Metro Math

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Newsletter

Metropolitan New York Section of The Mathematical Association of America

February 2008

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Bronx	Brooklyn	Columbia	Dutchess
Greene	Manhattan	Nassau	Orange
Putnam	Queens	Richmond	Rockland
Suffolk	Sullivan	Ulster	Westchester

ANNUAL MEETING

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Saturday, 3 May 2008 8:00 AM - 5:00 PM

Courant Institute of Mathematical Sciences New York University New York, NY

(More Information Contained Within)

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SECTION OFFICERS

John (Jack) Winn Farmingdale State (SUNY)

Dan King Sarah Lawrence College

Farley Mawyer York College (CUNY)

Henry Ricardo Medgar Evers College (CUNY)

Mohammad Javadi Nassau Community College (SUNY)

David Seppala-Holtzman St. Joseph's College

Jerry G. lanni LaGuardia Community College (CUNY)

Chris Bergersen MacArthur High School

Randy J. Asher Brooklyn Technical High School

Joseph Quartararo Northport-East Northport Public Schools

Abraham S. Mantell Nassau Community College (SUNY)

Abraham S. Mantell Nassau Community College (SUNY)

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Section Web Page - www.maa.org/metrony

Contact Raymond N. Greenwell at matrng@hofstra.edu if you wish to add some interesting or useful information to the section web site. The section gratefully thanks Ray for maintaining the site over the past few years!

National Web Page - www.maa.org (both sites are linked to each other)

Section Governor

Chair

Chair-Elect

Secretary

Treasurer

(2005 - 2008)

(2006 - 2009)

(2006 - 2009)

(2006 - 2009)

(2006 - 2009)

(2006 - 2009)

(2006 - 2009)

(2006 - 2009)

Math Fair Chair – NYC

Speakers Bureau Chair

Public Relations Chair

Book Exhibit Coordinator

Liaison Coordinator

and Webmaster

Newsletter Editor

Vice-Chair for Four-Year Colleges

Vice-Chair for Two-Year Colleges

Vice-Chair for High Schools

Math Fair Chair – Long Island

Student Chapter Coordinator

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Metropolitan New York Section of the MAA



MESSAGE FROM THE SECTION CHAIR

Greetings, Section members! I hope you and your families are well and that your mathematical teaching, research and/or musings are providing you with endless hours of stimulation and enjoyment.

I want to send out a special thanks to those of you who attended our May meeting last year on the campus of Sarah Lawrence College. A record number of you – over 150 of you, in fact! – came out on the picture perfect spring day on the Bronxville campus to enjoy the meeting's featured presentations, panel discussion, contributed paper and poster sessions, vendor exhibits, etc. As always, there was ample time to meet/reunite with mathematical colleagues to converse on topics of shared interest. The Section's officers are always looking for promising programming opportunities and ways that we can make our annual meeting an enjoyable and memorable experience for you. On that topic, I would like to share with you our plans for the upcoming May meeting and to recruit your assistance in providing the Metro New York Section and the National MAA with valuable feedback on your perceptions of local and national meetings.

The Spring Meeting will be held this year on Saturday, May 3 at New York University's Courant Institute of Mathematical Sciences in Manhattan. In addition to some outstanding talks by Deanna Haunsperger (on her experience as Editor of *Math Horizons*) and Charles Peskin (on his research on mathematical modeling in medicine), this year's May meeting will feature two programs at the intersection of mathematics and the creative arts: an exhibit on mathematics-inspired visual arts and a full-length musical about Calculus! Please consult the meeting program herein for full descriptions of these programs and a schedule for the entire day's events.

Many of you are surely familiar with the long historical tradition of mathematically created or inspired art. Whole movements in the visual arts (e.g., realism) and theories in the performing arts (e.g., music theory) have relied in one way or another on mathematics for guidance or inspiration. The benefits stemming from the math-art relationship, however, are entirely reciprocal. Those teachers among us who have dabbled in the use of the creative arts in the classroom can provide direct testimony to these potential benefits. The arts provide teachers an invaluable tool that can help students see the creative side of our discipline, can excite and motivate students towards advanced mathematical study, and can assist teachers by providing materials that reinforce student understanding of mathematical notions as a supplement to or as an extension of standard textbook presentations. I hope the spring meeting's featured mathematical art exhibit and musical will inspire you, and through you, will inspire your students as well.

