
BASED ON THE NOVEL BY EDWIN A. ABBOTT
Martin Sheen
Tony Hale
Kristen Bell
Joe Estevez
FLATLAND
A JOURNEY OF MANY DIMENSIONS.
SPECIAL Mathfest SCREENING
FRIDAY, AUGUST 3, 4 PM
Producer SETH CAPLAN, Director JEFFREY TRAVIS
Director of Animation DANO JOHNSON, Executive Producer WILL WALLACE
Film Advisors TOM BANCHOFF, JOHN BENSON, JON FARLEY, and SARAH GREENWALD
www.flatlandsthemovie.com
See page 14 for details

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On the cover: The Rotunda is the focal point of the 2.5 acre outdoor plaza at the recently-completed San Jose City Hall complex, approximately 4 blocks from MathFest headquarters.

Photograph courtesy of iStockPhoto.com

Dear Colleagues,

MathFest 2007 in San Jose promises to offer an abundance of opportunities to get together and share mathematical ideas with old friends and new acquaintances. Many MAA members and committees worked hard to put together a program that has something to offer everyone, and we have added a few special events to what is already a great program.

The San Jose MathFest marks 20 years since the first MAA student paper sessions began at summer meetings. In 1987, the MAA held an "experimental" student paper session that included just four talks. Last year, 60 papers were presented in MAA student paper sessions. Pi Mu Epsilon will, once again, be meeting with us in San Jose. Including their sessions, we expect to have well over 100 student papers this year! To celebrate this 20th anniversary, there will be special student lectures and programs, and the MAA Committee on Student Activities and Chapters will host an ice cream social on Saturday night, following the ever-popular PME Frame Lecture.

The MAA is celebrating 2007 as the Year of Euler, in honor of the tercentennial of his birth. To mark this exciting occasion, the Euler Society is meeting with us and has organized a variety of special events at this year's MathFest.

The Society for Mathematical Biology will meet with us at MathFest. Look for a number of special events focusing on biology throughout the program, highlighted by the MAA-SMB Joint Invited Address by Carlos Castillo-Chavez, Arizona State University, "On the Dynamics and Evolution of Emergent and Re-emergent Diseases: From Tuberculosis to SARS to the Flu."

I am sure you will agree that we have lined up a great program for MathFest 2007. I look forward to seeing you in San Jose.

Sincerely,

Joseph A. Gallian
President

MathFest 2007

Celebrating 20 years of Student Papers

Math Jeopardy

Organizers: Mike Berry, John Harris, and Mike Mossinghoff

Friday, 8-9:30 pm

MAA Student Lecture

Splitting the Rent: Fairness Problems, Fixed Points, and Fragmented Polytopes

Francis Edward Su

Friday, 1:00 pm-1:50 pm

MAA Undergraduate Student Activities Session

Origami, Polyhedra, and Mathematics

Eve Torrence

Saturday, 1:00 pm - 1:50 pm

Pi Mu Epsilon J. Sutherland Frame Lecture

Negafibonacci Numbers and the Hyperbolic Plane

Donald E. Knuth

Saturday, 8:00 pm - 8:50 pm

For more information on student events see page 18.

MathFest 2007

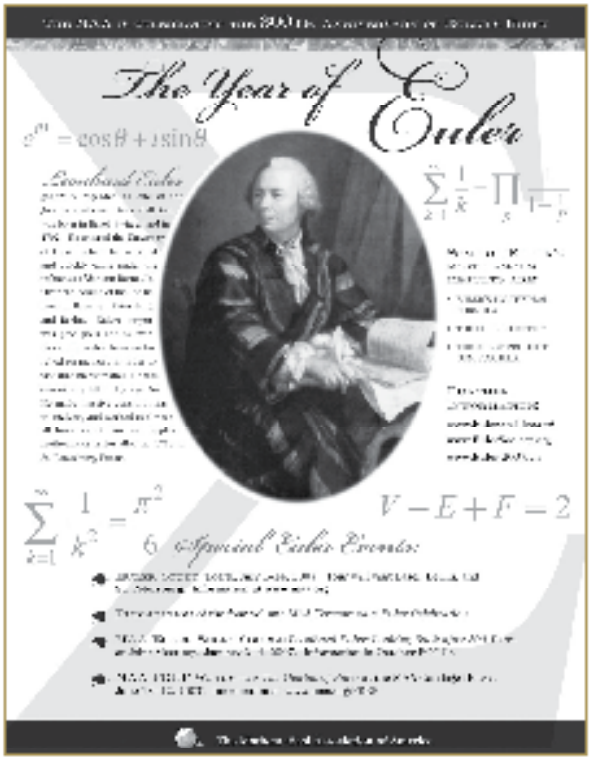
Society Notes

The Euler Society

Founded in 2002, the Euler Society has encouraged a thorough examination of Euler's life, his discoveries across the mathematical discipline, his role in the European Enlightenment, his influence on the Berlin and the Imperial Russian Academies of Science and the attendant rise to European power status of Russia and Prussia, and his rich legacy. The 2007 meeting of the Euler Society will be held at MathFest, and all sessions will be open to MathFest attendees. For a complete list of sessions see page 25.

Invited Speaker
EULER IN THREE ACTS

William Dunham, Muhlenberg College
Sunday, August 5, 1:00 pm – 1:50 pm



Visit www.maa.org/euler for more on The Year of Euler.

The Society for Mathematical Biology

The Society for Mathematical Biology has been the leading international organization in mathematical biology for the past 30 years, with members from more than 50 countries. The Society offers members an opportunity to participate in a rapidly changing field that is having influence on areas from public policy for health-related issues, to conservation of natural resources, to genomics and proteomics. The Society's 2007 Annual Meeting will take place in the Fairmont Hotel July 31-August 3, fully integrating meetings with MathFest on Friday, August 3. SMB is also co-organizing this year's Short Course, "Implementing Biology Across The Mathematics Curriculum." For a complete list of sessions see page 25.

Visit www.maa.org/mtc for more on math and biology.

Joint MAA-SMB Invited Address
On the Dynamics and Evolution of Emergent and Re-emergent Diseases: From Tuberculosis to SARS to the FLU

Carlos Castillo-Chavez, Arizona State University
Friday, 8:30 am – 9:20 am

Invited Addresses

EARLE RAYMOND HEDRICK LECTURE SERIES

THE MATHEMATICS OF DYNAMIC RANDOM NETWORKS

Jennifer Tour Chayes, Microsoft

During the past decade, dynamic random networks have become increasingly important in communication and information technology. Vast, self-engineered networks, such as the Internet, the World Wide Web, and Instant Messaging Networks, have facilitated the flow of information and served as media for social and economic interaction. I will present simple mathematical models that allow us to explain many observed properties of these networks, e.g., the scale-free nature of their degree distribution and the ease of information transmission (including transmission of viruses), and the first-to-market advantage for early nodes on these networks. I will also present a new general theory of limits of sequences of networks and discuss what this theory may tell us about dynamically growing networks.

LECTURE 1: MODELS OF THE INTERNET AND THE WORLD WIDE WEB

Friday, August 3, 10:30 am – 11:20 am

Although the Internet and the World Wide Web have many distinct features, both have a self-organized structure rather than the engineered architecture of previous networks, such as phone or transportation systems. As a consequence of this self-organization, the Internet and the World Wide Web have a host of properties that differ from those encountered in engineered structures: a broad *power-law* distribution of connections (so-called "scale-invariance"), short paths between two given points (so-called "small world phenomena" like "six degrees of separation"), strong clustering (leading to so-called "communities and subcultures"), robustness to random errors, but vulnerability to malicious attack, etc. During this lecture, I will first review some of the distinguishing observed features of these networks and then review the recent models that have been devised to explain these features. The basic models have their origins in graph theory and statistics.

LECTURE 2: MATHEMATICAL BEHAVIOR OF RANDOM SCALE-INVARIANT NETWORKS

Saturday, August 4, 9:30 am – 10:20 am

This lecture will be devoted to a mathematical analysis of some of the standard models of random scale-invariant networks, including models of the Internet, the World Wide Web, and social networks. I will show how these models can be rewritten in terms of a Polya urn representation, which will allow us to prove that the models exhibit some of the observed properties of real-world networks, including scale-invariance and vulnerability to attacks by viruses. Using these models, I will also examine various strategies for containment of viruses and epidemics in technological and social networks.

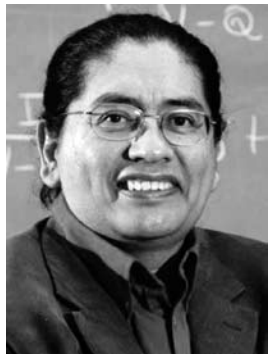
LECTURE 3: CONVERGENT SEQUENCES OF NETWORKS

Sunday, August 5, 9:30 am – 10:20 am

In the final lecture of this series, I will abstract some of the lessons of the previous lectures. Inspired by dynamically growing networks, I will ask how we can characterize general sequences of graphs in which the number of nodes grows without bound. In particular, I will define various natural notions of convergence for a sequence of graphs and show that, in the case of dense graphs, many of these notions are equivalent. I will also give a construction for a function representing the limit of a sequence of graphs. I'll review examples of some simple growing network models and illustrate the corresponding limit functions.

JOINT MAA-SMB INVITED ADDRESS

ON THE DYNAMICS AND EVOLUTION OF EMERGENT AND RE-EMERGENT DISEASES: FROM TUBERCULOSIS TO SARS TO THE FLU



Carlos Castillo-Chavez, Arizona State University

Friday, August 3

8:30 am – 9:20 am

The role of mass transportation, immigration, tourism, demographic growth, and bioterrorism are but some of the engines behind disease dynamics and disease evolution. Examples using recent epidemic outbreaks will be used to highlight the role of mathematics in the evaluation of the impact of these epidemic drivers. Mathematics will also be used to highlight the relevance of "borderless" health policy perspectives.

MAA INVITED ADDRESS

MANAGING NATURAL RESOURCES: MATHEMATICS MEETS POLITICS, GREED, AND THE ARMY CORPS OF ENGINEERS

Louis J. Gross
University of Tennessee

Friday, August 3

9:30 am – 10:20 am

The availability of satellite-based remote sensing, computers capable of handling large databases, rapid communication networks, and small radio sensors able to transmit details on individual animals has fostered the development of computational ecology. By combining mathematical and computer models of natural systems with geographically explicit details of the biotic and abiotic components of the environment, we can compare alternative virtual futures to better plan sustainable ecosystems. Opportunities exist for mathematicians to develop and apply models for harvest regulation, control of invasive species, fire management, and disease and pest control. This optimistic view of the potential for computational methodologies to aid in managing natural systems is tempered by the reality that factors other than

scientific best practices are involved. I will discuss a range of applications from relatively simple models for invasive plant control to models applied to long-term planning of an immense restoration effort in the Everglades of South Florida.

MAA STUDENT LECTURE

SPLITTING THE RENT: FAIRNESS PROBLEMS, FIXED POINTS, AND FRAGMENTED POLYTOPES

Francis Edward Su
Harvey Mudd College
Friday, August 3
1:00 pm – 1:50 pm

"How do you divide the rent among roommates fairly?" My friend's dilemma was a question that mathematics could answer, both elegantly and constructively. We show how it and other *fair division* questions — the most famous of which is the problem of Steinhaus: how do you cut a cake fairly? — motivate a host of *combinatorial fixed point theorems* and problems about polytopes. They provide excellent examples of how mathematics can address an old class of problems in new ways and, conversely, how problems in the social sciences can motivate new mathematics—where topology, geometry, and combinatorics meet social applications and where research by undergraduates has played a big role.

MAA INVITED ADDRESS

REVENGE OF THE TWIN PRIME CONJECTURE

Daniel Goldston
San Jose State University
Saturday, August 4
8:30 am – 9:20 am

Two years ago Janos Pintz, Cem Yildirim, and I proved that there always exist primes that are very close together — very close meaning much closer than the average distance between neighboring primes. Our method also proves that if the primes are well distributed in arithmetic progressions, then one can obtain results not too far from the twin prime conjecture. For example, if the Elliott-Halberstam conjecture is true then there are infinitely many pairs of primes with difference 16 or less. With these successes, I was hopeful that before too long our method could be pushed to unconditionally show that there are infinitely often pairs of primes closer than some fixed bounded distance, that is, bounded gaps, a giant step towards the twin prime conjecture. In this talk I will discuss the method and why perhaps further progress towards bounded gaps and the twin prime conjecture may difficult, although I will be delighted to be proved wrong.

JAMES R. LEITZEL LECTURE

ON BEING A MATHEMATICAL CITIZEN: THE NATURAL NExT STEP

Lynn A. Steen, St. Olaf College
Saturday, August 4
10:30 am – 11:20 am

As public concerns about education and competitiveness evolve, so, too, must the responsibilities of collegiate mathematicians, including especially the participants and alumni of Project NExT. No longer can we afford to focus only on our students, our department, our college, or our research. Mathematics at all levels and of all kinds is at the center of major challenges to the nation's education and economy. These issues challenge us all to be good mathematical citizens in this evolving national landscape.

NAM DAVID BLACKWELL LECTURE

PUZZLING PROBABILITIES FEATURING THE STREET GAME OF CRAPS

Jack Alexander, Miami Dade College
Saturday, August 4, 1:00 pm – 1:50 pm

The study of probability has, for some time now, been quite intriguing to me. Part of this fascination is fueled by the fact that some probability challenges require strategies that employ various aspects of mathematics to obtain a solution. This presentation uses calculus, algebra, geometry, and graphing, as well as probability theory. To illustrate this contention, this presentation will give analytic solutions and computer simulations for three probability problems that I find quite interesting. These problems are: Count Buffon's Needle Problem; The Triangle from a Line Segment Problem; and The Street Game of Craps. The Street Game of Craps was detailed in a problem from a book entitled *Introduction to the Theory of Statistics*, 3rd Edition, 1963. This text was written by Alexander M. Mood, Franklin A. Graybill, and Duane C. Boes. It was edited by David Blackwell and Herbert Solomon. The book was part of a series of probability and statistics texts published by McGraw-Hill.

PME J. SUTHERLAND FRAME LECTURE

NEGAFIBONACCI NUMBERS AND THE HYPERBOLIC PLANE

Donald E. Knuth, Professor Emeritus of the Art of Computer Programming, Stanford University
Saturday, August 4, 8:00 pm – 8:50 pm

All integers can be represented uniquely as a sum of zero or more "negative" Fibonacci numbers $F_{-1} = 1, F_{-2} = -1, F_{-3} = 2, F_{-4} = -3$, provided that no two consecutive elements of this infinite sequence are used. The NegaFibonacci representation leads to an interesting coordinate system for a classic infinite tiling of the hyperbolic plane by triangles, where each triangle has one 90° angle, one 45° angle, and one 36° angle.

AWM-MAA ETTA Z. FALCONER LECTURE

TBA

Sunday, August 5, 8:30 am – 9:20 am

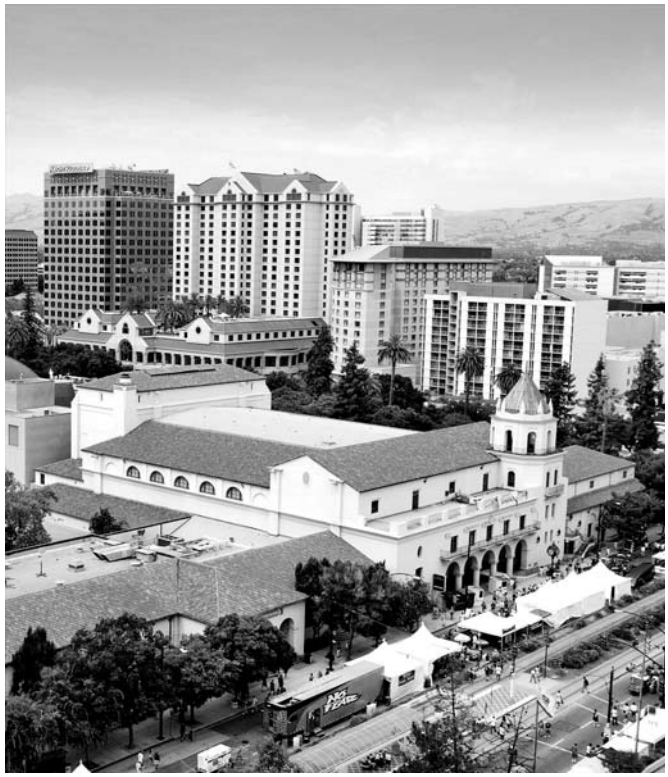
MAA INVITED ADDRESS

LAGRANGE, SUFFICIENT REASON, AND SPACE

Judith V. Grabiner, Flora Sanborn Pitzer Professor of Mathematics
Pitzer College

Sunday, August 5
10:30 am – 11:20 am

In 1806, Joseph-Louis Lagrange began to read a memoir "proving" Euclid's parallel postulate to the Académie des Sciences in Paris, but stopped, saying, as the story goes, "I have to think about this some more." We'll look at Lagrange's (still unpublished) Paris manuscript on this subject and place this activity in the context of his mathematical career. We'll also look at how the ideas in this manuscript are related to Lagrange's philosophy of mathematics, Newtonian mechanics, and Leibniz's Principle of Sufficient Reason. Finally, we'll reflect on what this episode tells us about eighteenth-century attitudes toward geometry and space.



San Jose skyline. Photograph courtesy of San Jose Visitor and Convention Bureau.

