/mathstat/MATH99.html. For more information about our department, go to www.gvsu.edu/mathstat. Completed applications must be received by December 3, 1999.

MISSISSIPPI

MISSISSIPPI STATE UNIVERSITY
Head
Department of Mathematics and Statistics
Nominations and applications are invited for the position of Professor and Head of the Department of Mathematics and Statistics at Mississippi State University, a Doctoral I land-grant institution. The department is housed in the College of Arts and Sciences and offers programs for the B.A., B.S., and M.S. in Mathematics, the M.S. in Statistics, and the Ph.D. in Mathematical Sciences. The department currently has 39 faculty members, some having cooperative research programs with faculty in the NSF Engineering Research Center. For more information, visit http://www.msstate.edu/Dept/Math.

The applicant should have an earned doctorate in any area of Mathematical Sciences, strong administrative skills, an established research record, and a commitment to excellence in teaching, service, research, and other scholarly activities.

Screening of applicants will begin October 18, 1999, and will continue until the position is filled. The position is available July 1, 2000. Send nominations or applications and resumes, including names, addresses, and telephone numbers of at least three references, to:

> Stephen B. Klein, Chair
> Mathematics and Statistics Head
> Search Committee
> P.O. Box 6161
> Mississippi State, MS 39762

Mississippi State University is an AA/EOE.

NEW YORK

The State University of New York, Buffalo
State College
Mathematics Professor
The State University of New York, Buffalo State College seeks three mathematics assistant professors to teach a typical course load of 9 hours; grow professionally through scholarly activities such as doing research, writing grants, and submitting publications; assist in the continuing development of our programs; participate in departmental/college committee work; and advise students. The individual may teach under-

graduate mathematics, undergraduate and graduate mathematics education courses, and supervise student teachers. Required: Ph.D. or Ed.D., specializing in mathematics education, with a strong background in mathematics; ability to teach undergraduate and graduate mathematics education courses; to supervise student teachers; evidence of effective teaching ability; potential for scholarship (including good oral and written communication skills); and knowledge of current issues of mathematics education. Preferred: Certification and experience teaching school mathematics; experience with using computer/calculator in the classroom; and interest in middle school mathematics teaching. Review of applications will begin September 30, 1999 and will continue until the positions are filled. Send resume, vitae, and three references to: Dr. Tom Giambrone, Chair, Mathematics Department, Buffalo State College, 1300 Elmwood Ave., Buffalo, NY 14222 Buffalo State College is an affirmative action, equal opportunity employer. The College serves nearly 11,000 students and offers 155 undergraduate and graduate programs.

NORTH CAROLINA

DAVIDSON COLLEGE
Applications are invited for a regular appointment in the Mathematics Department, with an initial two-year appointment at the Assistant Professor level to begin August 1, 2000. Consult the "Information for Applicants for Faculty.

Davidson College is an Equal Opportunity Employer; women and minorities are encouraged to apply

ELON COLLEGE
Mathematics Department
Applications are invited for a permanent position at the assistant professor level beginning no later than mid-August 2000. The position is open beginning in February. Candidates must have a Ph.D. degree in mathematics and experience teaching at the undergraduate level. Preference will be given to candidates with expertise in discrete mathematics, applied mathematics, or statistics but all areas will be considered. Responsibilities include teaching at all levels, curriculum development with a focus on the use of technology, and continued professional growth. Ability to direct undergraduate research projects is a plus. Elon is a private, primarily undergraduate, comprehensive college with approximately 3900 students located between Burlington and Greensboro and within an hour's drive of several colleges and universities. Elon is dedicated to quality teaching with an emphasis on experiential and inquiry-based learning. This is an excellent opportunity to work in a newly renovated facility with an exceptional group of colleagues. Send letter of application, resume, statements of teaching philosophy and research goals, copies of transcripts, and three letters of support to: Dr. Rosalind Reichard, Dean of Sci-

ences and Mathematics, 2163 Campus Box, Elon College, NC 27244. Please note in your letter if you are interested in joining us in February. Elon College seeks to increase diversity among its faculty and staff. Minority applicants are strongly encouraged to apply. Elon College is an Equal Employment Opportunity Employer.