Speaking of inspiration, the officers of the Metro New York Section and the National MAA would like to know what inspires you. Specifically, the MAA Strategic Planning Working Group on Meetings has formulated a list of questions and want to hear your thoughts on the following set of questions.

- Why do you go to national meetings? Why do you go to sectional meetings? Do you prefer one type of meeting over the other? Why?
- Do you view January's Joint Mathematics Meetings (JMM) as different from the summer's Mathfest? What do you think of the proportion of 'real math' at sectional meetings, JMM and Mathfest?
- Are there aspects of sectional meetings that you wish were incorporated into national meetings, and vice versa?
- How can sectional meetings, JMM and Mathfest attract individuals who have historically opted not to attend these meetings.
- Is there anything else you would like your local or national MAA officers to know as they plan meetings?

There may be a chance for a discussion of these questions at our spring meeting. To be sure, my fellow officers and I would welcome your comments questions. If interested, I invite you to send me your thoughts at dking@slc.edu.

I very much look forward to seeing many of you for the Spring Meeting on May 3. Until then...happy mathematics!

Dan King

MESSAGE FROM THE SECTION CHAIR-ELECT

As usual, things are quite busy mathematically in the Metropolitan New York Area. Besides all of the seminars and colloquia that run locally, we, in our section have recently had successful joint meetings with the Seaway Section and also the New Jersey Section. As I'm sure others are reporting, this coming May 3 at the Courant Institute for Mathematical Sciences we'll have another great meeting with fantastic invited speakers like Charles Peskin and Deanna Haunsperger. In addition to that we will also have a presentation of *Calculus, the Musical*!

I would like to congratulate Jack Winn for receiving the Distinguished Service Award last year and also Walter Meyer for winning the Distinguished Teaching Award. I hope you will join me in congratulating the winners of these and other awards when they are announced at this year's meeting.

Farley Mawyer

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MESSAGE FROM THE SECTION GOVERNOR

Meeting of The Board of Governors at MathFest

San Jose, CA • August 2, 2007

President Joe Gallian called the meeting to order at 9:00 AM. He reported that an ad hoc committee was created to plan for the MAA 2015 centennial celebrations. The centennial meeting will be held on August 4, 2015 in Washington, D.C. Many activities are being planned. Since assuming office, President Gallian has engaged in many official activities including obtaining funding, participating in ceremonies including the opening of the Carriage House, attending policy meetings in Washington, D.C. and speaking at section meetings.

The BOG attended to routine matters such as approving "consent items" and electing Governors at Large (for minority interests and high school teachers respectively).

Treasure John Kenelly reported that the "financial spectrum" consisting of budget, investments, building and grants is now 10, 7.5, 9, 6 (in millions) which puts us on the path to his goal of 10, 10, 10, 10. In conjunction with the Treasurer's Report, it was reported by the Budget Committee that the proposed 2008 operating budget projects a \$315,000 "transfer from investments" on an \$8,000,000 budget (i.e. an operating deficit). However, while disturbing, this deficit is not of great concern since for some years we have had a budget surplus and the deficit could be offset by potential income sources that might materialize. The deficit is due in part to a projected drop in reimbursements of expenses and indirect costs from federal grants among other factors.

Associate Secretary Jim Tattersall reported that the 2007 New Orleans meeting was the largest Winter meeting ever. Summer 2007 MathFest attendance was already at 1,302 which is a good turnout.

Robert Anastasio, Director of Marketing and Membership, noted that over the last 18 months, membership was down by 3% although there is no reason to believe that this is a trend (historically we have had ups and downs in membership). Possible reasons for this are: competition with other societies, higher dues, removal of journal discount, adjustment in retirement dues rate, and possibly changes in staffing. It was mentioned that it is expensive to recruit new members but inexpensive to retain members. We may have "automatic renewals" in the future.

First Vice President Carl Pomerance gave a detailed report on strategic planning. The Cycle I planning reports are complete (and are available at the MAA web site). The Cycle II planning groups (Students, Governance, Membership) are currently underway and the Cycle III planning groups (Sections, Meetings, STEM issues) are being formed. Regarding STEM issues in cycle III, we are concerned with the role MAA should play in the "big picture" with respect to STEM. During the afternoon session, the BOG divided into focus groups on the topic of membership (a cycle II topic). Issues concerning membership include: are we serving our members well?; what are the non-traditional membership groups; can we better leverage the AMC to promote MAA?; and do MAA journals serve our members well? Many other points regarding membership were discussed as well.