Invited Paper Sessions

MANIFOLDS WITH DENSITY AND PARTITIONING PROBLEMS

Frank Morgan, Williams College
Friday, August 3, 1:00 pm – 4:00 pm

Perelman's stunning 2006 proof of the million-dollar Poincaré Conjecture needed to consider not just manifolds but "manifolds with density" (like the density in physics you integrate to compute mass). Yet much of the basic geometry of such spaces remains unexplored. Partitioning problems provide a good place to start. Speakers will include Frank Morgan, Williams College; Michael Hutchings, University of California at Berkeley; Neil Hoffman, University of Texas at Austin; members of the Williams College undergraduate research Geometry Group; and Joseph Corneli, PlanetMath.org.

MATHEMATICAL QUESTIONS IN BIOINFORMATICS

Jennifer Galovich, St. John's University
Laurie Heyer, Davidson College
Friday, August 3, 1:00 pm – 4:00 pm

The speakers and their topics in this session will include Laurie Heyer, Davidson College, "Molecular Computing"; Laura Salter Kubatko, The Ohio State University, "Phylogenetics"; Glen Tesler, University of California at San Diego, "Genome Rearrangements"; Stephen Billups, University of Colorado at Denver, "Microarray Analysis"; and Stephen Hartke, University of Illinois, " DNA Codewords Words and DeBruijn Sequences." The session is sponsored by the MAA SIGMAA on Mathematical and Computational Biology.

GEMS IN APPLIED MATHEMATICS

Kay Somers, Moravian College
Saturday, August 4, 8:30 am – 10:30 am

The speakers and topics in this session will be Annalisa Crannell, Franklin & Marshall College, "Size Matters"; Michael A. Jones, Montclair State University, "A Voting Theory Approach to Golf Scoring"; Nathan Shank, Moravian College, "Unsolved Gems in Random Graphs"; and Jennifer Wilson, Eugene Lang College, The New School for Liberal Arts, "Algebraic Models in Kinship Systems."

ENVIRONMENTAL MODELING

Ben Fusaro, Florida State University
Saturday, August 4, 8:30 am – 10:30 am

RESEARCH WITH UNDERGRADUATES

Mario Martelli, Claremont McKenna College
Saturday, August 4, 1:00 pm – 3:30 pm

The speakers will present research in Mathematics completed in collaboration with undergraduates and, possibly, submitted for publication to a professional journal. In some cases, the articles may have already been accepted. Each speaker will describe in detail how the research was done and will highlight the undergraduates' participation. The speakers and the titles of their talks are as follows: Estelle Basor, California Polytechnic San Luis Obispo, "Eigenvalues of Random Matrices"; Frank Morgan, Williams College, "The Double Bubble Theorem"; Mike O'Neill, Claremont McKenna College, "An Inverse Theorem in Additive Number Theory"; and Aldolpho Rumbos, Pomona College, "Solvability of Semi-Linear Two-Point Boundary Value Problems."

PRIME NUMBERS – NEW DEVELOPMENTS ON ANCIENT PROBLEMS

Dan Goldston, San Jose State University
and Carl Pomerance, Dartmouth College
Saturday, August 4, 1:00 pm – 4:00 pm

DIFFERENCE EQUATIONS

Sarah J. Mabrouk, Framingham State College
Sunday, August 5, 8:30 am – 10:30 am

GRAPH THEORY IDEAS FOR UNDERGRADUATE RESEARCH

Aparna Higgins, University of Dayton
Sunday, August 5, 1:00 pm – 4:00 pm

This session will highlight some topics in graph theory that are intriguing to undergraduate researchers. The speakers have successfully guided undergraduate students in research by directing undergraduate research in intensive summer experiences or in undergraduate thesis activities. The session will provide insight into what makes a topic in graph theory suitable for investigations by undergraduates and will provide additional avenues of research.

The Tech is a museum of technology in San Jose. Photo courtesy of the San Jose Visitor and Convention Bureau.

ATTRACTING AND RETAINING STUDENTS TO MATHEMATICS PROGRAMS VIA OUTREACH

Sangeeta Gad, University of Houston-Downtown
Friday, August 3, 8:30 am – 10:30 am

The migration away from the science, technology, engineering, and mathematics (STEM) fields starts in middle school and continues until the undergraduate years. We risk our nation's leadership in high-technology if the declining college enrollments in STEM remain unchecked. This session seeks to highlight innovative outreach programs from the higher education institutes to stir interest in mathematics as well as STEM fields and innovative programs to retain students in mathematics programs. The presenters may illustrate

- Summer or year – round programs for middle schools
- Summer or year – round programs for high schools
- Bridge programs
- Retention programs in higher education for currently enrolled students

It is hoped that presenters will discuss the impact of the programs measured by the statistical data.

MATHEMATICS OF SPORTS AND GAMES

Howard Lewis Penn, United States Naval Academy
E. Lee May, Salisbury University
Friday, August 3, 8:30 am – 10:30 am

The world of sports provides numerous applications that can enliven many mathematics courses, including but not limited to probability, statistics and discrete mathematics. Likewise, many examples exist in various games. The session is seeking applications in board games, card games and quiz shows, among others. Papers that show a connection between mathematics and any of these fields are welcome.

EMERGING TECHNOLOGIES FOR MATHEMATICS TEACHING

Lila F. Roberts, Georgia College & State University
Amy F. Kelley, Georgia College & State University
Friday, August 3, 1:00 pm – 3:00 pm

This session will focus on innovative ways to incorporate emerging technologies into undergraduate mathematics instruction and invites papers that describe implementations and/or assessments of implementations of technologies that were not originally designed or intended for educational purposes. Examples of such technologies include but are not limited to, iPods and other MP3 devices, digital cameras, PDAs, Pocket PCs, or GPS receivers. Speaker proposals should describe at least two of the following: (1) how an emerging technology was implemented into mathematics instruction; (2) the effect of the technology on student learning and/or attitudes toward mathematics; (3) lessons learned in the implementations; (4) assessment strategies for emerging technologies. The session is sponsored by the Committee on Technologies in Mathematics Education (CTiME).

CURRENT ISSUES IN MATHEMATICS EDUCATION

Carol Vobach, University of Houston-Downtown
Nancy Leveille, University of Houston-Downtown
Friday, August 3, 1:00 pm – 3:00 pm

This session invites papers dealing with issues in mathematics education courses for pre-service and in-service teachers at the elementary, middle, and secondary school levels. Topics of interest might include: new or nonstandard courses; online courses or activities; community involvement variations such as service learning or online tutoring; alignment of courses to national or state standards; interactions with local universities and/or school districts; courses for masters of arts in teaching programs and grants to support mathematics education programs. In particular, we welcome reports on evaluation and assessment of teacher training programs. It is hoped that a wide variety of presentations will provide interest in topics related to mathematics education.

INNOVATIVE IDEAS FOR TEACHING CONCEPTS IN AN INTRODUCTORY STATISTICS COURSE

Murray H. Siegel, South Carolina Governor's School for Science & Mathematics, Hartsville, South Carolina
Friday, August 3, 3:15 pm – 5:15 pm

An ever-increasing number of college students is taking introductory statistics courses, and the number of high school students taking Advanced Placement Statistics has been growing at a steady rate. Many of these students have minimal background in statistical concepts.

- What innovative ideas have been found to enhance learning among these students?
- Statistical software and hand-held technology can present graphical displays, but how are they best utilized?
- Do simulations provide useful insights, or are they just hands-on activities that make the class "fun" without broadening understanding?
- Journal articles recommend using data drawn from today's newspaper, but what criteria should be used in selecting topical data for analysis?

This session invites papers that highlight innovative ideas that have been effective, as well as caveats resulting from those that produced less-than-glowing outcomes. All ideas, activities, and methods should be immediately useful to someone teaching Advanced Placement Statistics at a high school or an introductory statistics course at a two-year or four-year college or university. The session is sponsored by the SIGMAA on Statistical Education.

BIOMATHEMATICS IN THE FIRST TWO YEARS

Timothy D. Comar, Benedictine University
Saturday, August 4, 8:30 am – 10:30 am

Reports including *BIO 2010: Transforming Undergraduate Education for Future Research Biologists* (National Research Council, 2003) and *Math and BIO 2010: Linking Undergraduate Disciplines* (L. A. Steen, ed., MAA, 2005) emphasize that aspects of biological research are becoming more quantitative and that there are needs to introduce life science students to a greater array of mathematical and computational techniques and to integrate mathematics and biological content at the undergraduate level. This session is designed to highlight successful implementations of biomathematics courses or modules designed for students during their first two years of undergraduate

study; efforts to recruit students into biomathematics courses; involvement of these students in biomathematics research, and assessment of how these courses and activities impact the students. Topics may include issues related to the design of biomathematics courses, integration of biology into existing mathematics courses; collaborations between mathematicians and biologists that have led to new courses, modules, or undergraduate research projects; collaborations between two-year and four-year institutions; effective use of technology in introductory biomathematics courses; and assessment issues. We seek presenters from two-year institutions, liberal arts colleges, and universities of all sizes. We encourage submissions from teams of mathematicians and biologists. The session is sponsored by the SIGMAA on Computational and Mathematical Biology.

GRAPH THEORY AND APPLICATIONS

Ralucca Michelle Gera, Naval Postgraduate School
Richard M. Low, San Jose State University
Saturday, August 4, 8:30 am – 10:30 am

This is a standard graph theory session. Graph theory provides mathematical abstraction of situations that can model pairwise relations between objects. Some of the topics of interest are counting problems, coloring problems, topological problems, distance in graphs, labeling, oriented graphs, algorithms and trees, as well as applications to related fields. In the context of this theme, we solicit original contributions in all relevant areas of graph theory, including, but not limited to, graph coloring, route problems, covering problems, optimization of network flows and transportation, domination in graphs and digraphs, algebraic graph theory, Ramsey theory, spectral graph theory, and complexity.

GETTING STUDENTS TO DISCUSS AND TO WRITE ABOUT MATHEMATICS

Murphy Waggoner, Simpson College
Saturday, August 4, 1:00 pm – 5:00 pm

This session invites papers about assignments and projects that require students to communicate mathematics through oral presentations, classroom discussions, and writing. These assignments/projects can come from any area of mathematics, including courses for mathematics or related majors, mathematics service courses and mathematics education courses. Each presenter is encouraged to discuss how the use of the assignment/project helped students to improve their understanding of mathematics, their communication of mathematics, and their attitude toward mathematics. Of particular interest are innovative implementations of such assignments/projects, including peer review of student writing or presentations, use of mathematical writing or presentations as part of service learning; rubrics for assessing student writing and presentations, using student writing or oral presentations as part of program assessment, and programs to help students improve written and oral communication of mathematics.

MATHEMATICS AND THE ARTS

Douglas E. Norton, Villanova University
Saturday, August 4, 1:00 pm – 3:00 pm

This session invites presentations of results on the connections between mathematics and the arts, from geometry to origami to group theory on quilts; from perspective in paintings to patterns and plane tilings; from music to maps, stitching to symmetries and tessellations to textual analysis; weaving fabrics to fashioning words, from dance to decorative arts, theater and film to theorems and fractals, beadwork to baskets to batiks to Bessel functions, and architecture to academic applications of the arts in algebra. We invite explorations of old and new connections, from ancient Islamic tilings to contemporary folk arts to sculptures of mathematical structures, as well as the use of new technologies to illustrate links between mathematics and the various arts. Mathematical concepts inform artistic presentation, while artistic presentation can illuminate mathematics. New technologies often provide new possibilities. Altogether, new approaches, new tools, and new looks at old examples provide new opportunities for working with and teaching mathematics, as well as providing modes of outreach to the general public about the often under-appreciated place of mathematics in relation to the arts, culture, and society. The session is sponsored by the SIGMAA on Mathematics and the Arts.

FUN AND INNOVATIVE TEACHING TECHNIQUES FOR AN ABSTRACT ALGEBRA CLASS

Sharon Clarke, Pepperdine University
Andrew Hetzel, Tennessee Tech University
Saturday, August 4, 3:15 pm – 5:15 pm

Abstract algebra is, in many cases, one of the first "rigorous proofs" courses that an undergraduate student will take. As a result, students are sometimes intimidated by this course and find it difficult to make the transition from computational mathematics to abstract mathematics. This session will focus on fun and innovative ways of teaching some of the topics covered in an abstract algebra course. This session is a follow-up to our very well-received session of the same title at MathFest.

TEACHING CALCULUS IN HIGH SCHOOL: IDEAS THAT WORK

Dan Teague
North Carolina School of Science and Mathematics
Susan Schwartz Wildstrom
Walt Whitman High School
Sunday, August 5, 8:30 am – 10:30 am

Most mathematics majors now have the opportunity to take their introductory calculus course while in high school. SIGTAHSM is committed to assisting teachers in making the mathematical experiences of their students as challenging and exciting as possible. This session will serve as a forum in which to share activities and approaches to teaching calculus that work well with high school students. Of particular interest are projects and investigations, activities, demonstrations, teaching strategies and techniques that bring the class and the mathematics to life for the students. The session is sponsored by the SIGMAA on Teaching Advanced High School Mathematics.

STUDENT RESEARCH IN INDUSTRIAL MATHEMATICS

Bem Cayco, San Jose State University
Tim Hsu, San Jose State University
Sunday, August 5, 8:30 am –10:30 am

In recent years, several colleges and universities have started programs to give students the opportunity to do research on problems in the mathematical sciences coming from industry, government agencies, and businesses. In this session, we invite faculty and students to describe their experiences with student industrial research at a variety of institutions. Specifically, we invite presentations from (1) faculty, describing what it is like to supervise student industrial research, especially research done by teams of students, and (2) students, describing how industrial research programs changed their view of mathematics and affected their mathematical careers. (Please note that student presentations on their actual research should instead be submitted to the contributed paper session on student research).

CHALLENGES AND SUCCESSFUL STRATEGIES IN TEACHING A NUMERICAL ANALYSIS COURSE

Olga Brezhneva, Miami University, Ohio
Sunday, August 5, 8:30 am – 10:30 am

Teaching a numerical analysis course is a challenge. Students taking numerical analysis usually have a variety of majors, backgrounds, and levels of preparation prior to the course. Moreover, students coming to the course have varying expectations and interests. Faced with these challenges, the instructor seeks teaching strategies that motivate student learning, benefit all students attending the course, and enrich student knowledge of both mathematics and computations. The session invites presentations on all aspects of teaching numerical analysis: challenges, strategies, projects, demonstrations, innovative techniques, and fun activities.

TEACHING A HISTORY OF MATHEMATICS COURSE

Joel Haack, University of Northern Iowa
Amy Shell-Gellasch, Pacific Lutheran University
Sunday, August 5, 2:00 pm - 5:00 pm

More and more college mathematics teachers with little or no background in the history of mathematics are being asked to teach a history of mathematics course. This contributed papers session presents ideas for developing and teaching a history of mathematics course. We encourage discussion of courses aimed at all levels, as well as general and topic-specific courses. This session is a follow up to a session held at the JMM in 2004. The session is sponsored by the SIGMAA on the History of Mathematics.

ADVANCES IN RECREATIONAL MATHEMATICS

Paul R. Coe, Dominican University
Kristen Schemmerhorm, Dominican University
Sunday, August 5, 1:00 pm – 3:00 pm

There have been many recent advances in recreational mathematics. For the purposes of this session, the definition of recreational mathematics will be a broad one. The primary guideline used to determine suitability of a paper will be the understandability of the mathematics. For example, if the mathematics in the paper is commonly found in graduate programs, then it would probably be considered unacceptable. Novel applications, as well as new approaches to old problems, are welcome. Solutions using computers are also welcome. Examples of use of the material in the undergraduate classroom are encouraged.

GENERAL CONTRIBUTED PAPER SESSIONS

Sarah J. Mabrouk, Framingham State College
Friday, Saturday, and Sunday, August 3-5, 8:30 am – 10:30 am and 1:00 pm – 3:00 pm, 3:15 pm – 5:15 pm

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

To submit abstracts to any Contributed Paper Session visit http://www.maa.org/abstracts.

CALL FOR STUDENT PAPERS

The deadline for receipt of applications for student papers is Friday, June 15, 2007. Students may not apply for funding from both MAA and PME. Every student paper session room will be equipped with a standard overhead projector, a computer projector (presenters must provide their own laptops), and two screens. Each student talk is 15 minutes in length.

MAA Sessions

Students who wish to present at the MAA Student Paper Sessions at MathFest 2007 in San Jose, California, must be sponsored by a faculty advisor familiar with the work to be presented. Some funding to cover transportation costs (up to $600) for student presenters who are members of the MAA is available. At most one student will be funded from each institution and each REU. All presenters are expected to take full part in the meeting and attend activities sponsored for students on all three days of the conference. Nomination forms and more detailed information for the MAA Student Paper Sessions will be available at http://www.maa.org/students/undergrad/ on March 1, 2007.

Pi Mu Epsilon Sessions

Pi Mu Epsilon student speakers must be nominated by their chapter advisors. Application forms for PME student speakers will be available by March 1, 2007, on the PME Web site http://www.pme-math.org or can be obtained from PME Secretary-Treasurer Dr. Leo Schneider <leo@jcu.edu>. A PME student speaker who attends all the Pi Mu Epsilon activities is eligible for transportation reimbursement up to $600, and up to five speakers per chapter may be eligible for full or partial reimbursement.

WHAT THEY THINK IS GOOD TEACHING

Frank Morgan, Williams College
Diana Davis, Williams College
Friday, August 3, 9:00 am – 10:20 am

A panel of undergraduates talk about what makes for good teaching. The session will be moderated by Frank Morgan and is sponsored by the Committee on the Undergraduate Program in Mathematics.

MATHEMATICS OUTREACH FOR UNDERREPRESENTED GROUPS

Elizabeth (Betsy) Yanik, Emporia State University
Friday, August 3, 9:00 am – 10:20 am

This forum will focus on specific outreach programs that have been successful in encouraging students from underrepresented groups to continue studying mathematics. The programs provide students with role models from numerous, exciting careers that are mathematically based. Various program formats will be presented (e.g., after school clubs, one-day conferences, summer camps, etc.). The session is sponsored by the Committee on the Participation of Women.