OREGON

PORTLAND STATE UNIVERSITY
Department of Mathematical Sciences
Assistant Professor Positions
Applications are invited for tenure-track assistant professor positions in applied mathematics, statistics, and a possible open position beginning September 16, 2000. Applicants are expected to have completed a doctoral degree in a mathematical science and show evidence of outstanding research potential and a strong commitment to excellence in teaching. Preference will be given to applicants with a commitment to interdisciplinary research and developing collaborations with industry. Further program information is available on our home page (http://www.mth.pdx.edu). Qualified applicant's applications materials should include (1) the AMS Cover Sheet for Academic Employment, (2) a curriculum vitae, and (3) three letters of recommendation. Send materials to

Search Committee
Department of Mathematical Sciences
Portland State University
P.O. Box 751
Portland, OR 97207-0751
Email: search@mth.pdx.edu

All materials should be received by December 31, 1999. Portland State University is an Affirmative Action/Equal Opportunity Institution. Applications from women and minorities are especially welcome.

TEXAS

SOUTHWESTERN UNIVERSITY
Department of Mathematics and Computer Science
The Department of Mathematics and Computer Science of Southwestern University invites applications for a tenure track position at the assistant professor level beginning August 2000. Candidates must possess a Ph.D. in Mathematics or Statistics, a commitment to excellence in undergraduate teaching, and an active interest in scholarly pursuits. The normal teaching load is three courses per semester. Southwestern University is a selective, undergraduate institution committed to a broad-based liberal arts and sciences education. Affiliated with the United Methodist Church, it has over 1,200 students and a history of stable enrollment. Southwestern's endowment of more than $340 million ranks among the highest per student of undergraduate institutions in the country. The University is located in Georgetown, Texas, 28 miles north of Austin. For more information, visit our web site

at www.southwestern.edu. To apply, send letter of application, curriculum vitae, a statement of teaching philosophy, and three current letters of reference to: Southwestern University, Faculty Recruitment Office, Dept. of Mathematics and Computer Science, Job #9913, P.O. Box 770, Georgetown, Texas, 78627-0770. At least one of the letters of reference should address teaching. In order to receive full consideration, applications should be received by December 10, 1999. EOE/M/F

SECTION MEETINGS

Allegheny Mountain October 10, 1999 Indiana University of Pennsylvania, Indiana, PA

Eastern PA & Delaware November 6, 1999 - Elizabethtown College, Elizabethtown, PA

Florida March 3-4, 2000 University of South Florida, Tampa, FL

Illinois March 30-April 1, 2000 North Central College, Naperville, IL

Indiana October 16, 1999 Valparaiso University, Valparaiso, IN

Iowa April, 2000 Simpson College, Indianola, IA

Kentucky March 31 - April 1, 2000 Eastern Kentucky University, Richmond, KY

MD-DC-VA November 12-13, 1999 Loyola College, Baltimore, MD

Missouri April 14-15, 2000 Central Missouri State University, Warrensburg, MO

Nebraska-Southeast South Dakota April 2000 Nebraska Wesleyan, Lincoln, NE

New Jersey November 13, 1999 New Jersey City University, Jersey City, NJ

North Central October 22-23, 1999 University of Minnesota at Morris, Morris, MN

Northeastern November 19-20, 1999 Bradford College, Haverhill, MA

Northern California February 26, 2000 San Francisco State University

Ohio October 22-23, 1999 College of Wooster, Wooster, OH

Oklahoma-Arkansas March 31-April 1, 2000 Arkansas Tech University, Russellville, AR

Rocky Mountain April 7-8, 2000 Colorado State University, Ft. Collins, CO
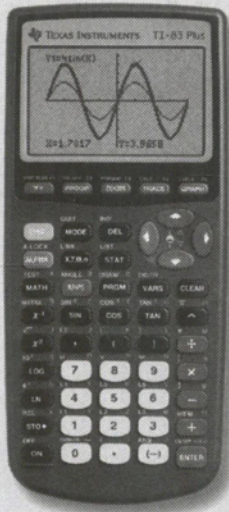
Southeastern March 10-11, 2000 UNC-Charlotte, Charlotte, NC

**Southern California** March 4, 2000 University of California, Los Angeles

Southwestern April 7-8, 2000 Arizona State University, Tempe, AZ

Seaway November 5-6, 1999 Adirondack Community College

Texas April 6-8, 2000 University of Texas at Austin, Austin, TX

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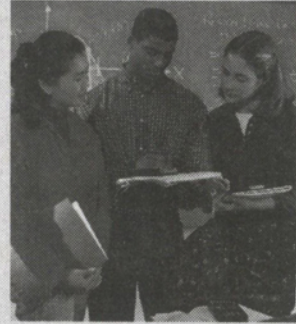
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