(continued)

William Hawkins, Director of the Office of Minority Participation, reported that they are looking for new participants in their national REU program. Ivars Peterson, Director of Publications, Journals, and Communications, reminded people to look at the MAA web site everyday since "Math in the News" is always being updated and has links to original sources. Don Albers told us that book sales are ahead of last year's sales at this time, and MAA now sells \$400,000 worth of books on Amazon.com far exceeding our expectations. Lisa Kolbe, Manager of Development, reported that there are now 19 sponsors of Project NExT (including the Metropolitan NY Section). Under the topic of "Development," President Gallian expressed his hope that every section will have a brick as part of the Carriage House Brick Campaign. Roseanne Brown, Director of Information Services, indicated that in the future all MAA sections may use similar web page templates and all section web sites would be on the MAA server.

Fernando Gouvea reported that that the "Meetings Issue" of FOCUS will be modified with FOCUS referring readers to the MAA web page for some of the meeting information as opposed to printing it all in FOCUS. A motion on "Ethical Standards" was postponed to the next meeting and a proposal on professional job interview procedures was passed after some debate. As usual, I found it very rewarding to interact with the other Section Governors both socially and on official business.

Jack Winn

Meeting of the Board of Governors at the Joint Meetings

San Diego, CA • January 5, 2008 (Reported by substitute governor Raymond N. Greenwell)

It was déjà vu all over again. Having completed my term as governor three and a half years ago, I thought I'd never defile another governors meeting. But here I was in San Diego, trying to replace the irreplaceable Jack Winn, who was unable to attend his final governors meeting due to his recent heart surgery. A likely story. So while Jack was enjoying an extended vacation, I was in the pouring rain in San Diego, eating salsa on my bagel, as the San Diego temperature had the audacity to be colder than that of New York.

Some things never change, but that means everything else changes, and the governors meeting was no exception in being exceptional. Rather than the usual snore-fest of my prehistoric term, this was an action-packed extravaganza that Jack's recovering heart would not have been able to sustain. Consider the following recommendations from the Working Group on Governance that the Board of Governors approved, all by unanimous or near unanimous votes:

- Revise committee terms to provide overlap at January meetings;
- Create a task force to ensure that committees have approved charges displayed on the MAA web site;
- Each ad hoc committee and task force must have a termination date;
- Dissolve the CUPM Subcommittee on Service Courses and the MathFest Site Selection Committee;
- The charge of each Council shall be spelled out, and the Councils will be given a role in recommending actions and policy to the Board;
- Revise Council terms to provide overlap at January meetings;
- Change the name of the Budget Committee to "Finance Committee";
- Create a Task Force to recommend changes to the MAA bylaws.

So as not to appear too action oriented, the Board postponed the following recommendation until MathFest 2008:

• Create, rename, and realign Councils and committees within Councils.

As if this were not enough, the Board also unanimously approved the following actions:

- Establishment of an Assessment Committee;
- Establishment of a web page with financial information in the members-only section of the MAA web site;
- Keep the 2009 dues the same as the 2008 dues;
- After all the reports of the current Strategic Planning process have been presented to the Board, an
 ad hoc committee should spend a year of strategic planning to examine the overall mission and
 vision of the MAA;

- The due date for final Cycle III reports to the Board of Governors should be changed from the 2009 joint meetings to MathFest 2009;
- A study group should be formed on what the correct mix and content of journals, newsletters, magazines, and online communications should be;
- The Committee on Sections was given a new charge;
- The bylaws for the Seaway Section were changed;
- The Morgan Prize Regulations were changed;
- The time schedule for the Beckenbach Book Prize was revised.

Once again, to avoid appearing too active, the Board sent back to committee the suggested guidelines for awards presented by SIGMAA's.

Perhaps some of you reading these actions may be thinking, "Whoa! Some of these actions could use a lot more explanation and background." You are correct. Do you think you're getting that in this report? Ha ha ha! But if you present me with an appropriate bribe (a lunch, an MAA book, or an email message with a lot of groveling), I will be delighted (or at least grudgingly willing) to give you a complete explanation and background, or maybe even let you read the material given to the governors. I'm hoping the MAA will eventually issue a report describing these actions that will be far more coherent than anything I could produce. I'm also hoping for peace on earth.