QUANTITATIVE LITERACY, MATHEMATICS, AND CIVIC ENGAGEMENT: TEACHING THE IMPORTANCE OF QUANTITATIVE LITERACY FOR A HEALTHY DEMOCRACY

Robert G. Root, Lafayette College
Kira Hamman, Hood College
Maura B. Mast, University of Massachusetts Boston
Friday, August 3, 9:00 am – 10:20 am

This panel session will consist of presentations on pedagogy associated with courses investigating the interaction between quantitative literacy/mathematics and civic engagement. Potential topics include voting rights, voting fraud, gerrymandering, and one person/one vote; the impact of opinion polls on the democratic process; financial exploitation of the quantitatively illiterate; statistical misconceptions and their consequences in politics and policy; mathematics education as a determinant of economic status; and statistics and health policy. Panelists will be encouraged to share with the interested public curricular materials for units in a general education course linking mathematics to social justice, including reading lists, study guides, discussion guidelines, and assignments. The session is sponsored by the SIGMAA on Quantitative Literacy.

CALCULUS IN HIGH SCHOOL: WHAT IS HAPPENING? WHAT DO WE NEED TO KNOW?

David Bressoud, Macalester College
Dan Teague, North Carolina School of Science and Mathematics
Friday, August 3, 1:00 pm – 2:20 pm

New data is in on dual-enrollment programs in calculus, on relative numbers of students taking calculus in high school versus college, on the number of students taking calculus before their senior year of high school, and on what mathematics they take in their remaining time in high school. This panel will present what we know and solicit suggestions for what we need to know and how we can learn it if we are to meet the challenges of the movement of calculus instruction into the high school curriculum. Panelists will include David Bressoud, Macalester College; David Lutzer, College of William & Mary; Dan Teague, North Carolina School of Science and Mathematics; and Ann Watkins, California State University Northridge. The session is sponsored by the SIGMAA on Teaching Advanced High School Mathematics.

MAA-SUMMA: NATIONAL RESEARCH EXPERIENCES FOR UNDERGRADUATES PROGRAM

William Hawkins, MAA and the University of the District of Columbia
Robert Megginson, University of Michigan
Friday, August 3, 1:00 pm – 2:20 pm

The MAA has supported small research teams of a faculty member and four minority undergraduates at 33 sites since summer 2004 with funds from NSF, NSA, and The Moody's Foundation. Site directors will give presentations about their projects and their students' research. There will be ample time for discussion and questions. More information about the MAA National Research Experiences for Undergraduates Program (NREUP) can be found at http://www.maa.org/nreup. Sponsored by the CMPM (Committee on Minority Participation) and MAA-SUMMA (Strengthening Underrepresented Minority Mathematics Achievement).

MAA SECTION OFFICERS MEETING

Friday, August 3, 2:30 pm – 5:00 pm

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

BEYOND EMAIL: USING WEB-BASED TOOLS FOR COLLABORATIVE WORK

Magnhild Lien, California State University Northridge
Michael Pearson, Director of Programs and Services, MAA
Ivars Peterson, Director of Publications for Journals and Communications, MAA
Friday, August 3, 2:30 pm – 3:50 pm

Ten years ago, simply having a Web page with links to some print materials and perhaps homework assignments for your classes was cutting edge. The times, they are a-changing. New tools such as wikis and Web-based document-sharing services allow multiple contributors to not only view but participate in the construction of Web sites, proposals, class projects, etc. Using such tools requires that we rethink our work habits and develop appropriate protocols and etiquette that foster productive collaboration. This session will encourage the audience to participate in an examination of some successful and perhaps some not-so-successful, efforts, and to help envision possible strategies for improvement. Panelists will include Mike May, St. Louis University, and Ramit Sethi, cofounder and VP of Marketing for PBwiki. This session is sponsored by the MAA Committee on Professional Development.

FLATLAND: THE MOVIE

Thomas Banchoff, Brown University
Friday, August 3, 4:00 pm – 5:00 pm
Flatland: The Movie is a half-hour animated film produced in 2007. It was inspired by Edwin A. Abbott's classic novel, *Flatland: A Romance of Many Dimensions*. Set in a world of only two dimensions inhabited by sentient geometrical shapes, the story follows Arthur Square and his ever-curious granddaughter Hex. When a mysterious visitor arrives from Spaceland, Arthur and Hex must come to terms with the truth of the third dimension, risking dire consequences from the evil Circles that have ruled Flatland for a thousand years. A discussion will follow concerning the movie's use in classroom teaching.

HOW TO APPLY FOR JOBS

David Manderscheid, University of Iowa
Saturday, August 4, 9:00 am – 10:20 am
This session is aimed at Ph.D. students and recent Ph.D.s. An overview of the employment process will be given with ample opportunity for participants to ask questions. Questions that will be addressed include: How do you find the jobs that are available? How do you choose the jobs for which you want to apply? What are academic and other employers looking for in the materials that you send? What should you be doing now? How do schools conduct interviews? How can you best prepare for these interviews? How do employers choose to whom they will make offers? How do you negotiate once you have an offer? Panelists will include Sharon Clarke, Pepperdine University; James Freeman, Cornell College; David Manderscheid, University of Iowa: Joanne Peeples, El Paso Community College; and Sarah Ann Stewart, Belmont University. The session is sponsored by the MAA Committee on Graduate Students and is cosponsored by The Young Mathematicians' Network.

STARTING AND MAINTAINING A STUDENT INDUSTRIAL RESEARCH PROGRAM IN THE MATHEMATICAL SCIENCES

Maria Cayco, San Jose State University
Tim Hsu, San Jose State University
Saturday, August 4 , 9:00 pm – 10:20 pm
In recent years, several colleges and universities have started programs to give students the opportunity to do research on problems in the mathematical sciences coming from industry, government agencies, and businesses. In these programs, students see how the mathematics they learn in the classroom can make a difference in the real world. Also, by getting real-world experience, learning practical job skills, and working in teams, students gain an edge in finding good jobs after they graduate. In this panel discussion, directors of mathematical student industrial research programs from a variety of institutions (public, private, small, and large) will talk about their experiences in starting and maintaining their programs. We hope that neophytes will become interested in starting a program at their institutions; that people who are about to start a program will pick up concrete pointers; and that current program directors will gain valuable know-how and contacts. Panelists will include Robert Borrelli, Harvey Mudd College; Tim Hsu, San Jose State University; Michael Moody, Olin College of Engineering; Michael O'Leary, Towson University; and Michael Raugh, The Research in Industrial Projects (RIPS) Program at the Institute for Pure and Applied Mathematics, UCLA.

MAA PRIZE SESSION

Saturday, August 4, 11:30 am – Noon
This session will be moderated by Martha J. Siegel, Towson University, MAA secretary.

THE DEPARTMENT SELF-STUDY: HOW TO ENSURE THAT IT IS PURPOSEFUL

Donna Beers, Simmons College
Kyle Riley, South Dakota School of Mines and Technology
Saturday, August 4, 1:00 pm – 2:20 pm
Self-study is a process that accompanies and is central to the departmental cycle of program review. It is used by central administration to help it analyze the role of the department within the institution; assess the content and quality of departmental programs, pedagogy, scholarship, and service; analyze potential curricular development and new opportunities for growth and contribution; and ensure academic excellence. For departments, common stumbling blocks to undertaking self-study include time constraints; the feeling that nothing will come of it; fear of assessment; inertia; and difficulties in accessing needed data. In this panel, we consider how a department can turn an administrative mandate into an opportunity for renewal. Panelists include leaders of two recent PREP workshops on self-study and outside consultants, plus participants in those workshops who will share their perspectives. Panelists include Donna Beers, Simmons College; Kyle Riley, South Dakota School of Mines and Technology; Tommy Ratliff, Wheaton College; and Klay Kruczek, Western Oregon University. The session is sponsored by the MAA PRofessional Enhancement Program (PREP)

WORKSHOP ON ESSENTIAL REASONING ABILITIES AND CONCEPTUAL FOUNDATIONS FOR BEGINNING CALCULUS

Marilyn Carlson, Arizona State University
Session 1: Saturday, August 4, 1:00 pm – 2:30 pm
Participants will discuss videos of students completing tasks from the Precalculus Assessment Instrument that assess their understandings of function concepts that are essential for successful completion of first semester calculus. Focused discussions of select research data will reveal these foundational understandings and reasoning abilities. The modules will be shared with workshop participants. The workshop is sponsored by the SIGMAA on Research in Undergraduate Mathematics Education.

MAA ALDER AWARDS SESSION

Saturday, August 4, 2:00 pm – 3:30 pm
Presentations will be given by the 2007 Alder Award recipients: Timothy P. Chartier of Davidson College, Darren Narayan of Rochester Institute of Technology, and Satyan L. Devadoss of Williams College. The session will be moderated by Joseph Gallian, University of Minnesota at Duluth, MAA President.

CURRICULUM DEVELOPMENT AND RESEARCH BY UNDERGRADUATES IN MATHEMATICAL BIOLOGY

Jason Miller, Truman State University
K. Renee Fister, Murray State University
Saturday, August 4, 2:30 pm – 3:50 pm

Information technology is revolutionizing the way life scientists choose questions to tackle and the way they seek answers. This so-called "New Biology," which relies on mathematical tools and ways of thinking, now drives economic sectors of national importance, supports important governmental agencies, and is responsible for many important medical advances. As a result, there are pressures on the mathematical community to prepare today's students to contribute to this interdisciplinary, team-oriented workforce. This panel will discuss this issue and how curricular change and undergraduate research are being used to meet this national need. The panelists will include Amitahba Bose, New Jersey Institute of Technology; Meghan Burke, Kennesaw State University; Vincent Cassone, Texas A&M University; Eric Marland, Appalachian State University; John Milton, Claremont Colleges; and Lori Stevens, University of Vermont. The session is sponsored by the SIGMAA on Mathematical and Computational Biology.

LEARNING TO PROVE: STRATEGIES TO IMPROVE STUDENTS' PROOF-WRITING SKILLS

Cheryl Olsen, Shippensburg University
Saturday, August 4, 2:30 pm – 4:30 pm

This session will focus on what works. There will be brief descriptions from several presenters, and then participants will choose from several small group discussions. The topics addressed will include Outlining the proof. The genre of proof. getting students to use definitions; and assessment of proofs, including the use of multiple drafts and peer review. The session is sponsored by the MAA Committee on the Teaching of Undergraduate Mathematics.

ADMINISTERING THE AMERICAN MATHEMATICS COMPETITION AT A COLLEGE OR UNIVERSITY

Steve Dunbar, MAA American Mathematics Competitions
Saturday, August 4, 3:00 pm – 4:20 pm

Panelists will describe their experiences administering the American Mathematics Competitions on their campus, what the competitions did for the students, and what worked well, as well as obstacles and problems encountered. Panelists will include Dan Geba, University of Rochester. The session is sponsored by the MAA Committee on the American Mathematics Competitions.

MAA VIDEO SESSION

"Porridge, Pulleys, and Pi / Two Mathematical Journeys"
Peter Ross, Santa Clara University

Saturday, August 4, 3:30 pm – 4:00 pm
and 5:00 pm – 5:30 pm

This half-hour MSRI video was produced in 2004 by director George Csicsery and shows Hendrik Lenstra and Vaughan Jones of University of California at Berkeley at work and play and with their families. It gives an excellent view of these two well-known but very different mathematicians and their lives and work.

Saturday, August 4, 4:10 pm – 4:50 pm

"Infinite Acres" and "The Theorem of Pythagoras"

The first of these two videos is a cartoon illustrating properties of improper integrals. It is followed by Tom Apostol's video which shows several engaging animated proofs of the theorem, along with some extensions to three dimensions.

THE SAN FRANCISCO BAY AREA MATH CIRCLES A DECADE LATER

Hugo Rossi, University of Utah
Saturday, August 4, 3:40 pm – 5:00 pm

In 1997-1998, the Math Circles for middle and high school students in Berkeley and San Jose were started; another was started in Palo Alto a few years later, and two years ago, another in San Francisco, this one toward middle and high school teachers as well as students. Last summer, the American Institute of Mathematics in Palo Alto hosted an initial phase of a math circle for middle school teachers. All these circles are doing well, as are some 20 or so nationwide. The main themes to be discussed by the panel are: recruitment and training of Math Circle Instructors, and finding suitable math circle materials and resources for new Math Circle instructors. The Mathematical Sciences Research Institute has created a "set-up" kit, *Circle-in-a-box*, including collected notes and sample sessions, both in text and video. These will be available at the session. The panelists for this session will be Gerald Alexanderson, Santa Clara University; Joe Gallian, University of Minnesota Duluth; Steven Krantz, Washington University in St. Louis and ARCC, Palo Alto; Harold Reiter, University of North Carolina, Charlotte; Hugo Rossi, University of Utah (moderator); Mark Saul, Bronxville Schools; Tatiana Shubin, San Jose State University; Zvezdelina Stankova, Mills College; and Paul Zeitz, University of San Francisco.

THE PSYCHOLOGY OF THE MATHEMATICIAN

Steve Krantz, Washington University
Saturday, August 4, 3:40 pm – 5:00 pm

The mathematician is something of an anomaly among modern professionals. We spend our lives thinking about problems that we cannot solve. As a result, we perhaps develop some eccentricities and some habits and features that are particular to the profession. These observations affect the way that we perceive ourselves and the way that others perceive us. The purpose of this panel is to discuss the place of the mathematician in society and the role that we play. Panelists will include Frank Morgan, Williams College; Rob Kirby, University of California at Berkeley; Jim Milgram, Stanford; Bill McCallum, University of Arizona; and Pete Casazza, University of Missouri.

MAA BUSINESS MEETING

Sunday, August 5, 11:30 am – Noon

DEVELOPING CONTENT-BASED MASTERS PROGRAMS FOR IN-SERVICE MATHEMATICS TEACHERS

Karen Marrongelle, Portland State University
Marjorie Enneking, Portland State University
Sunday, August 5, 1:00 pm – 2:20 pm

The CBMS report *The Mathematical Education of Teachers*, the national No Child Left Behind act, and results of national and international mathematics assessment have promoted increased attention to ongoing content development of secondary mathematics teachers. This session will highlight a spectrum of content-based masters programs for in-service secondary and community college mathematics teachers. Panelists will describe features and characteristics of their programs, specifically highlighting the role of mathematics content courses in the degree program. Panelist presentations will be followed by questions and comments from the audience. Panelists include Steve Benson, University of New Hampshire, Trisha Bergthold, San Jose State University, Karen Marrongelle, Portland State University, Chris Rasmussen, San Diego State University, and Joe Yanik, Emporia State University. Those who are developing or renewing graduate degree programs for in-service teachers are especially encouraged to attend. The session is cosponsored by the San Jose Program Committee and the SIGMAA on Research in Undergraduate Mathematics Education.

WORKSHOP ON ESSENTIAL REASONING ABILITIES AND CONCEPTUAL FOUNDATIONS FOR BEGINNING CALCULUS

Marilyn Carlson, Arizona State University
Session 2: Sunday, August 4, 1:00 pm – 2:30 pm

Participants will discuss four modules that have been developed in a current research project to promote students' understandings of the concepts of function, limit, derivative and accumulation. Participants will examine video data that reveals students' reasoning abilities as they complete the activities in these modules. Data will also be presented to illustrate students' ways of thinking that have emerged by completing these modules. The modules will be shared with workshop participants. The workshop is sponsored by the SIGMAA on Research in Undergraduate Mathematics Education.

WORKSHOP ON SUSTAINING WEBWORK, A WEB BASED INTERACTIVE HOMEWORK SYSTEM

Michael E. Gage, University of Rochester
Arnold K. Pizer, University of Rochester
Vicki Roth, University of Rochester
Sunday, August 5, 1:00 – 4:30 pm

WeBWorK is a program that allows students to do their mathematical homework interactively over the Web. It is currently being used by over 100 colleges, universities, and high schools in courses such as college algebra, pre-calculus to vector calculus, differential equations, linear algebra, and statistics. WeBWorK can handle most homework problems typically used in such courses and is distributed with an extensive library of problems. There will be an introduction to WeBWorK for those unfamiliar with the system but most of the session will be devoted to "sustainability" issues, (e.g. how do we keep WeBWorK going over the long haul, both as an open-source community and also at the local level). We will address issues such as using WeBWorK for the first time, both from the point of an institution and an individual professor obtaining local and national support, supporting ongoing assessment; and maintaining the National Library of WeBWorK problems. Further information on WeBWorK and this session can be found at http://www.maa.org/webwork.

TECHNICALLY SPEAKING: FOSTERING THE COMMUNICATION SKILLS OF MATHEMATICS STUDENTS

Lew Ludwig, Denison University
Sunday, August 5, 2:30 pm – 3:50 pm

Panelists will describe how they successfully integrated the instruction of communication skills in their mathematics curriculum. Each takes a unique approach: sophomore-level proofs course, junior-level course co-taught with a member of the communication department, and a senior-level capstone course. One of the programs has evolved into an NSF Course Curriculumand Laboratory Improvement (CCLI) project, and another was featured in an issue of FOCUS. Audience members will have the chance to participate in the evaluation of the materials produced for the CCLI grant. The panelists will include John Thompson, University of Pittsburgh, Johnstown; Russ Goodman, Central

San Jose's Classic Trolley. Photograph courtesy of San Jose Visitor and Convention Bureau.