Joyfully submitted, Raymond N. Greenwell

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TREASURER'S REPORT

(as of 12/31/07)

Business Checking	\$ 8,872.88
Business Money Market	\$ 6,256.76
6-Month Business CD	\$31,580.04
Total	\$46,709.68

All accounts are with J.P. Morgan Chase Bank. Further details will be provided at the annual meeting.

Mohammad Javadi

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25 and 50 Year Members

The following members will be recognized during the Awards Ceremony at our May meeting. The 25 year members are offered free registration, and the 50 year members free registration and lunch (who said there's no such thing as a *free lunch*?!!). \bigcirc

<u>25 Years</u>: Peter Arvanites (Rockland CC – SUNY), Oganes Bogaryan (SUNY Maritime College), Katalin A. Bencsath (Manhattan College), Richard C. Churchill (Hunter College – CUNY), Rosanne M. Ferdico, Richard Geller, Rony Gouraige (CUNY Graduate Center), Albert Goetz, David H. Hoitsma Jr., Ralph D. Kopperman (City College – CUNY), Patricia Lane, Peter C. Pappas (Vassar College), Reba Patterson, William D. Romaine, Richard J. Silvestri (Nassau CC – SUNY).

50 Years: Salvatore Anastasio (SUNY – New Paltz), Leon Cohen (Hunter College – CUNY), Richard N. Guibord (Copiague Public Schools), Erwin Just, John W. Pennisten, John Rausen, Sylvester Reese, Paul L. Sadagursky, Bernard Sohmer (City College – CUNY), Alexander Weiner (Hofstra University).

2008 SPRING MEETING PROGRAM (Preliminary)

8:00	_	9:00 AM	Registration and Refreshments (Courant Lobby) Book Exhibits Open (continuing until 3:30 PM)
9:00	_	9:15 AM	Welcoming Remarks (Courant Auditorium):
			Representative of the Courant Institute of Mathematical Sciences (TBA)
			Dan King, MAA Metropolitan New York Section Chair
9:15	-	10:15 AM	Invited Speaker (Courant Auditorium): Cardiac Mathematics
			Charles Peskin, Courant Institute of Mathematical Sciences (NYU)
10:00	_	5:00 PM	Courant Library Open (Courant - 12 th Floor)
10:15	_	10:30 AM	Break
10:30	_	11:30 AM	Invited Speaker (Courant Auditorium): <i>Bright Lights on the Horizon</i> ¹
			Deanna Haunsperger, Carleton College
11:30	_	12:00 PM	Awards Ceremony - including Prize Raffle with some Sectional Business (Courant Auditorium)
12:00	_	1:30 PM	Lunch (Courant Observation Lounge, 13 th Floor)
1:30	_	3:10 PM	Contributed Paper and Poster Sessions (locations in Courant TBA)
2:00	_	5:00 PM	Math-Art Exhibit ² , Curator Anne Burns (location in Courant TBA)
3:10	_	3:30 PM	Break - coffee and refreshments (Courant Lobby)
3:30	_	5:00 PM	Performance (Courant Auditorium): Calculus: The Musical! ³ (with time for Q&A)
			Sadie Bowman and Marc Gutman

¹ See page 9 for Abstracts and brief Bios of Charles Peskin and Deanna Haunsperger

² See pages 13 and 17 for more about the *Math-Art Exhibit*

³ See pages 9-10 for a brief Description of *Calculus: The Musical!* with Bios of Sadie Bowman and Marc Gutman

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Call For Abstracts: General Contributed Paper and Poster Sessions

The Metropolitan New York Section of the MAA is soliciting abstracts for the *Contributed Paper and Poster Sessions* of its 2008 Spring Meeting to be held on Saturday, May 3 at the Courant Institute of Mathematical Sciences of NYU. All interested professionals and students are encouraged to submit an abstract. Once again this year the Contributed Paper Sessions will feature presentations on mathematical research as well as mathematics education. We will also once again have a *Poster Session* at our meeting.

As always, high school and college students are especially encouraged to submit an abstract discussing their experience with mathematical research. To further encourage student participation at the Spring Meeting, the Metropolitan New York Section is pleased to waive the meeting registration fee and lunch fee and to provide a gratis 2008 MAA membership (including a journal subscription) for all student presenters! Teachers, please encourage your students to present!