Graduate Student Sessions

GRADUATE STUDENT POSTER SESSION

Organized by James Freeman, Cornell College
Saturday, August 4, 1:00 pm – 2:30 pm

Graduate students are invited by MAA Committee on Graduate Students and The Young Mathematicians' Network to submit abstracts for the session. The poster size will be 48" (length) by 36" (height). Posters and materials for posting pages on the posters will be provided on-site. Some funding to cover transportation costs (up to $600) for poster authors who are members of the MAA is available. At most, one graduate student will be funded per poster, and funded presenters are expected to take full part in the meeting. Up to three posters will receive an award ($150) for excellence. Information on submitting abstracts and applying for travel support will be available at www.maa.org/students/grad.html on March 1, 2007. Abstracts submitted by Monday, April 30, will be given precedence in considering applications for travel support. Abstracts must be submitted by Friday, June 15, 2007. Questions on this session can be directed to James Freedman at jfreeman@cornellcollege.edu.

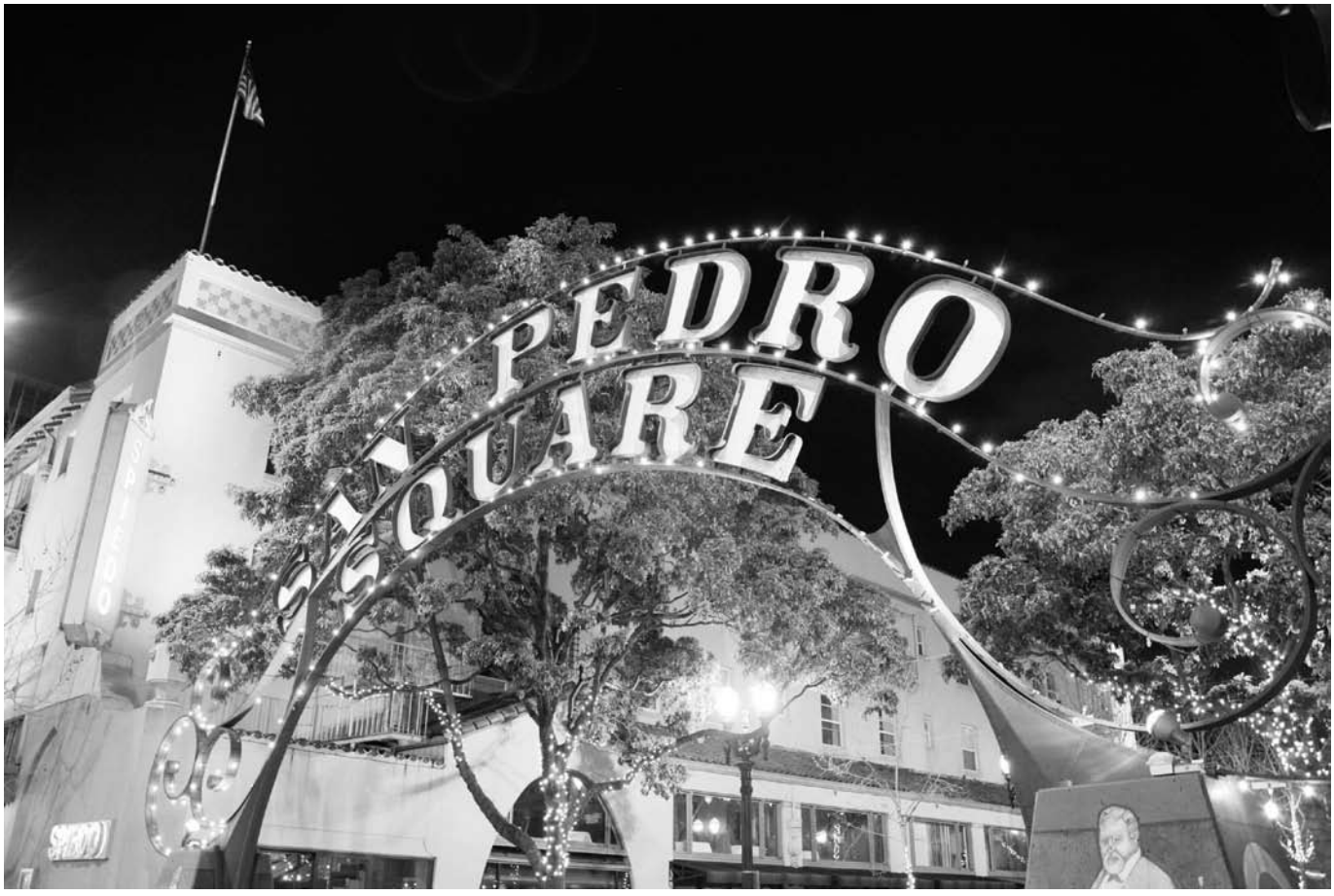
GRADUATE STUDENT RECEPTION

Friday, August 3, 5:00 pm – 6:00 pm

HOW TO APPLY FOR JOBS

David Manderscheid, University of Iowa
Saturday, August 4, 9:00 am – 10: 20 am

This session is aimed at Ph.D. students and recent Ph.D.s. An overview of the employment process will be given with ample opportunity for participants to ask questions. Questions that will be addressed include: How do you find which jobs are available? How do you choose which jobs you want to apply for? What are academic and other employers looking for in the materials that you send? What should you be doing now? How do schools conduct interviews? How can you best prepare for these interviews? How do employers choose to whom they will make offers? How do you negotiate once you have an offer? Panelists will include: Sharon Clarke, Pepperdine University; James Freeman, Cornell College; and David Manderscheid, University of Iowa. The session is sponsored by the MAA Committee on Graduate Students, cosponsored by The Young Mathematicians' Network.



Photograph courtesy of San Jose

Undergraduate Student Activities

MAA-PME STUDENT RECEPTION
Thursday, August 2, 4:30 pm – 5:30 pm

STUDENT HOSPITALITY CENTER
Richard and Araceli Neal, American Society for the Communication of Mathematics
Friday, August 3, 9:00 am – 5:00 pm
Saturday, August 4, 9:00 am – 5:00 pm
Sunday, August 5, 9:00 am – 1:00 pm
The Student Hospitality Center (SHC) provides a place for students and other MathFest attendees to meet for informal conversation, refreshments, and mathematical diversions. The SHC also provides programs for the MAA and Pi Mu Epsilon student paper sessions, packets for the MAA student presenters, and information on MathFest activities of interest to students.

MAA LECTURE FOR STUDENTS
SPLITTING THE RENT: FAIRNESS PROBLEMS, FIXED POINTS, AND FRAGMENTED POLYTOPES
Francis Edward Su, Harvey Mudd College
Friday, August 3, 1:00 pm – 1:50 pm
See the Invited Address section on page 7 for details.

MATH JEOPARDY
John Harris, Furman University
Mike Berry, University of Tennessee
Mike Mossinghoff, Davidson College
Friday, August 3, 8:00 pm – 9:00 pm
Answer: A fun undergraduate mathematics contest to lead off MathFest.
Question: What is Mathematics Jeopardy? Four teams of students will provide the questions to go with the mathematical answers in many categories. Come cheer for your favorite team. The session will be emceed by Mike Berry.

MAA STUDENT PAPER SESSIONS
Edward C. Keppelmann, University of Nevada
J. Lyn Miller, Slippery Rock University
Friday, August 3, 8:30 am – 10:30 am
and 2:00 pm – 6:15 pm
Saturday, August 4, 8:30 am – 10:30 am
and 2:00 pm – 5:00 pm

PI MU EPSILON STUDENT PAPER SESSIONS
Angela Spalsbury, Youngstown State University
Friday, August 3, 2:00 pm – 6:15 pm
Saturday, August 4, 8:30 am – 10:30 am
and 2:00 pm – 5:00 pm

MAA UNDERGRADUATE STUDENT ACTIVITIES SESSION
ORIGAMI, POLYHEDRA, AND MATHEMATICS
Eve Torrence, Randolph-Macon College
Saturday, August 4, 1:00 pm – 1:50 pm
Have you ever wondered how to build beautiful geometric structures with paper? Come learn how to build polyhedra using modular origami. Then we'll use graph theory and combinatorics to explore these structures. Paper will be provided for participants in this hands-on workshop.

PI MU EPSILON STUDENT BANQUET AND AWARDS CEREMONY
Saturday, August 4, 6:15 pm – 7:45 pm
All PME members and their supporters are welcome. See the registration form for more information on this ticketed event.

PI MU EPSILON J. SUTHERLAND FRAME LECTURE
NEGAFIBONACCI NUMBERS AND THE HYPERBOLIC PLANE
Donald E. Knuth, Stanford University, Professor Emeritus of the Art of Computer Programming
Saturday, August 4, 8:00 pm – 8:50 pm
(See the "Invited Address" section on page 6 for details).

MAA CELEBRATION: 20 YEARS OF STUDENT PAPERS
Saturday, August 4, 9:00 pm – 10:00 pm
Come celebrate 20 years of undergraduate student talks at the summer meetings with an ice cream social. We will also recognize all students who gave talks in the MAA Student Chapters paper sessions and award prizes for the best of them. All are invited.

MAA MATHEMATICAL CONTEST IN MODELING (MCM) WINNERS
Ben Fusaro, Florida State University
Sunday, August 5, 9:00 am – 10:30 am
About 450 teams, each consisting of three undergraduates, took part in the 2007 MCM in February. The contest consists of two real(istic) scenarios (one discrete, one continuous) that call for analysis and resolution. The teams have four days to deal with the challenge during which time they may use or consult anything inanimate — computers, libraries, the Web, etc. MAA judges choose one continuous and one discrete winner from the top contenders. The MAA subsidizes the teams' travel to MathFest, where they will present the results of their four-day challenge.

STUDENT PROBLEM-SOLVING COMPETITION
Richard Neal, American Society for the Communication of Mathematics
Sunday, August 5, 1:00 pm – 2:15 pm
This event is the finals of the Problem-Solving Competition. Universities and colleges that participate monthly on their own campuses by holding problem-solving contests are invited to send a contestant. Each contestant will be required to solve a series of mathematical problems. Based upon the outcome, a champion (along with 2nd-through 6th-place awardees) will be named.

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

Minicourses

MINICOURSE #1

A NOVEL APPROACH TO PROBLEM SOLVING IN DISCRETE MATHEMATICS

Andy Liu, University of Alberta

Part 1: Friday, August 3, 1:00 pm – 3:00 pm

Part 2: Saturday, August 4, 1:00 pm – 3:00 pm

At the University of Alberta, we have designed a very successful sophomore course on problem solving in discrete mathematics, using as an innovative text a mathematical novel in which the main character, a mathematical version of Sherlock Holmes, solves important, instructive, and interesting problems for his clients. In this minicourse, we will run a simulated class and examine suitable problems from various sources. We will also provide a brief history and discuss the basic philosophy of our course. There are no prerequisites, and sample notes and problems will be distributed to the participants.

MINICOURSE #2

INFUSING CONNECTIONS INTO CORE COURSES FOR SECONDARY TEACHERS

Steve Benson, Education Development Center
Al Cuoco, Education Development Center
Karen Graham, University of New Hampshire
Neil Portnoy, University of New Hampshire

Part 1: Saturday, August 4, 1:00 pm – 3:00 pm

Part 2: Sunday, August 5, 1:00 pm – 3:00 pm

National recommendations call for content courses for prospective teachers that make explicit connections between the mathematics that teachers learn and the mathematics they will use as teachers. Most content courses for preservice secondary teachers are core courses for the mathematics major, and texts for these courses do not typically address these connections. Minicourse participants will work with materials that contain the mathematical rigor of an upper-division course and help prospective teachers build connections to secondary mathematics, discuss implementation issues with colleagues who have used such materials, and begin to adapt these materials for the courses they teach.

MINICOURSE #3

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

James Sandefur, Georgetown University

Part 1: Friday, August 3, 3:30 pm – 5:30 pm

Part 2: Sunday, August 5, 1:00 pm – 3:00 pm

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

MINICOURSE #4

MORE MUSIC AND MATHEMATICS

Leon Harkleroad, Wilton, Maine

Part 1: Friday, August 3, 1:00 pm – 3:00 pm

Part 2: Saturday, August 4, 3:30 pm – 5:30 pm

We will offer a selection of various points of intersection between math and music. We will explore subjects such as historical geometric methods to approximate equal tempering in instrument design, group theory in contradancing, and music from space-filling curves and fractals.

MINICOURSE #5

SOME DETERMINISTIC MODELS IN MATHEMATICAL BIOLOGY AND THEIR SIMULATION

James Selgrade, North Carolina State University
Hüseyin Koçak, University of Miami

Part 1: Saturday, August 4, 3:30 pm – 5:30 pm

Part 2: Sunday, August 5, 3:30 pm – 5:30 pm

This minicourse will present and analyze discrete and continuous models from physiology (e.g., the Hodgkin-Huxley model), pharmacokinetics, and population biology (e.g., the chemostat model). The class will be conducted in a computer lab where participants will use the software Phaser to simulate model behavior. Each of the four topics will be discussed for 30 minutes, followed by 30 minutes of computer experimentation. The participants will be provided electronic copies of the Web-based notes, simulations, and software. Familiarity with the material in undergraduate courses in ordinary differential equations and linear algebra will be helpful. Participants for this minicourse will be required to bring a laptop equipped with 100MB of disk space, 512K memory, a CD drive and with one of three operating systems: Windows XP, MAC OS 10.4, or Linux.

MINICOURSE #6

USING THE HISTORY OF CALCULUS TO ENRICH OUR TEACHING

David Bressoud, Macalester College
Paul Zorn, St. Olafs College

Part 1: Friday, August 3, 3:30 pm – 5:30 pm

Part 2: Sunday, August 5, 3:30 pm – 5:30 pm

This course will explore how the history of mathematics can inform our teaching of calculus, focusing on examples, problems, and projects for deepening and expanding student understanding. In the first session, we will look at the historical development of the concepts of limit and convergence and the difficulties that mathematicians encountered in coming to grips with these ideas. In the second session, we will turn to Newton's *Principia* and suggest ways to help students investigate some of his insights and results.

Short Course

Short Courses are organized around relevant themes and are held the two-days preceding MAA national meetings. The MAA MathFest Short Course is presented in honor of William F. Lucas.

TWO-DAY SHORT COURSE

IMPLEMENTING BIOLOGY ACROSS THE MATHEMATICS CURRICULUM

John R. Jungck, Beloit College

Part 1: Wednesday, August 1, 9:00 am – 5:00 pm

Part 2: Thursday, August 2, 9:00 am – 5:00 pm

Many mathematics educators are faced with the challenge that the majority of students enrolled in their classes are from the broader life sciences (e.g., biology, allied health, environmental sciences, agriculture, etc.), while most mathematicians have very little background in the life sciences themselves. Therefore, the MAA has chosen to meet this year in combination with the joint meeting of the Society for Mathematical Biology and the Japanese Society for Mathematical Biology.

This short course, while preceding MathFest, is concurrent with those joint meetings and has the advantage that participants will not only be able to be involved in the short course, but will also be able to attend the plenary lectures of those societies as guests of the societies at no additional cost. Besides the Society for Mathematical Biology and the SIGMAA on Mathematical Biology, the individual lecturers in the short course also represent several organizations committed to the inclusion of much more mathematics in biology education and much more biology in mathematics education: the BioQUEST Curriculum Consortium (in particular, several of its projects: NUMBERS COUNT! [Numerical Undergraduate Mathematical Biology Education: exploRing with Statistics, Computation, mOdeling, and qUaNtitative daTa]; the Biological ESTEEM Project [Excel® Simulations and Tools for Exploratory, Experiential Mathematics]; the BEDROCK Project [Bioinformatics Education Dissemination: Reaching Out, Connecting, and Knitting-together]http://www.bioquest.org); and CoMBiNe: [the Computational and Mathematical Biology Network] http://muweb.marymount.edu/~eschaefe/combine/welcome.htm).

Biological subjects will include evolution, ecology, epidemiology, biometrics, genetics, bioinformatics, microbiology, and biochemistry. Mathematical subjects will include probability and statistics, linear algebra, differential equations, combinatorics, number theory, graph theory, and geometry. The examples employed will be appropriate for inclusion in courses aimed at the first two years of the undergraduate curriculum and will serve to introduce mathematicians to many current avenues of research in mathematical biology, as well.

LECTURE 1

Probability and Statistics-based Models

Raina Robeva, Sweet Briar College

This part of the course will focus on biological and medical models that utilize methods from the fields of probability and statistics. We will begin with examples from genetics to illustrate the binomial, normal, and Poisson distributions and discuss the underlying biological mechanisms and mathematical connections. More specifically, we will outline the experiments of Nilsson – Ehle and discuss the emergence of quantitative traits based on the Central Limit Theorem. We will examine the Luria-Delbrück experiments and show how using a Poisson distribution to describe the count of resistant bacterial variants allows for statistically distinguishing between the hypothesis of mutation to immunity and the hypothesis of acquired immunity. Next, we will examine some medical models for risk assessment, such as assessing the risk for hypoglycemia in diabetes, quantified from self-monitoring blood glucose data, and the risk for neonatal sepsis, quantified from electrocardiographic (EKG) data.

LECTURE 2

Biological Esteem: Linear Algebra, Population Genetics, and Microsoft Excel

Anton E. Weisstein, Truman State University

Population geneticists apply a wide range of mathematical techniques in seeking to understand and predict changes in the genetic makeup of real-world populations. In this session, we will: (1) review the recursion equations for calculating allele frequencies under the assumptions of Hardy-Weinberg Equilibrium, (2) mathematically model the effects of specific evolutionary forces, such as selection and migration, and (3) apply linear algebra to understand why natural selection disfavors a specific genetic variant that provides the best-known resistance to malarial infection. These investigations will introduce some of the Excel tools from the BioQUEST Consortium's Biological ESTEEM collection.

LECTURE 3

Bioinformatics from an Applied Combinatorics Perspective

Jennifer R. Galovich, St. John's University and the College of St. Benedict

RNA folding, Smith-Waterman Sequence Alignment, and other topics will be presented in the context of a new bioinformatics course taught in an undergraduate institution's mathematics department by an applied combinatorist who spent her sabbatical last year at the Mathematical Biosciences Institute at Ohio State University and with the BEDROCK Project (Bioinformatics Education Dissemination: the Reaching Out, Connecting With, and Knitting Together BioQUEST Curriculum Consortium at Beloit College).

LECTURE 4

The Basics of Infectious Disease Modeling

Holly D. Gaff, University of Maryland School of Medicine

A wide variety of mathematical models have been used to study an equally wide variety of infectious diseases. We will discuss the basics of infectious disease epidemiology, the building blocks for models, the types of mathematical approaches, and the history of epidemiology models. We will walk the examples of disease models, including measles and tick-borne diseases.

LECTURE 5
Teaching Mathematics to Biologists and Biology to Mathematicians
Gretchen A. Koch, Goucher College
When using mathematics to model biology, one must decide the level at which to present the material. In this session, I will present several modules from the BioQUEST Consortium's Biological ESTEEM collection and demonstrate to the audience how each module can be used at varying levels of mathematical and biological ability. The modules will include a logistic growth model, a competing species model, and an SIR epidemiological model. Time permitting, an additional application based in MATLAB will be demonstrated to compare and contrast the ESTEEM competing species model.

LECTURE 6
Biographer: Graph Theory Applied to the Breadth of Biology
John R. Jungck, Beloit College
Graph theory is generally applicable to many areas of biology, including pedigrees and multiple allele genetic graphs in genetics, fate maps in developmental biology, phylogenetic trees in evolution and systematics, metabolic pathways and RNA folding in biochemistry, interactomes in genomics-molecular biology, restriction maps in biotechnology, food webs in ecology, infection contact maps in epidemiology, and Delaunay triangulations in image analysis. Despite this breadth of utility, there has been a lack of easy-to-use tools for entering biological data into graph visualization packages with tools for graph theoretical analysis. BioGrapher is an Excel® and open source graph visualization package for importing, illustrating, and analyzing biological data. Interval graphs, planar graphs, trees, de Bruijn graphs (Euler paths), n-cubes (Hamiltonian paths), and Voronoi tessellations-Delaunay triangulations will be illustrated through biological examples.

LECTURE 7
Number Theory and Genomics
Julius H. Jackson, Michigan State University
Number theory is used in a study of bacterial and archaeal genomes as information systems that determine the physiological states of an organism. The larger goal is to model the dynamics of information evolution and exchange in prokaryotes and to derive the theory base to explain the origin, evolution, and function of genes and chromosomes. Our goal is to discover and model gene-specific and genome-specific information that defines metabolic properties and physiological behavior of prokaryotes in adaptive response to their environment(s). The limits of coding space, protein mobility, and variation space are explored to understand the physiological consequences of such limits. This work utilizes experimental methods for genetic, molecular biological, biochemical, and microbiological studies in combination with mathematical and computational methods for modeling and simulating the function of natural systems. My teaching approach is to prepare students to view organisms and their environments as biological systems, to ask critical questions about how these systems work and interact, and to design experiments that yield quantitative assessments of systems behavior that will lead to construction of mathematical models for simulation.

LECTURE 8:
Beyond Calculus: Integrating Mathematics, Statistics, and Computation into Biology Courses
Claudia Neuhauser, University of Minnesota
"Today, most undergraduate biology majors take quite a bit of basic quantitative coursework early on, but then they never see it again," says Neuhauser. "A few years later, when they're graduate students, they encounter the new world of biology, full of massive amounts of data and analysis—and they're not prepared. We've got to change that." Neuhauser will emphasize the need to train faculty in quantitative techniques and teaching. She envisions adding mathematically themed guest lectures to classes and possibly holding teaching workshops for faculty, as well as working with faculty one-on-one. She believes that this calls for a "logical step" in incorporating quantitative techniques across the curriculum. "For several years, my goal has been to develop at least two solid years of undergraduate quantitative training for our biology majors …. "Now, we can do so much more."

Cesar Chavez Park and Fountain
Photograph courtesy of San Jose Convention Visitors Bureau

SIGMAA Sessions

Special Interest Groups of the MAA provide members who share specific mathematical interests with opportunities to organize and interact professionally.

SIGMAA ON ENVIRONMENTAL MATHEMATICS

Business Meeting and Guest Lecturer
Saturday, August 4, 4:15 pm – 6:15 pm
Environmental Modeling, Sunday morning (see the "Invited Paper Session" section). Geology Field Trip, Sunday afternoon (See the "Social Events" section for details).

SIGMAA ON THE HISTORY OF MATHEMATICS

Teaching a History of Mathematics Course
Sunday, August 5, 2:00 pm - 5:00 pm
(See the "Contributed Paper Session" on page 11).

SIGMAA ON MATHEMATICAL AND COMPUTATIONAL BIOLOGY

Mathematical Questions in Bioinformatics
Friday, August 3, 1:00 pm – 4:00 pm
(See the "Invited Paper Session" on page 8).

Biomathematics in the First Two Years
Saturday, August 4, 8:30 am – 10:30 am
(See the "Contributed Paper Session" on page 9).

Curriculum Development and Research by Undergraduates in Mathematical Biology
Saturday, August 4, 2:30 pm – 3:50 pm
(See the "Panels and Other Sessions" on page 14).

SIGMAA ON MATHEMATICS AND THE ARTS

Art Exhibit
Friday, Saturday, and Sunday

Mathematics and the Arts
Saturday, August 4, 1:00 pm – 3:00 pm
(See the "Contributed Paper Session" on page 10).

SIGMAA ON QUANTITATIVE LITERACY

Quantitative Literacy, Mathematics, and Civic Engagement: Teaching the Importance of Quantitative Literacy for a Healthy Democracy in a General Education Course
Friday, August 3, 9:00 am -10:20 am
(See the "Panels and Other Sessions" on page 12).

SIGMAA ON THE PHILOSOPHY OF MATHEMATICS

Guest Lecture
Saturday, August 4, 4:15 pm – 5:15 pm
The meaning of existence in mathematics
Michael Beeson, San Jose State University
Does the number two exist in the same way that electrons exist, or in a different way? What do we mean when we say, "There exists a number having such-and-such properties"? The talk will examine these questions in the light of twentieth-century science: Are we in a better position to answer these questions now than our predecessors were in 1907?

Reception
5:15 pm – 6:15 pm

SIGMAA ON RESEARCH IN UNDERGRADUATE MATHEMATICS EDUCATION

Developing Content-Based Masters Programs for In-Service Mathematics Teachers
Sunday, August 5, 1:00 pm – 2:20 pm
(See the "Panels and Other Sessions" on page 15).

Workshop on Essential Reasoning Abilities and Conceptual Foundations for Beginning Calculus
Saturday, August 4, 1:00 pm – 2:30 pm
Sunday, August 5, 1:00 pm – 2:30 pm
(See the "Panels and Other Sessions" on page 14).

SIGMAA ON STATISTICAL EDUCATION

Innovative Ideas for Teaching Concepts in an Introductory Statistics Course
Friday, August 3, 1:00 pm – 3:00 pm
(See the "Contributed Paper Session" on page 9).

SIGMAA ON TEACHING ADVANCED HIGH SCHOOL MATHEMATICS

Business Meeting and Reception
Friday, August 3, 4:00 pm – 5:30 pm

Calculus in High School: What is Happening? What Do We Need to Know?
Friday, August 3, 1:00 pm – 2:20 pm
(See the "Panels and Other Sessions" on page 12).

Teaching Calculus in High School: Ideas that Work
Sunday, August 5, 8:30 am – 10:30 am
(See the "Contributed Paper Session" on page 10).

Exhibit Hall Information

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

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

Morning and Afternoon Snack Breaks
The MathFest Exhibit Hall features a lounge area complete with a Snack Bar, Email Center, and a Student Hospitality Center. Take a relaxing break, grab a cup of coffee, pick up lunch, and check your email ... all while visiting the Exhibit Hall!

Reception
Be sure to stop by the MathFest Exhibit Hall for a special reception sponsored by **Addison-Wesley** on **Saturday, August 4th**. Check your MathFest Program for more details!

LOCATION:
The Fairmont Hotel
Imperial Ballroom, 2nd Floor

EXHIBIT HOURS:

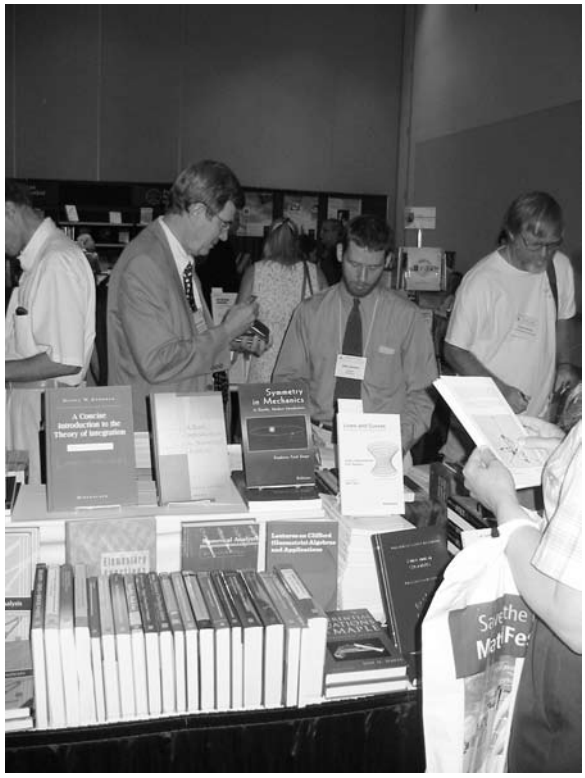
Friday, August 3, 2007	**9:00 am – 5:00 pm**
Saturday, August 4, 2007	**9:00 am – 5:00 pm**
Sunday, August 5, 2007	**9:00 am – 2:00 pm**

Exhibitors

Addison Wesley – MathFest Sponsor
Key College Publishing – MathFest Sponsor

A.K. Peters, Ltd.
American Mathematical Society
Birkhauser Boston
Brooks Cole, Thomson
Cambridge University Press
Casio
Hawkes Learning Systems
Maplesoft
Prentice Hall Springer
WebAssign
W.H. Freeman & Company
Wiley
Wolfram Research
Wood Mobius

MAA – American Mathematics Competitions
MAA – Development Office
MAA – Member Services
MAA – Publications



Social Events

HIGHLIGHTS OF SAN FRANCISCO SPOUSE/GUEST TOUR

Thursday, August 2, 9:30 am - 4:30 pm

This is the most popular tour for visitors to Northern California. This tour features all of the major highlights of San Francisco, including the Golden Gate Bridge, Fisherman's Wharf, Pier 39, Chinatown, North Beach, Union Square, Nob Hill, and the Civic Center, Pacific Heights, the Castro, Golden Gate Park, and the Haight-Ashbury. There will be plenty of fantastic views and lots of great photo opportunities. A professional tour guide will provide entertaining and informative commentary about the history of San Francisco and the many neighborhoods, including the colorful characters and legends that have made this city so popular with visitors for generations. Lunch will be on your own at one of the many restaurants at Pier 39. Tickets are $50 per person.

MAA-PME STUDENT RECEPTION

Thursday, August 2, 4:30 pm – 5:30 pm

OPENING RECEPTION

Thursday, August 2, 6:30 pm – 7:30 pm

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

OPENING BANQUET

Thursday, August 2, 7:30 pm – 9:30 pm

Continue the exciting evening by joining new and long-time friends and colleagues for a dinner of Breast of Chicken Mediterrean, Cedar Baked Honey Thyme Salmon, or Grilled Vegetable Cornucopia. There will be an after-dinner presentation by Noam Elkies of Harvard University entitled "Canonical forms: A mathematician's view of musical canons." Serving as master of ceremonies will be Don Albers, MAA Books Editorial Director. Tickets are available **ONLY** through advanced registration. A cash bar will be available. Tickets are $49 per person.

MAA-SMB RECEPTION

Friday, August 3, 4:30 pm – 5:30 pm

This reception with a cash bar celebrates first joint meeting of the Association and the Society for Mathematical Biology.

GRADUATE STUDENT RECEPTION

Friday, August 3, 5:00 pm – 6:00 pm

AWM-MAA RECEPTION

Friday, August 3, 9:00 pm – 11:00 pm

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

EXHIBIT HALL RECEPTION

Saturday, August 4, 3:00 pm – 4:00 pm

Visit the exhibit hall for a wine and cheese reception sponsored by Addison-Wesley.

PI MU EPSILON BANQUET AND AWARDS CEREMONY

Saturday, August 4, 6:00 pm – 7:45 pm

The banquet and award ceremony will be held at the Student Union on the campus of San Jose State University. After the banquet you are encouraged to attend the popular PME J. Sutherland Frame Lecture, given this year by Donald Knuth of Stanford University, which will be held in The Fairmont San Jose. Dinner offers a Spring Mix Salad, your choice of Oven-Roasted Salmon, Stuffed Chicken, or Pasta Primavera, followed by a Chocolate Swirl Cheesecake. Tickets are $20 for undergraduate students and student paper presenters and $28 for all others. Purchasing tickets through advanced registration is recommended, since only a limited number of tickets will be available for sale on site.

MAA CELEBRATION: 20 YEARS OF STUDENT PAPERS

Saturday, August 4, 9:00 pm – 10:00 pm

Come celebrate 20 years of undergraduate student talks at the summer meetings with an ice cream social. We will also recognize all students who gave talks in the MAA Student Chapters paper sessions and award prizes for the best of them. All are invited.

GEOLOGY FIELD TRIP

Ben Fusaro, Florida State University

Sunday, August 5, 1:30 pm – 4:30 pm

$10 for Environmental Math SIGMAA members, $15 for others.

Dr. Richard Sedlock, Chair of the San Jose State University Geology Department, will take us on a bus tour of the active geology in the surrounding area. San Jose, the 3rd largest city in California, is near the Hayward fault, a major source of earthquake activity. The Pacific oceanic plate is thrusting into and below (subducting) the N.A. plate, and this fault is the boundary between the two. Dr. Sedlock will tell us about tectonic plate theory and other geology formations.

MAA SILVER AND GOLD RECEPTION AND BANQUET

Sunday, August 5, 6:00 pm – 9:00 pm

At this annual banquet, the MAA recognizes individuals who have been long-time members of the Association, with special honors for 25- and 50-year members. All members are welcome to attend. The emcee will be Jerry Alexanderson of Santa Clara University. Frank Farris of Santa Clara University will take us on a leisurely tour of homemade images that illustrate such hard-to-picture things as complex function graphs and hyperbolic wallpaper with his talk "I See Mathematics: Computed Images in Geometry." There will be a cash-bar reception beginning at 6:00 pm, with the banquet following at 6:30 pm. Dinner offers the following choices: Grilled Salmon with Herb Butter, London Broil or Grilled Vegetable Lasagna (non dairy) with Fresh Garden Salad and Rich Chocolate Mousse served in a chocolate cup with fresh raspberry sauce and white chocolate shavings. The banquet will be held at the Adobe Lodge on the campus of Santa Clara University. Transportation will be provided. Tickets are $45, and purchasing tickets through advanced registration is recommended, since only a limited number of tickets will be available for sale on site.

Meetings of Other Societies

THE EULER SOCIETY

The mission of The Euler Society is threefold: It encourages scholarly contributions examining the life, research, and influence of Euler. In part, these will be set within his times (that is, within the Enlightenment, the rise to European power status of Russia and Prussia, and the growth of royal science academies). The Euler Society will also explore current studies in the mathematical sciences that build upon his thought. And it will promote translations into English of selections from his writings, including correspondence and notebooks, leading up to the tercentenary of his birth in 2007.

INVITED SPEAKER

EULER IN THREE ACTS
William Dunham, Muhlenberg College
Sunday, August 5, 1:00 pm – 1:50 pm

INVITED PAPER SESSIONS

Robert Bradley, Adelphi University
Edward Sandifer, Western Connecticut State University
Friday, August 3, 8:30 am – 10:30 am, 1:00 pm – 6:00 pm
Saturday, August 4, 8:30 am – 11:30 am
Sunday, August 5, 8:30 am – 10:30 am

CONTRIBUTED PAPER SESSION

Leonard Euler: Life, Work, and Legacy
Robert Bradley, Adelphi University
Edward Sandifer, Western Connecticut State University
Saturday, August 4, 1:00 pm – 5:00 pm
To submit an abstract for this session go to http://www.maa.org/abstracts.

READINGS FROM ORIGINAL SOURCES SESSIONS

Robert Bradley, Adelphi University
Edward Sandifer, Western Connecticut State University
Friday, August 3, 7:00 pm – 9:00 pm
Saturday, August 4, 7:00 pm – 9:00 pm

MATHEMATICAL BIOLOGY SESSIONS

MAA-SMB-JSMB JOINT SHORT COURSE, PART I

Implementing Biology Across the Mathematics Curriculum
Organized by John Jungck, Beloit College
(See pages 20-21 for more details).

MAA-SMB-JSMB JOINT SHORT COURSE, PART 2

Implementing Biology Across the Mathematics Curriculum
Organized by John Jungct, Beloit College
Wednesday, August 1, 9am – 5 pm
Thursday, August 2, 9am – 5 pm
(See pages 20-21 for more details).