Paper presentations will be of fifteen minutes in duration followed by a five minute question and answer period. All presenters will be recognized in the final program of the Spring Meeting.

In addition to the abstract (not to exceed 300 words), all proposals should include the name of the author(s) and presenter(s), postal address, e-mail address, phone number, and title of the proposed presentation. Please indicate any special equipment needs. High school and college student presenters should also submit the name and telephone number of their mathematics teacher or advisor.

Please submit proposals electronically, in plain text or MS Word format (no PDF's), to mantell@ncc.edu by Friday, April 4 for full consideration. All abstracts will be examined by a committee of reviewers. The outcome of their deliberations will be announced by mid-April. <u>Please be certain to clearly indicate your preference regarding presentation, i.e. if you are only interested in presenting a paper (15 minute lecture), or only wish to present a poster, or if you have no preference and would be willing to do either.</u>

For additional information regarding the *Contributed Paper and Poster Sessions* of the 2008 Spring Meeting, please contact Abe Mantell (mantell@ncc.edu).

Please see page 17 for the Call for Art-Work for the Math-Art Poster Session exhibit.

Cardiac Mathematics, Charles S. Peskin, Courant Institute of Mathematical Sciences, NYU

Abstract: There are many different aspects of cardiac function that can be expressed in mathematical terms. This talk will touch on some of them: the fetal heart and circulation, and the cardiovascular changes that occur suddenly at birth; the fiber architecture of the heart and its valves; the fluid mechanics of blood in the cardiac chambers; and the electrical activity of the heart. Mathematical methods will range from high school algebra to partial differential equations with some differential geometry along the way. Numerical methods will play an important role, and computer generated animations of the beating heart will be shown.

Speaker Biography: Charles S. Peskin was born on April 15, 1946, in New York City. He studied Engineering at Harvard (A.B., 1968), and Physiology at the Albert Einstein College of Medicine (Ph.D., 1972). In 1973, he joined the Courant Institute of Mathematical Sciences, New York University, where he is now a Silver Professor, Professor of Mathematics, and Professor of Neural Science. He is also currently an A.D. White Professor-at-Large of Cornell University. Peskin's honors include a MacArthur Fellowship (1983-1988), the Mayor's Award for Excellence in Science and Technology (NYC, 1994), and the George David Birkhoff Prize in Applied Mathematics (AMS/SIAM, 2003). He is a Fellow of the American Institute for Medical and Biological Engineering (1992), of the American Academy of Arts and Sciences (1994), and of the New York Academy of Sciences (1998); and a Member of the National Academy of Sciences (1995) and of the Institute of Medicine (2000). Peskin's field of research is the application of mathematics and computing to medicine and biology, particularly in the areas of heart physiology, neural science, and biomolecular motors. He is especially known for the immersed boundary method, a general computational framework for fluid-structure interaction.

Bright Lights on the Horizon, Deanna Haunsperger, Carleton College

Abstract: What do a square-wheeled bicycle, a 17th-century French painting, and the Indiana legislature all have in common? They appear among the many bright stars on the horizon of mathematics, or perhaps, more correctly, <u>in</u> *Math Horizons*. *Math Horizons*, the undergraduate magazine started by the MAA in 1994, publishes articles to introduce students to the world of mathematics outside the classroom. Some of mathematics' best expositors have written for *MH* over the years; this presentation will explore some of the highlights from the first ten years of *Horizons*.

Speaker Biography: Dr. Deanna Haunsperger is a professor of mathematics at Carleton College in Minnesota. Since her own undergraduate days at a small liberal arts college in Iowa, Deanna has been interested in increasing the number of students who pursue advanced degrees in mathematics. That passion has guided her as a former co-editor for *Math Horizons* (the Mathematical Association of America's magazine for undergraduates) and as co-founder and co-director of Carleton's Summer Mathematics Program for Women (a successful, intensive four-week summer program to encourage talented undergraduate women to pursue advanced degrees in the mathematical sciences). Most recently she served as the Second Vice President of the MAA and chaired the MAA's Strategic Planning Committee on Students. Deanna is married to fellow mathematician Steve Kennedy, and together they have two children.