MAA-SMB JOINT INVITED ADDRESS

On the Dynamics and Evolution of Emergent and Re-emergent Diseases: From Tuberculosis to SARS to the Flu
Carlos Castillo Chavez, Arizona State University
Friday, August 3, 8:30 am – 9:20 am
(See page 6 for more details).

MAA INVITED ADDRESS

Managing Natural Resources: Mathematics Meets Politics, Greed, and the Army Corps of Engineers
Louis Gross, Department of Ecology
Friday, August 3, 9:30 – 10:20
(See page 6 for more details).

MAA SIGMAA ON COMPUTATIONAL AND MATHEMATICAL BIOLOGY

Invited Paper Session
Mathematical Questions in Bioinformatics
Jennifer Galovich, St. John's University
Laurie Heyer, Davidson College
Friday, August 3, 1:00 pm – 4:00 pm
(See page 9 for more details).

JOINT MAA-SMB RECEPTION

Friday, August 3, 4:30 pm – 5:30 pm

MAA CONTRIBUTED PAPER SESSION

Biomathematics in the first two years
Tim Comar, Benedictine University
Saturday, August 4, 8:30 am – 10:30 am
(See page 10 for more details).

PANEL ON "CURRICULUM DEVELOPMENT AND RESEARCH BY UNDERGRADUATES IN MATHEMATICAL BIOLOGY"

Jason Miller, Truman State University
Saturday, August 4, 2:30 pm – 3:50 pm
(See page 15 for more details).

General Information

REGISTRATION DESK:

The registration desk will be located on the Ballroom level (second floor) of The Fairmont San Jose, outside the Imperial Ballroom. It will be open Thursday, August 2, from noon to 7:00 pm, Friday, August 3, and Saturday, August 4, from 8:00 am to 4:00 pm, and Sunday, August 5 from 8:00 am to 2:00 pm. You may pick up your registration materials, register on-site, and purchase event tickets, when available, at this location.

	By 6/15	After 6/15
Member Registration Fee	$210	$275
Non-member	$300	$375
Grad Student	$45	$55
Undergraduate Student	$35	$45
Unemployed	$45	$55
Individual from a Developing Country	$45	$55
K-12 Teacher	$45	$55
Emeritus member	$45	$55
One-Day (Fri, Sat, Sun)	$110	$110
High School Student	$10	$10
Guest	$15	$15
Minicourses	$75	$90
Short Course		
MAA or AMS Member and MathFest Participant	$150	$200
Non-member or Short Course Only	$200	$255
Students	$75	$100

EARLY BIRD REGISTRATION:

Register by June 15 to take advantage of the early bird savings, and you may also choose to receive your registration packet before the meeting. Registration packets will be mailed first class during the week of July 4, and there will be no need to come to the registration desk once you arrive.

REGULAR REGISTRATION:

Advance Registration received between June 15 and July 23 will be processed at the regular registration rate. Participants registering during this period must pick up their registration packets on-site at the registration desk. After July 23, participants must register on-site at the registration desk.

ONLINE REGISTRATION:

Register on the Internet for MathFest, Project NExT, and hotel reservations. Go to http://www.maa.org/mathfest. MasterCard or Visa is required for online registration.

MATHFEST CANCELLATIONS:

MathFest cancellations must be received by July 20 to qualify for complete refund for registration. Cancellations made after July 20 but before August 3 are eligible for a 50% refund. If your registration packet was mailed before your cancellation, you must return your badge to MAA/MathFest, 1529 18th Street, NW, Washington, DC, 20036, to receive your refund.

MINICOURSE/SHORT COURSE REGISTRATION:

Advance registration must be received by July 23. Enroll early; space is limited! If a course is full, you will be notified. On-site registration is allowed if minicourse and short course space allow. The MAA reserves the right to cancel courses due to low enrollment. Full refunds will be issued for cancelled courses. Otherwise, minicourse and/or short course cancellations must be received by August 3 to be eligible for a 50% refund.

MATHFEST HOUSING:

The headquarters hotel for MathFest is The Fairmont San Jose located at 170 South Market Street. Rooms may also be reserved at San Jose State University's Conference Housing. The MAA has guaranteed sleeping rooms at The Fairmont and SJSU. **Please book your hotel reservation through the MAA to receive the meeting discount. Thank You!**

RESERVATIONS:

All rates are subject to a 10% room sales tax. Any reservations cancelled less than 24 hours prior to arrival will be subject to a cancellation fee equal to one night's stay. Changes made to departure date after check-in will be subject to a charge of one night plus tax. Rooms will fill quickly so participants are advised to reserve rooms as early as possible.

PAYMENT

Register for MathFest and reserve housing online at www.maa.org/mathfest, or mail/fax a completed registration form to:

Meetings Department
The Mathematical Association of America
1529 18th Street, NW
Washington, DC 20036
Fax: 202-387-0162

Questions/Changes on Registration and Housing:

1-800-741-9415, ext. 430
Email: meetings@maa.org

Headquarters Hotel: The Fairmont San Jose

170 S. Market St.
San Jose, California 95113
$169 + $2/night occupancy charge

The Fairmont San Jose combines technological innovation with timeless elegance. Over the past decade, the 'capitol' of Silicon Valley and home to the brightest minds in the computer, semiconductor, and biotech industries has exploded onto the world economic stage as the third largest city in California. The Fairmont San Jose plays an integral role in the community, hosting presidents, dignitaries, celebrities, CEOs, and noted scholars. Each guest room is non-smoking and luxuriously-appointed with every amenity, including the finest bedding and toiletries, high-speed Internet access, and a telephone in the bathroom to assist guests in maximizing their in-room time and comfort. **Sign up for The Fairmont's free President's Club at www.fairmont.com, and receive complimentary amenities**

and extra savings. The rooftop 60-foot heated swimming pool is the ideal place to relax and rejuvenate.

There is also a state of the art, fully-equipped Health Club that includes locker rooms with a dry sauna and steam room. The Fitness Center is complete with free weights, lifecycles, Cybex strength equipment, treadmills, and stairclimbers.

At the Pagoda Restaurant savor the varied cuisines of China's provinces from 6 pm to 1 pm, Tuesday through Saturday. The Bamboo Sushi features flavorful tuna, salmon, eel and veggies in tasteful, tantalizing, and appetizing concoctions available to order through In Room Dining, the Lobby Lounge, the Bamboo Lounge, and the Pagoda Restaurant from 5 pm to 10 pm, Monday through Saturday.

The casual American-style Fountain Restaurant offers an extensive a la carte menu selection in addition to a breakfast buffet. Reflecting the spirit and atmosphere of New York's legendary grills, the Grill on the Alley serves a variety of steaks, chops, fresh seafood and pasta along with an extensive wine list for lunch on weekdays and dinner throughout the week. Open from 12 pm to 12 am, the Lobby Lounge Bar offers afternoon tea in a cozy, club-like atmosphere and is perfect in the evening for dancing and live entertainment.

Almost as appealing as The Fairmont's food choices is its location. Mere blocks away are the Center for the Performing Arts, the San Jose Museum of Art, the Tech Museum of Innovation, the HP Pavilion at San Jose, and the SoFA (South First Area) District, a concentrated five-block area incorporating nightclubs, restaurants, art galleries, and theater.

Parking
The Fairmont San Jose garage is located below the hotel. Only valet parking is offered, there is no self parking available. Overflow garages are located throughout the downtown are with close proximity to the Hotel.

Parking is $26 per night including in-and-out privileges for overnight guests.

San Jose State University
One Washington Square
San Jose, CA 95192-0005
408.924.1000
$80 Double $69 Single

The San Jose State University residence halls are a comfortable and convenient housing option for MathFest participants. Located in the heart of downtown San Jose on 19 city blocks, SJSU is the oldest public institution of higher education on the West Coast. SJSU is located within an easy 10 minute walk from conference headquarters, The Fairmont, San Jose.

Rooms include a private bathroom with towels, queen size bed with linens, a desk and lamp, desk chair, dresser, nightstand, lounge chair, small microwave, mini-refrigerator, coffee pot, coffee mugs, and flat screen TV. Phone, cable TV and high-speed Internet access are also included. Coffee, tea, soap, and cups are included for your use.

Parking
When you arrive at campus, please park in the temporary visitor parking located on 7th Street, right off of San Salvador Street, by the University Police Department. Walk over to Joe West Residence Hall, located on the corner of 9th Street and San Salvador Street. Come into Joe West Hall, 2nd floor (you can call the conference desk at 5-5604 from the outside call box to get into the building) and go to the Conference desk check in. At check in you will need to purchase a $15 week-long visitor pass.

TRAVEL INFORMATION

BY PLANE: United Airlines is the official airline for MathFest 2007. To obtain a discounted fare on United Airlines make your reservations by calling 1-800-521-4041 between the hours of 8:00 am and 10:00 pm, Eastern Time. Please be sure to refer to **United Airlines Meeting ID Number 577EV**. The Mineta San Jose International Airport is the closest airport and is located approximately 10 minutes from The Fairmont San Jose and San Jose State University.

BY TRAIN: (Amtrak San Jose 65 Cahill Street San Jose, CA 95110) The San Jose Amtrak station is located approximately a mile from The Fairmont San Jose and San Jose State University. For more information or to make a reservation contact a service representative at 1-800-USA-RAIL (1-800-872-7245) or TDD/TTY (1-800-523-6590). Information is also available at www.amtrak.com.

BY BUS: (Greyhound San Jose 408-295-4151 70 S. Almaden Ave. San Jose, CA 95113) The San Jose Greyhound station is located about four blocks from The Fairmont San Jose. For fare and schedule information please call 1-800-231-2222 or TDD/TTY 1-800-345-3109. Information is also available at www.greyhound.com.

DRIVING DIRECTIONS:
From Mineta San Jose International Airport
To The Fairmont San Jose: make a right onto Guadalupe Parkway (HWY 87 South). Continue down Guadalupe Parkway (HWY 87 South) to the Park Avenue Exit. Make a left on Park Avenue and continue down three blocks. Make a right turn onto S. Market Street. Make a U-turn around Plaza de Cesar Chavez Park. The hotel will be on the right side between San Carlos Street and San Fernando Street.

To San Jose State University: take Guadalupe Parkway (HWY 87 South) to I-280 southbound. Exit at 7th Street. Turn left on 7th Street to campus.

CAR RENTAL INFORMATION:
Avis and Budget have been selected as the official car rental companies for MathFest 2007. When making your reservations you must use Avis **Meeting Discount Number K019303** or Budget **Meeting Discount Number X914201** to get the discounted meeting rate. Reservations can be made by telephone at 1-877-289-2611 for Avis or 1-800-214-6092 for Budget.

PUBLIC TRANSPORTATION:
The Valley Transit Authority services all of San Jose Transit buses and the light rail line connects to downtown San Jose and the campus from throughout the county, the airport and the Amtrak/CalTrain San Jose depot. Call 408-924-7433 for specific route information.

Weekday Service-
Every 20 minutes 5:00 am – 6:00 am
Every 15 minutes 6:00 am – 9:00 pm
Every 30 minutes 9:00 pm – midnight

Weekend and Holiday Service-
Every 20-40 minutes, 5:00 am – 7:00 am
Every 15 minutes, 7:00 am – 9:00 pm
Every 30 minutes, 9:00 pm – midnight

AIRPORT SHUTTLE AND TAXI SERVICE:
Yellow Express Shuttle provides shuttle service from the Mineta San Jose International Airport to The Fairmont San Jose for $15 for the first two people and $5 for any additional people. Ticket reservations can be made by calling 1-800-928-2942 or by emailing info@sanjosegroundtransportation.com.

Taxi Service
Taxis to and from Mineta San Jose International Airport cost approximately $15 to $20 USD.

Quick Links for Your Convenience:
San Jose Visitor Information: http://www.sanjose.org/
San Jose Downtown Association: http://www.sjdowntown.com/
Mineta San Jose International Airport: http://sjc.org/
Public Transportation Information: http://www.vta.org/
Restaurant Information: http://www.sanjose.org/
San Jose State University Information: http://www.sjsu.edu/
State of California Information: http://www.state.ca.us/

Program at a Glance

TUESDAY, JULY 31ST

11:00 am – 5:00 pm Project NExT Registration

1:30 pm – 9:00 pm Project NExT Workshop

WEDNESDAY, AUGUST 1ST

8:00 am – 5:00 pm Project NExT Registration

8:30 am – 5:25 pm Project NExT Workshop

9:00 am – 5:00 pm Part 1: Two-Day Short Course
Implementing Biology Across the Mathematics Curriculum

THURSDAY, AUGUST 2ND

8:00 am – 5:00 pm Board of Governors Meeting

8:15 am – 5:30 pm Project NExT Workshop

9:00 am – 5:00 pm Part 2: Two-Day Short Course
Implementing Biology Across the Mathematics Curriculum

4:30 pm – 5:30 pm MAA/PI MU EPSILON Student Reception

6:30 pm – 7:30 pm Opening Reception

7:30 pm – 9:30 pm Opening Banquet

FRIDAY, AUGUST 3RD

8:30 am – 9:20 am MAA Invited Address
On the Dynamics and Evolution of Emergent and Re-Emergent Diseases: From Tuberculosis to SARS to the Flu

8:30 am – 10:30 am Contributed Paper Session
Attracting and Retaining Students to Mathematics Programs Via Outreach

8:30 am – 10:30 am Contributed Paper Session
Mathematics of Sports and Games

8:30 am – 10:30 am General Contributed Paper Session

8:30 am – 10:30 am MAA Student Paper Sessions

8:30 am – 10:30 am Euler Invited Paper Sessions

9:00 am – 10:20 am Panels and Other Sessions
Mathematics Outreach for Underrepresented Groups

9:00 am – 10:20 am Panels and Other Sessions
Quantitative Literacy, Mathematics, and Civic Engagement: Teaching the Importance of Quantitative Literacy for a Healthy Democracy

9:00 am – 10:20 am Panels and Other Sessions
What They Think is Good Teaching

9:00 am – 5:00 pm Exhibits and Book Sales

9:00 am – 5:00 pm Student Hospitality Center

9:30 am – 10:20 am MAA Invited Address
Managing Natural Resources: Mathematics Meets Politics, Greed, and the Army Corps of Engineers

10:30 am – 11:20 am MAA Invited Address
Hedrick Lecture Series
The Mathematics of Dynamic Random Networks
Lecture 1: Models of the Internet and the World Wide Web

1:00 pm – 1:50 pm MAA Student Lecture
Splitting the Rent: Fairness Problems, Fixed Points, and Fragmented Polytopes

1:00 pm – 2:20 pm Panels and Other Sessions
Calculus in High School: What is Happening? What Do We Need to Know?

1:00 pm – 2:20 pm Panels and Other Sessions
MAA-SUMMA Session National Research Experiences for Undergraduates Program

1:00 pm – 3:00 pm Contributed Paper Session
Emerging Technologies for Mathematics Teaching

1:00 pm – 3:00 pm Contributed Paper Session
Current Issues in Mathematics Education

1:00 pm – 3:00 pm General Contributed Paper Session

1:00 pm – 3:00 pm Minicourse #1: Part 1
A Novel Approach to Problem Solving in Discrete Mathematics

1:00 pm – 3:00 pm Minicourse #4: Part 1
More Music and Mathematics

1:00 pm – 4:00 pm Invited Paper Session
Manifolds With Density and Partitioning Problems

1:00 pm – 4:00 pm Invited Paper Session
Mathematical Questions in Bioinformatics

1:00 pm – 6:00 pm Euler Invited Paper Sessions

2:00 pm – 6:15 pm MAA Student Paper Sessions

Program at a Glance

FRIDAY, AUGUST 3RD continued

2:00 pm – 6:15 pm **Pi Mu Epsilon Student Paper Sessions**

2:30 pm – 3:50 pm **Panels and Other Sessions**
Beyond EMail: Using Web-Based Tools for Collaborative Work

2:30 pm – 5:00 pm **MAA Section Officers Meeting**

3:15 pm – 5:15 pm **Contributed Paper Session**
Innovative Ideas for Teaching Concepts in an Introductory Statistics Course

3:15 pm – 5:15 pm **General Contributed Paper Session**

3:30 pm – 5:30 pm **Minicourse #3: Part 1**
Teaching a Proof-Based Course as the Gateway to the Mathematics Major

3:30 pm – 5:30 pm **Minicourse #6: Part 1**
Using the History of Calculus to Enrich Our Teaching

4:00 pm – 5:00 pm **Panels and Other Sessions**
Flatland: The Movie

4:00 pm – 5:30 pm **SIGMAA on Teaching Advanced High School Mathematics Business Meeting and Reception**

4:30 pm – 5:30 pm **MAA/SMB Reception**

5:00 pm – 6:00 pm **Graduate Student Reception**

7:00 pm – 9:00 pm **Euler Society**
Readings from Original Sources

8:00 pm – 9:00 pm **Math Jeopardy**

9:00 pm – 11:00 pm **AWM-MAA Reception**

SATURDAY, AUGUST 4TH

8:30 am – 9:20 am **MAA Invited Address**
Revenge of the Twin Prime Conjecture

8:30 am – 10:30 am **Invited Paper Session**
Gems in Applied Mathematics

8:30 am – 10:30 am **Invited Paper Session**
Environmental Modeling

8:30 am – 10:30 am **Contributed Paper Session**
Biomathematics in the First Two Years

8:30 am – 10:30 am **Contributed Paper Session**
Graph Theory and Applications

8:30 am – 10:30 am **MAA Student Paper Session**

8:30 am – 10:30 am **PME Student Paper Session**

8:30 am – 11:30 am **Euler Invited Paper Session**

9:00 am – 10:20 am **Panels and Other Sessions**
Starting and Maintaining a Student Industrial Research Program in the Mathematical Sciences

9:00 am – 10:20 am **Panels and Other Sessions**
How to Apply for Jobs

9:00 am – 5:00 pm **Exhibits and Book Sales**

9:00 am – 5:00 pm **Student Hospitality Center**

9:30 am – 10:20 am **MAA Invited Address**
Hedrick Lecture Series
The Mathematics of Dynamic Random Networks
Lecture 2: Mathematical Behavior of Random Scale-Invariant Networks

10:30 am – 11:20 am **MAA Invited Address**
James R. Leitzel Lecture
On Being a Mathematical Citizen: The Natural NExT Step

11:30 am - Noon **MAA Prize Session**

1:00 pm - 1:50 pm **NAM David Blackwell Lecture**
Puzzling Probabilities Featuring the Street Game of Craps

1:00 pm – 1:50 pm **MAA Undergraduate Student Activities Session**
Origami, Polyhedra, and Mathematics

1:00 pm – 2:20 pm **Panels and Other Sessions**
The Department Self-Study: How to Ensure That it is Purposeful

1:00 pm – 2:30 pm **Graduate Student Poster Session**

1:00 pm – 2:30 pm **Panels and Other Sessions**
Workshop on Essential Reasoning Abilities and Conceptual Foundations for Beginning Calculus, Session 1

1:00 pm – 3:00 pm **Contributed Paper Session**
Mathematics and the Arts

1:00 pm – 3:00 pm **General Contributed Paper Session**

1:00 pm – 3:00 pm **Minicourse #1, Part 2**
A Novel Approach to Problem Solving in Discrete Mathematics

1:00 pm – 3:00 pm **Minicourse #2, Part 1**
Infusing Connections into Core Courses for Secondary Teachers

1:00 pm – 3:30 pm **Invited Paper Session**
Research with Undergraduates

1:00 pm – 4:00 pm **Invited Paper Session**
Prime Numbers – New Developments on Ancient Problems

1:00 pm – 5:00 pm **Contributed Paper Session**
Leonhard Euler: Life, Work, and Legacy

1:00 pm – 5:00 pm **Contributed Paper Session**
Getting Students to Discuss and to Write About Mathematics

2:00 pm – 3:30 pm **Panels and Other Sessions**
MAA Alder Awards Session

2:00 pm – 5:00 pm **MAA Student Paper Session**

2:00 pm – 5:00 pm **PME Student Paper Session**

2:30 pm – 3:50 pm **Panels and Other Sessions**
Curriculum Development and Research By Undergraduates in Mathematical Biology

2:30 pm – 4:30 pm **Panels and Other Sessions**
Learning to Prove: Strategies to Improve Students' Proof Writing Skills

3:00 pm – 4:00 pm **Exhibit Hall Reception**
Sponsored by Addison Wesley

3:00 pm – 4:20 pm **Panels and Other Sessions**
Administering the American Mathematics Competitions at a College or University

3:15 pm – 5:15 pm **Contributed Paper Session**
Fun and Innovative Teaching Techniques for an Abstract Algebra Class

3:30 pm – 5:30 pm **Panels and Other Sessions**
MAA Video Session
Porridge, Pulleys, and Pi/Two Mathematical Journeys

3:30 pm – 5:30 pm **Minicourse #4, Part 2**
More Music and Mathematics

3:30 pm – 5:30 pm **Minicourse #5, Part 1**
Some Deterministic Models in Mathematical Biology and Their Simulation

3:40 pm – 5:00 pm **Panels and Other Sessions**
The Psychology of the Mathematician

3:40 pm – 5:00 pm **Panels and Other Sessions**
The San Francisco Bay Area Math Circles a Decade Later

4:15 pm – 5:15 pm **SIGMAA on the Philosophy of Mathematics Guest Lecture**
The meaning of existence in mathematics

4:15 pm – 6:15 pm **SIGMAA on Environmental Mathematics Business Meeting and Guest Lecturer**

5:15 pm – 6:15 pm **SIGMAA on the Philosophy of Mathematics Reception**

6:00 pm – 7:45 pm **Pi Mu Epsilon Banquet and Awards Ceremony**

7:00 pm – 9:00 pm **Euler Society**
Readings from Original Sources

8:00 pm – 8:50 pm **PME J. Sutherland Frame Lecture**
NegaFibonacci Numbers and the Hyperbolic Plane

9:00 pm – 10:00 pm **MAA Celebration: 20 Years of Student Papers**

SUNDAY, AUGUST 5th

8:30 am – 9:20 am **AWM-MAA Etta Z. Falconer Lecture**
TBA

8:30 am – 10:30 am **Invited Paper Session**
Difference Equations

8:30 am – 10:30 am **Euler Invited Paper Session**

8:30 am – 10:30 am **Contributed Paper Session**
Teaching Calculus in High School: Ideas That Work

8:30 am – 10:30 am **Contributed Paper Session**
Challenges and Successful Strategies in Teaching a Numerical Analysis Course

8:30 am – 10:30 am **Contributed Paper Session**
Student Research in Industrial Mathematics

8:30 am – 10:30 am **General Contributed Paper Session**

9:00 am – 10:30 am **MAA Mathematical Contest in Modeling (MCM) Winners**

9:00 am – 1:00 pm **Student Hospitality Center**

9:00 am – 2:00 pm **Exhibits and Book Sales**

9:30 am – 10:20 am **MAA Invited Address**
Hedrick Lecture Series
The Mathematics of Dynamic Random Networks
Lecture 3: Convergent Sequences of Networks

10:30 am – 11:20 am **MAA Invited Address**
Lagrange, Sufficient Reason, and Space

11:30 am – Noon **MAA Business Meeting**

1:00 pm – 1:50 pm **The Euler Society Invited Speaker**
Euler in Three Acts

SUNDAY, AUGUST 5TH continued

1:00 pm – 2:15 pm **Student Problem Solving Competition**

1:00 pm – 2:20 pm **Panels and Other Sessions**
Developing Content-Based Masters Programs for In-Service Mathematics Teachers

1:00 pm – 2:30 pm **Panels and Other Sessions**
Workshop on Essential Reasoning Abilities and Conceptual Foundations for Beginning Calculus, Session 2

1:00 pm – 3:00 pm **Contributed Paper Session**
Advances in Recreational Mathematics

1:00 pm – 3:00 pm **General Contributed Paper Session**

1:00 pm – 3:00 pm **Minicourse #2, Part 2**
Infusing Connections into Core Courses for Secondary Teachers

1:00 pm – 3:00 pm **Minicourse #3, Part 2**
Teaching a Proof-Based Course as the Gateway to the Mathematics Major

1:00 pm – 4:00 pm **Invited Paper Session**
Graph Theory Ideas for Undergraduate Research

1:00 pm – 4:30 pm **Panels and Other Sessions**
Workshop on Sustaining Webwork, A Web Based Interactive Homework System

1:30 pm – 4:30 pm **Geology Field Trip**

2:00 pm – 5:00 pm **Contributed Paper Session**
Teaching a History of Mathematics Course

2:30 pm – 3:50 pm **Panels and Other Sessions**
Technically Speaking: Fostering the Communication Skills of Mathematics Students

3:15 pm – 5:15 pm **General Contributed Paper Session**

3:30 pm – 5:30 pm **Minicourse #5, Part 2**
Some Deterministic Models in Mathematical Biology and their Simulation

3:30 pm – 5:30 pm **Minicourse #6, Part 2**
Using the History of Calculus to Enrich Our Teaching

6:00 pm – 9:00 pm **MAA Silver and Gold Reception and Banquet**

Employment Opportunities

TENNESSEE

Tennessee State University
Assistant/Associate Professor of Mathematics
Teach undergraduate and graduate mathematics courses; Ph. D. in mathematics, or mathematical statistics at a time of appointment; Minimum of five years' teaching experience at a regionally accredited four-year college or university required for appointment to the rank of associate professor.

Please visit our website at www.jobs.tnstate.edu for full description and online application.

TSU is an EO/AA/M/F employer

TEXAS

Texas Southern University
Applications are invited for the position of Chairperson for the Mathematics Department. Applicants should be dynamic individuals with demonstrated leadership ability who can lead the faculty in continued curricular development, excellence in teaching and scholarly activity, and growth in funded research. Applicants must have demonstrable commitment to undergraduate and graduate education as well as a proven record of scholarly achievement in a field of Mathematical Sciences. An earned doctorate in Mathematics is required. The successful applicant should be eligible for a tenure track appointment at the Associate Professor or Professor level. Successful candidates should have a distinguished record of program administration in an academic setting and a reputation for teaching, research and intellectual leadership.

Texas Southern University
Two Tenure-Track Positions are available in the Mathematics Department. These positions are available at the Assistant/Associate/ or Full Professor level. The selected individual should be able to teach a variety of courses in undergraduate mathematics including calculus, linear algebra and differential equations. The selected individual should also be willing to participate in academic advising of students and departmental governance.

Qualifications include a Ph.D in Mathematics, Applied Mathematics, or other related field. A strong commitment to quality teaching, service, and research is necessary. The selected applicant should be able to conduct research in applied mathematics and be willing to work on an applied science research team. An interest in assisting in the development of new degree programs and additional mathematics courses is important. The ability to utilize technology in the development and teaching of applied mathematics courses is useful. The applicant should have a strong interest in mathematical publishing, proposal writing, and conducting professional presentations in mathematics.

Texas Southern University is an equal opportunity employer and does not discriminate in employment on the basis of race, color, religion, gender, disability, national origin, or age except where gender is a bona fide occupational qualification.

Interested applicants who are qualified must apply on-line at www.tsu.edu. Applicants must also submit required supporting documents electronically, as well. If assistance is needed to complete the application process, please contact Tigerteam@tsu.edu or dial 713-313-7521.

Registration Form

MATHFEST 2007 · AUGUST 3-5 · FAIRMONT SAN JOSE

MathFest 2007 · San Jose, CA · Advance Registration Form

Name_____

Mailing Address_____

_____

Telephone_____ Fax_____

Email Address_____

Deadlines:
Early Bird Registration: **June 15, 2007**
If your form is received by this date, badge and program can be mailed.
MathFest, Short Course, Minicourse, Banquets & Events: **July 23, 2007**
Refund 50%
MathFest, Short Course & Minicourse: **August 3, 2007**

Badge Information

Name to appear on badge_____
(First and Last Name)

Affiliation for badge_____

This is my primary mailing address for all MAA Membership Items? ☐ Yes ☐ No

Please provide MAA Member number, if applicable:
_____

I am a first time attendee? ☐Yes ☐ No

☐ I do not want my program mailed to me on July 6, 2007. I will pick it up.

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

Registration & Event Fees –www.maa.org

MathFest	by 6/15	after 6/15
Member ☐ MAA ☐ AMS	$210	$275
Nonmember	$300	$375
Graduate Student	$45	$55
Undergrad Student	$35	$45
Unemployed	$45	$55
Individual from a Developing Country	$45	$55
K-12 Teacher	$45	$55
Emeritus Member	$45	$55
One-day ☐Fri ☐Sat ☐Sun	$110	$110
High School Student	$10	$10
Guest	$75	$90

Subtotal for MathFest $_____

Minicourses	by 6/15	after 6/15
#1 *A Novel Approach to Problem Solving in Discrete Mathematics*	$75	$90
#2 *Infusing Connections Into Core Courses for Secondary Teachers*	$75	$90
#3 *Teaching a Proof-Based Course as the Gateway to the Mathematical Major*	$75	$90
#4 *More Music and Mathematics*	$75	$90
#5 *Some Deterministic Models In Mathematical Biology and Their Simulation*	$75	$90
#6 *Using the History of Calculus to Enrich our Teaching*	$75	$90

Minicourses: Enroll me in #_____and/or #_____
My alternatives are #_____ and/or #_____
You may sign up for a maximum of 2 Minicourses.
MathFest Registration is Required for Minicourses.
Subtotal for Minicourses $_____

Please ask at registration for ticket availability at each event.

Social Events	#Tix	Price	Total
Opening Banquet (8/2) ☐ Chicken ☐ Fish ☐ Vegetarian	_____	$45	$_____
Spouse/Guest (8/2) San Francisco Tour	_____	$50	$_____
PME Student Banquet (8/4) Undergrad students & Student paper presenters	_____	$20	$_____
PME Student Banquet (8/4) All Others ☐ Chicken ☐ Salmon ☐ Vegetarian	_____	$25	$_____
Silver & Gold Banquet (8/5) ☐ Beef ☐ Chicken ☐ Vegetarian ☐ Salmon	_____	$42	$_____

Subtotal for Social Events: $_____

Student/Other Events

Graduate Student Reception (8/3)	☐ Yes	☐ No
Student Activity Session	☐ Yes	☐ No
Math Jeopardy (8/3)	☐ Yes	☐ No

Short Course (8/1-8/2) *Implementing Biology Across the Mathematics Curriculum*	by 6/15	after 6/15
MAA or AMS Member and MathFest Participant	$150	$200
Nonmember or MathFest Non-participant	$200	$255
Student	$75	$100

MathFest Registration is not required for the Short Course. Contact MAA for more information.
Subtotal for Short Course: $_____

Payment

Registration/Ticket Fees
$_____

☐ **Check**. Make checks payable to the MAA. Checks must be drawn on a U.S. Bank in U.S. dollars.

Check Number:_____

☐ **Charge my:**

☐ VISA ☐ MasterCard

Card Number:

Expiration Date:

Signature:

Name on Card:

Zip Code of your credit card billing address:

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

☐ **Purchase Order**

#_____
Please enclose copy.

Mail or Fax to:
The Mathematical Association of America
c/o MathFest
1529 18th Street, NW
Washington, DC 20036
FAX: 202.387.0162

Register Online at www.maa.org * Questions/Changes/Special Needs: Call 1.800.741.9415 ext. 430 or email gwiegand@maa.org

MATHFEST 2007· AUGUST 3-5 · FAIRMONT SAN JOSE

MathFest 2007 · San Jose, CA · Housing Form

Hotel Reservation Information
Reservations at the Fairmont must be made through the MAA to receive the listed conference rates. The MAA can process reservations and changes until 4:00pm on July 6, 2007. After July 6, reservations and/or changes can only be made if space is available.

All rates are subject to a 10% sales tax, a $2 occupancy fee and administrative fees. Any reservations cancelled less than 24 hours prior to arrival will be subject to a cancellation fee equal to one night's stay. Changes to departure date after check-in will be subject to a charge of one night plus tax. Rooms will fill quickly at this property so participants are advised to reserve rooms as early as possible.

Additional fees may apply for triple or quad occupancy or for cot rental. Please contact MathFest Registration at 800.741.9415 x430 for additional information.

Fairmont San Jose

Parking
Valet Only - $26/Day – In/Out privileges.

Amenities
- Complimentary high-speed internet and wireless access in lobby
- Business Center
- Exercise Facility
- 3 Restaurants
- Outdoor Pool

San Jose State University

Parking
Self parking - $15 per week
Located at 8th and San Salvador Streets

Amenities
- Private bathrooms
- Queen Beds with linen
- Desk with chair and lamp
- Dresser, Nightstand, Lounge Chair
- Small Microwave
- Mini-refrigerator
- Coffee pot
- Flat Screen TV
- Phone, Cable TV
- Complimentary High-speed internet access

Mail or Fax to:
The Mathematical Association of America
c/o MathFest
1529 18th Street, NW
Washington, DC 20036
FAX: 202.387.0162

The Fairmont San Jose – Headquarters Hotel
170 S. Market St.
San Jose, California 95113
$169 + $2/night occupancy charge

The Fairmont San Jose combines technological innovation with timeless elegance.
Over the past decade, the 'capital' of Silicon Valley and home to the brightest minds in the computer, semiconductor and biotech industries - has exploded onto the world economic stage as the third largest city in California. The Fairmont San Jose plays an integral role in the community, hosting presidents, dignitaries, celebrities, CEOs and noted scholars. Each guest room is non-smoking and luxuriously-appointed with every amenity, including the finest bedding and toiletries, High Speed Internet access and a telephone in the bathroom to assist guests in maximizing their in-room time and comfort. Sign up for their free President's Club at www.fairmont.com and receive complimentary amenities and extra savings.

The fourth floor rooftop 60-foot heated swimming pool is the ideal place to relax and rejuvenate. There is also a state of the art, fully-equipped Health Club that includes separate locker rooms each featuring a dry sauna and steam room. The Fitness Center is complete with free weights, lifecycles, Cybex strength equipment, treadmills and stairclimbers.

At the Pagoda Restaurant one can savor the varied cuisines of China's provinces from 6 p.m. to 1 p.m., Tuesday through Saturday. The Bamboo Sushi features flavorful tuna, salmon, eel and veggies in tasteful, tantalizing and appetizing concoctions available to order thru In Room Dining, the Lobby Lounge, the Bamboo Lounge and the Pagoda Restaurant from 5 p.m. to 10 p.m., Monday through Saturday.

The casual American-style Fountain Restaurant offers an extensive a la carte menu selection in addition to their breakfast buffet. Reflecting the spirit and atmosphere of New York's legendary grills, the Grill on the Alley serves a variety of steaks, chops, fresh seafood and pasta along with an extensive wine list for lunch on weekdays and dinner throughout the week. Open from 12 p.m. to 12 a.m., the Lobby Lounge Bar offers afternoon tea in a cozy, club-like atmosphere – and is perfect in the evening for dancing and live entertainment.

Almost as appealing as The Fairmont's food choices is its location. Mere blocks away are the Center for the Performing Arts, the San Jose Museum of Art, the Tech Museum of Innovation, the HP Pavilion at San Jose as well as the SoFA (South First Area) District, a concentrated five-block area incorporating nightclubs, restaurants, art galleries and theater.