Calculus: The Musical!, Sadie Bowman and Marc Gutman

Calculus: The Musical! is a comic "review" of the concepts and history of calculus. It was born as a teaching tool in Marc's classroom. He found that setting formulas and rules to music helped his students learn and retain tricky information. "Maxima" and "minima" is an abstract concept to a lot of us, but when sung as a rousing "Can-Can" chorus, it's fun and easy to remember! A blend of sketch comedy, musical theatre and classroom lecture, MATHEATRE has created a performance piece to show that although calculus is used in rocket science, well...it isn't exactly rocket science.

Using musical parodies that span genres from light opera to hip hop, we introduce and illuminate such concepts as limits, integration and differentiation. With our unique comic style we dramatize some high points of calculus' history. From Archimedes to Riemann, the quest for the instantaneous rate of change and the area under the curve comes to life through song! Musical tributes to The Beatles, Gilbert & Sullivan, Madonna, Petula Clark and even Eminem are just a few of the artists who have inspired this engaging and educational lesson that is nothing at all like your high school textbooks. *Calculus: The Musical!* promises to be entertaining to the arithmophobe and the rocket scientist alike. (continued)

Sadie Bowman, an actor, writer and musician, was a contributor Minneapolis' vibrant theatre and comedy scene for several years. She co-founded Mean Sisters Productions, a women's comic theatre trio, in late 2003. They were the creators of the acclaimed *Tales of the Socially Inept* (2004), the popular monthly *Mean Sisters Variety Show* (2004-05) and *Private Fantasies* (2005). She earned a bachelors degree in Theatre Arts from the University of Minnesota, Twin Cities and from Edison State Community College in Piqua, Ohio. While she has extensive experience in creating a performing music and comedy, the majority of her mathematical education came from *Square One TV*.

Marc Gutman, a licensed Math teacher, has been working as an educator since 1998. He taught Math at Watershed High School in Minneapolis for five years, during which time the seed for *Calculus: The Musical!* was planted as a result of exercises in his classroom. The effect of music in the acquisition and retention of information has been a key point of research in his Masters studies at the University of Minnesota. His inventive approaches to learning have made him a popular and well-liked teacher. As an entertainer, he pioneered the art of Performance Origami with the Scrimshaw Brothers' popular late-night show "Look Ma No Pants" since 1998, in addition to having studied and taught improv.

Visit the following website for (much) more: http://calculusthemusical.com/

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Directions to:

Courant Institute of Mathematical Sciences New York University 251 Mercer Street New York, NY 10012-1185

The Courant Institute is located in Greenwich Village in lower Manhattan. The Mathematics Department and part of the Computer Science Department are in Warren Weaver Hall on the southwest corner of West 4th Street and Mercer Street. Please check the following website for detailed directions via plane, train, bus, subway, and car: http://www.cims.nyu.edu/direct.html – contains no parking information, but there are many parking garages in the immediate area, including a large lot on West 3rd Street between Mercer and LaGuardia Place.



2008 SECTION MEETING REGISTRATION FORM

(*** PLEASE PRINT ***)

First Name: M.I.: _	Last Name:					
Badge Name or Nickname:	Affiliation:					
Address:						
City:	State:	_ Zip+4:				
Phone Numbers: Day: ()	Eve: ()	Fax: ()				
Internet address: E-mail:						
Special diet? (circle one) Yes / No. Please specify:						
Any other special needs? (wheelchair acc	ess, etc. – please speci	fy)				
How will you be arriving to the meeting? \Box Car \Box Mass Transit \Box Other						
The MAA national office requests the following information. Please check the appropriate responses.						
Current MAA Member: Yes	No					
Faculty members at a college or university	y, please check the high	est <u>mathematics</u> degree offered:				
□ Associate □ Bachelors □	□ Masters □ Docto	orate 🗆 None				
Employment: 🛛 High School Teacher	High School Stude	nt 🛛 Undergraduate Student				
□ Graduate Student □ Other (pl	ease specify)					
Retired (from?)	□ Bus	iness, Industry, Government Employee				
First Time Attending a Metro NY Sectiona	I Meeting? □ Yes	□ No				
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Registration Fee: On/Before 11 April	\$10.00	* Registration and lunch fees waived for:				
After 11 April	\$15.00	 students presenting papers or posters 				
Student Registration*	\$ 3 00	 50-Year Members (see page 7) 				
Luncheon*? (circle one) Ves/No	\$15.00	* Registration fee waived for:				
	TOTAL:	• 25-Year Members (see page 7)				
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Mail completed form with payment (payable to The MAA, do not send cash) to:

Dan King Department of Mathematics Sarah Lawrence College 1 Mead Way Bronxville, NY 10708

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(Registration forms will be acknowledged via e-mail within two weeks of receipt.)

FEATURED ARTICLES

First semester completed as BCC launches its Quantitative Reasoning across the Curriculum Initiative

Don Read, Quantitative Reasoning Coordinator, Bronx CC

As the spring semester begins, Bronx Community College moves into the second semester of its fledgling Quantitative-Reasoning-across-the-Curriculum (QRAC) program, initially proposed by BCC faculty members and later mandated by an edict from the CUNY Chancellor's office.

The Quantitative Reasoning movement is also commonly called Quantitative Literacy and, particularly in the former British Commonwealth nations, Numeracy. It recognizes that the technology-driven, data-rich contemporary world requires at least minimal abilities to understand, analyze, critique and generate quantitative analyses and presentations, and for whatever complex of reasons, large numbers (perhaps the vast majority) of students arriving at college these days are inadequately prepared for this quantitative brave new world.

The implications of this lack of preparation are so profound – not just at BCC or CUNY but at most colleges throughout this country and in many other countries – that requiring one or two remedial math courses is an insufficient solution. The situation requires mobilization and participation of the whole faculty, just as a generation ago it was recognized that we were dealing with a problem in student writing so severe that an across-the-curriculum solution was required.

To begin to acknowledge and grapple with this reality (and, not coincidentally, to comply with the Chancellor's mandate), BCC began in the fall of 2007 to offer, under the auspices of the Center for Teaching Excellence, professional development workshops designed to help faculty members identify quantitative challenges commonly arising in the context of their courses, and to help those faculty members construct pedagogical solutions for helping students develop the quantitative skills necessary for mastering these challenges.

In the fall two workshop groups met. Participants were from the departments of Biology and Medical Lab Technology, Chemistry and Chemical Technology, Education and Reading, Nursing and Allied Health, and Social Sciences. Presentations included:

- Interpreting tables and charts from the National Assessment of Educational Progress
- Calculating atomic mass
- Calculating of the cost of one aluminum atom
- Performing calculations related to the kinetic molecular theory of molecules in the gas phase
- Estimating the date of conception in a pregnancy, the weight of the fetus, and the date of delivery
- Calculating proper doses of pharmaceuticals, converting pounds to kilograms, etc.
- Calculating radiation dosages in pelvic imaging
- Figuring the genetic characteristics of offspring, given the genes of the parents, using Punnett squares
- Calculating cardiac output, given the heart rate and stroke volume
- Understanding human breathing via the relationships among air flow, pressure, and volume
- Understanding the reasons for an airline crash by making fuel volume calculations.

Our workshop participants got outstanding assistance with understanding the nature of students' computational difficulties from two members of the Mathematics and Computer Science Department. (Incidentally, when we talk about student difficulties here, we're not describing problems in higher mathematics. We're talking arithmetic: fractions, decimals, the calculation of percentage change, etc. And among other exciting and occasionally appalling revelations in the workshops, we learned to our dismay that at least some elementary schools have stopped teaching the multiplication tables. So we abandon English grammar, then the multiplication tables, and what's next – the alphabet? If you have icons and pictures on your cell-phone and your laptop and your iPod and your Blackberry, do you really have to know what those funny little squiggles mean? But we digress . . .)

(continued)

In the spring semester now underway, the workshop participants will take the teaching modules they developed in the fall semester and use them in specific courses – again with assistance from our resident mathematicians. Next fall we plan to expand the scope of the workshops to include faculty members from all disciplines. (We were limited this year by the fact that our activity was funded by a New York State Perkins grant, which stipulates that participants be from courses or departments involved in occupational programs.) The mandate from the Chancellor's office calls for an across-the-curriculum program.

Our kickoff semester was exhilarating. The presentations were exciting, provocative, and occasionally brilliant, discussions were lively and informative, and the two-hour sessions always ended with participants still having much to say. We are eager to see how the program evolves. Stay tuned.