Room Type:
□ Single – One King Bed $169 □ Double – Two Double Beds $169

Arrival Date:_____ Departure Date:_____

Name of Other Room Occupants: 1)_____ 2)_____
Payment for Hotel: To guarantee a room, please include a deposit in the amount of one nights stay. Provide a credit card number or check (made payable to the MAA) in the payment information below.

San Jose State University
One Washington Square
San José, CA 95192-0005
408.924.1000
$80, $69

The San Jose State University residence halls are a comfortable and convenient housing option. Located in the heart of downtown San Jose on 19 city blocks, SJSU is the oldest public institution of higher education on the West Coat. SJSU is located within an easy 10 minute walk from conference headquarters, The Fairmont.

Each suite consists of 4 bedrooms, 2 bathrooms, a shared living room and a small kitchenette. Each bedroom has 2 beds. Rooms include a queen size bed with linens, a desk and lamp, desk chair, dresser, nightstand, lounge chair, small microwave and mini-refrigerator, coffee pot, coffee mugs, and flat screen TV. Phone, cable TV and high speed internet access are also included. Coffee, tea, soap and cups are included for your use.

Room Type:
□ Single – One King Bed $69 □ Double – Two Double Beds $80

Arrival Date:_____ Departure Date:_____

Name of Roommate: _____
Payment for Dorm: To guarantee a room, please include a deposit in the amount of one nights stay. Provide a credit card number or check (made payable to the MAA) in the payment information below.

Payment Information:

□ Check Enclosed □ Charge my Credit Card □VISA □ MasterCard

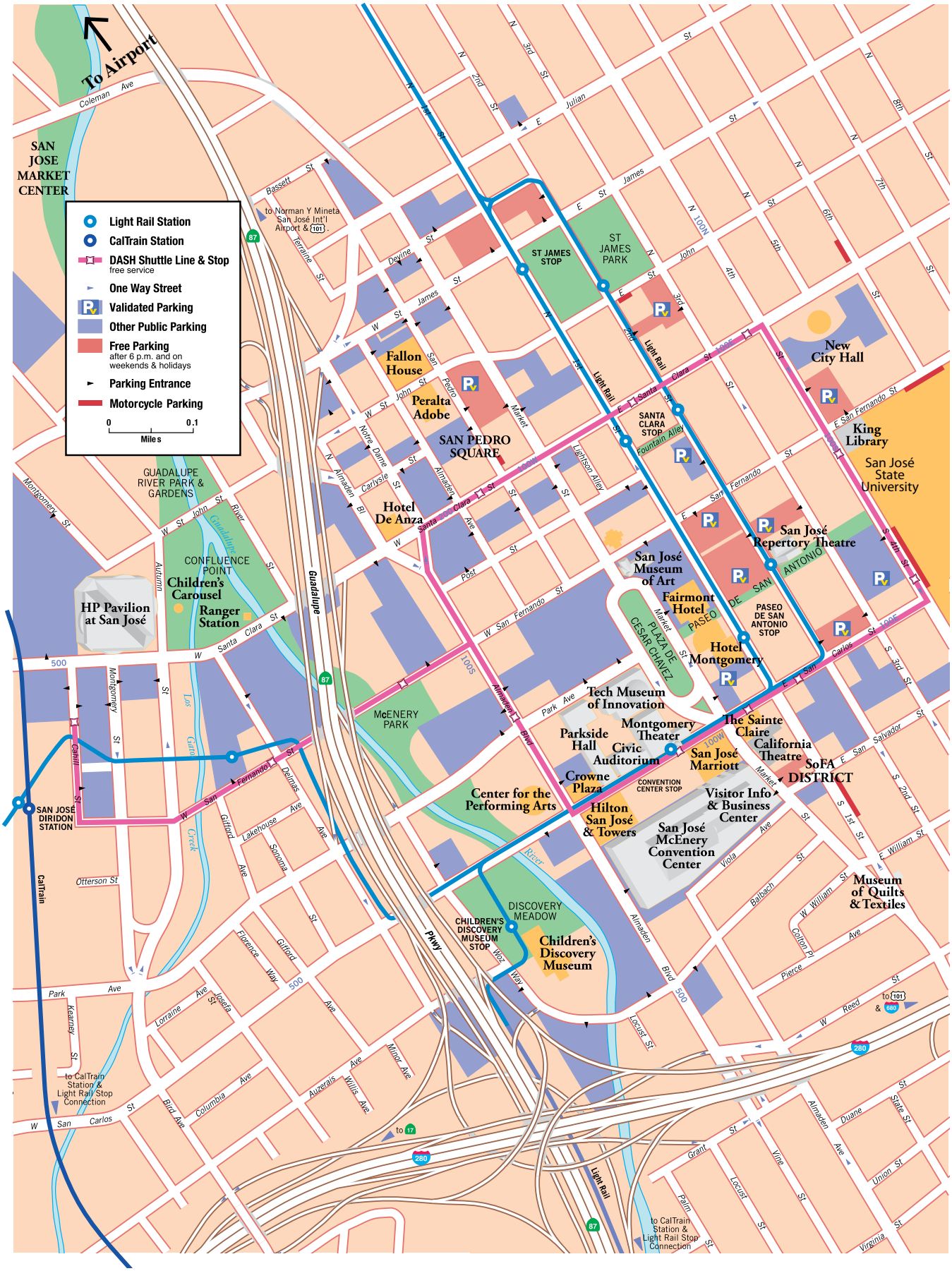
Credit Card Number: _____Exp._____

Total to be charged (including tax):
□ Fairmont $187.90 □ San Jose State Single $69 □ San Jose State Double $80

Special Requests: _____

Register Online at www.maa.org * Questions/Changes/Special Needs:
Call 1.800.741.9415 ext. 430 or email gwiegand@maa.org.

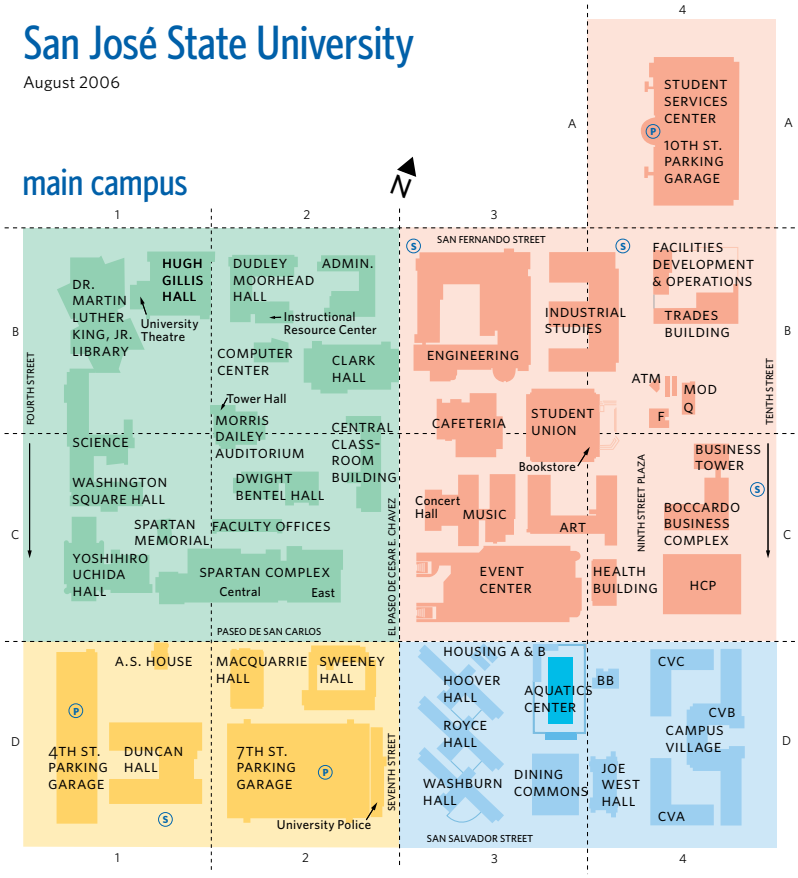
Map–San Jose Downtown



San José State University

August 2006

main campus

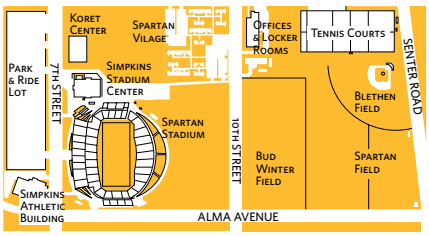


BUILDING		LOCATION
ADM	Administration	B-2
AQX	Aquatics Center	D-3
ART	Art Building	C-3
ASH	Associated Students House	D-1
ATM	Automated Teller Machines	B-4
BBC	Boccardo Business Complex	C-4
BB	Building BB	D-4
BT	Business Tower	C-4
CAF	Cafeteria	B-3
CVA	Campus Village A	D-4
CVB	Campus Village B	D-4
CVC	Campus Village C	D-4
F	Career Center	B-4
CCB	Central Classroom Building	C-2
CL	Clark Hall	B-2
CC	Computer Center	B-2
CH	Concert Hall	C-3
CY	Corporation Yard	B-4
DC	Dining Commons	D-3
DMH	Dudley Moorhead Hall	B-2
DH	Duncan Hall	D-1
DBH	Dwight Bentel Hall	C-2
ENG	Engineering Building	B-3
EC	Event Center	C-3
FOB	Faculty Offices	C-2
HB	Health Building	C-4
HCP	Heating & Cooling Plant	C-4
HOV	Hoover Hall	D-3
HGH	Hugh Gillis Hall	B-1

BUILDING		LOCATION
IS	Industrial Studies	B-4
IRC	Instructional Resource Center	B-2
JWH	Joe West Hall	D-4
KING	Dr. Martin Luther King, Jr. Library	B-1
MH	MacQuarrie Hall	D-2
MOD	Modular Buildings	B-4
MD	Morris Dailey Auditorium	B-2
MUS	Music Building	C-3
Parking Garages		
	4th Street	D-1
	7th Street	D-2
	10th Street	A-4
UPD	University Police Department	D-2
Q	Modular Building Q	B-4
RYC	Royce Hall	D-3
SCI	Science Building	C-1
SPXC	Spartan Complex Central	C-2
SPXE	Spartan Complex East	C-2
SPM	Spartan Memorial	C-1
SSC	Student Services Center	A-4
SU	Student Union	B-3
SH	Sweeney Hall	D-2
TH	Tower Hall	B-2
YUH	Uchida Hall	C-1
UPD	University Police	D-2
UT	University Theatre	B-1
WSH	Washburn Hall	D-3
WSQ	Washington Sq. Hall	C-1

Ⓟ Parking Garage
Ⓢ SJSU Shuttle Stop

south campus



KOR Koret Center
SAB Simpkins Athletic Building
SIM Simpkins Stadium Center

San José State University

off-campus facilities

210 NORTH 4TH STREET
- International & Extended Studies administration
- Global Studies Institute
- Mineta Transportation Institute
- Processed Food Institute
- SJSU Foundation

ART FOUNDRY (AF)
1036 South 5TH St

AS CHILD DEVELOPMENT CENTER
460 South 8TH St
next to University Club

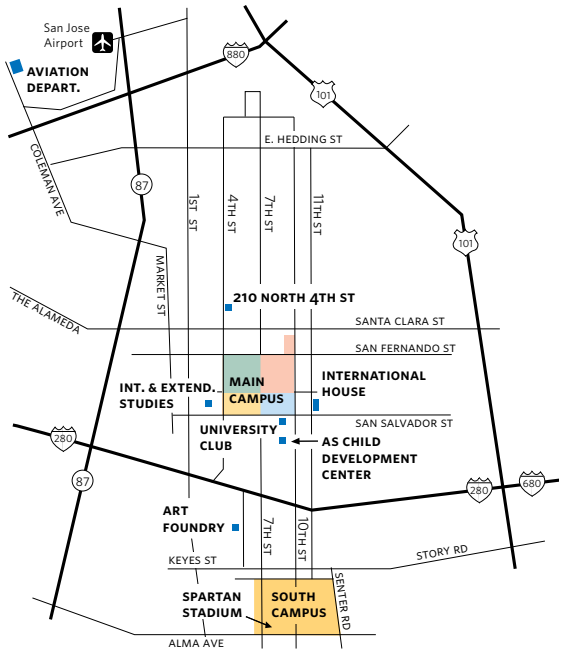
AVIATION DEPARTMENT (AB)
1120 Coleman Ave

INTERNATIONAL HOUSE
360 South 11TH St

MOSS LANDING MARINE LABORATORIES (MLML)
8272 Moss Landing Rd, Moss Landing
not shown on map

INTERNATIONAL AND EXTENDED STUDIES (IES)
Professional Development Center classroom building
384 South 2ND St

UNIVERSITY CLUB (UC)
408 South 8TH St



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Editor: Fernando Gouvêa, Colby College; fqgouvea@colby.edu

Managing Editor: Carol Baxter, MAA cbaxter@maa.org

Senior Writer: Harry Waldman, MAA hwaldman@maa.org

Please address advertising inquiries to: advertising@maa.org

President: Joseph Gallian

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Letters to the editor should be addressed to Fernando Gouvêa, Colby College, Dept. of Mathematics, Waterville, ME 04901, or by email to fqgouvea@colby.edu.

Subscription and membership questions should be directed to the MAA Customer Service Center, 800-331-1622; e-mail: maahq@maa.org; (301) 617-7800 (outside U.S. and Canada); fax: (301) 206-9789. MAA Headquarters: (202) 387-5200.

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Answer: *"Don't get "all shook up" if you don't know this, the number of albums Elvis Presley made over his career; it's also the sum of the coefficients when the polynomial $(x+2y)^4$ is completely expanded."*

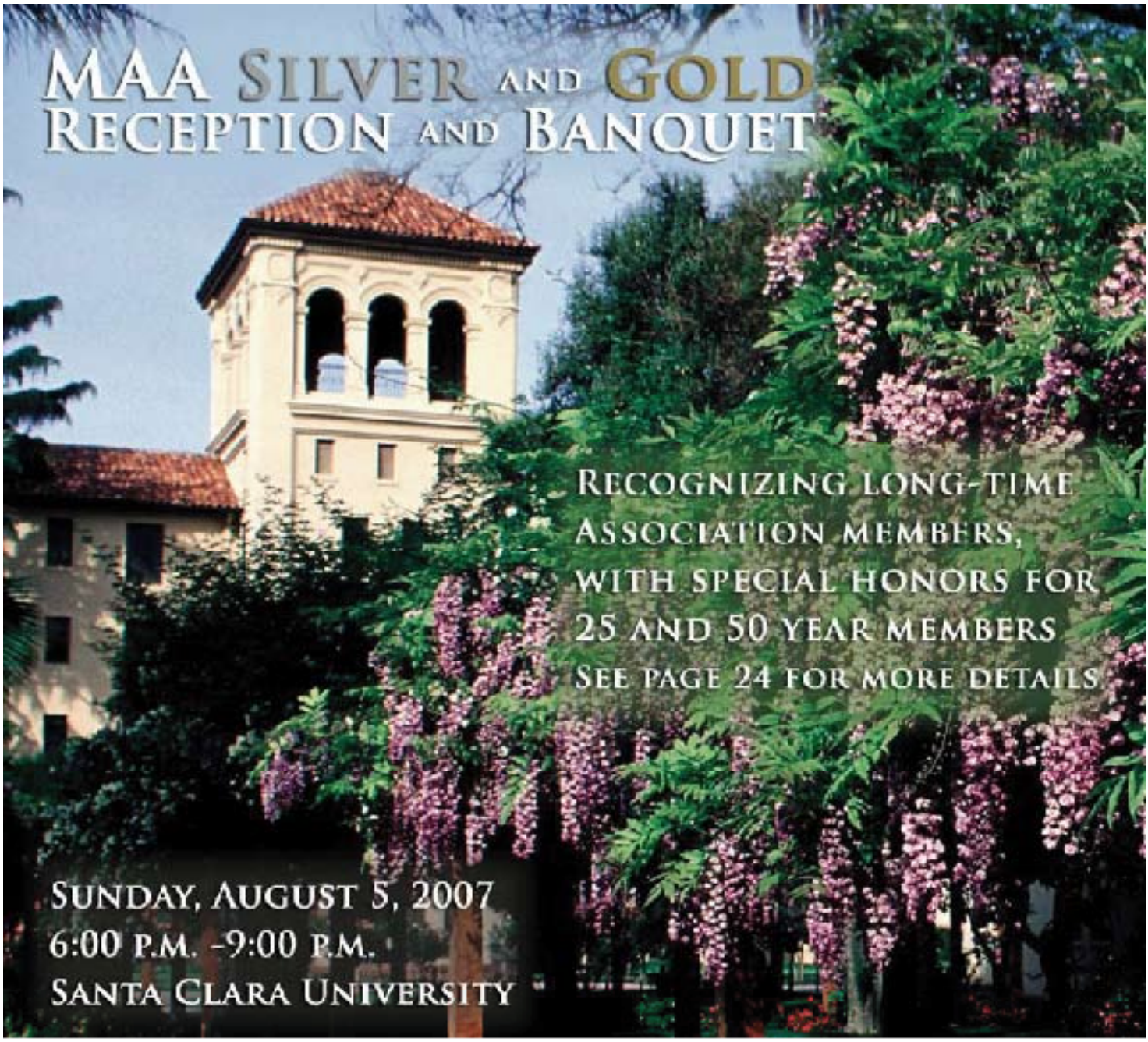
Question: *"What is 81?"*

Math JEOPARDY

Four teams of students will provide the questions to go with the mathematical answers in a variety of categories. Come cheer for your favorite team and challenge your own mathematical knowledge.

Friday, August 3
8:00p.m.-9:30p.m.

MathFest 2007



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