What's New in the Math-Art World

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Anne Burns, Department of Mathematics Long Island University, C.W. Post Campus, Brookville, NY 11548 aburns@liu.edu http://myweb.cwpost.liu.edu/aburns/

A year ago I wrote about a new special interest group of the MAA, SIGMAA-Arts, which is made up of mathematicians who use mathematics in some form to create works of art, or who think that projects integrating mathematics and art can play a role in the teaching of mathematics. Since that time the interest in this merging of disciplines is growing by leaps and bounds. There are numerous organizations devoted to the connections between math and art. Links to these organizations and to educational materials can be found on the website of SIGMAA-Arts, which can be located by going to the MAA website and looking under SIGMAA's.

For the fifth year in a row, an exhibition of mathematical art was held at the Joint Mathematics Meetings in January; this year it was held in San Diego, Jan. 6-9. We had over 40 artists represented, the quality of the art was better than ever, and we published a catalog of the show for the first time. The show can be seen on the web site: http://www.bridgesmathart.org/amsmaa.html. Besides the art show there were three sessions devoted to Math and Art; all were very well attended, even the one on the last afternoon of the conference when many people had already left for home.

Numbers, patterns and symmetry have inspired both mathematics and art throughout history. With the advent of technology there has been an explosion in interest in the field of visual mathematics. Artist/mathematicians are exploring old and new connections between math and art. Some examples are the relation between ancient Islamic tiles and geometric constructions, weaving patterns and group theory, tiling theory and pre-Incan textiles, quilts and Penrose tiling, knot theory as building blocks, hyperbolic space, soap-film surfaces, wave behavior, dynamical systems and fractals, and graphs of complex variables.

We are now in the planning stage for an exhibit of mathematical art at this year's MathFest, which will be held in Madison, Wisconsin, July 31-Aug. 2. If you would like to submit your art, or are interested in getting on the mailing list for future JMM Math-Art exhibits, you can email me at the above address.

We will be having a *Math-Art Exhibit* at the Metro NY Spring Meeting on May 3rd. Please see page 17 for the particulars of submitting art-work for the exhibit.



NEWS FROM OUR SECTION

Seeing Double: A Report of Our 2007 Meetings

by Henry Ricardo, Medgar Evers College (CUNY)

With the precedent of our two successful 2006 meetings before us, we decided to double the fun once more in 2007.

On Sunday, May 6, 2007, 155 lovers of mathematics found their way to the beautiful Sarah Lawrence College campus in Bronxville, NY for the Metro NY Section's annual spring meeting. There was a welcoming reception and a delightful buffet luncheon later. We were greeted officially by Dr. Michele Meyers, the President of Sarah Lawrence. We listened to Manjul Bhargava's nice exposition of "Sums of Squares and the 290-Theorem" and were also pleased by Francis Su's presentation on "Preference Sets, Graphs, and Voting in Agreeable Societies." There was a panel discussion on "The Situation Today: Continuing Challenges for Girls and Women in mathematics," as well as a contributed papers session and various poster presentations. The Section honored Walter Meyer and Jack Winn with the 2007 Distinguished Teaching and Distinguished Service awards, respectively. These awards were well-deserved. As usual, there was a sale of MAA books (at prices below the usual discounted member's prices) and an exhibit of texts by several publishers' representatives.

Then we held a joint meeting in the fall, this time with the New Jersey Section, at St. Peter's College (Jersey City, NJ) on Saturday, November 3, 2007. The invited speakers were Fernando Gouvêa, Simon Thomas, and Dimitri Tymoczko. There were several workshops, including one on "Recruiting and Retaining Math Majors" and another on "What Makes a Good Book on Mathematics." Lunch featured "theme" tables and the meeting ended with the announcement of winners of door prizes and the winner of the silent auction.

Please plan to attend our annual spring meeting at the Courant Institute (NYU) on Saturday, May 3.

New York City College of Technology Awarded \$990,000 NSF Award

New York City College of Technology (City Tech) was awarded a \$990,000 NSF STEP for 2007-2011. Incoming freshman may apply for a 4-week intensive summer course that introduces students to either 4 major areas of engineering or 4 areas of science, one of which is mathematics. Participating students receive a small stipend at the end of the summer course as well as career counseling. Students deciding to major in one of the STEM areas may participate in a research program funded by the grant.

http://www.citytech.cuny.edu/academics/deptsites/liberalartsandsciences/scienceandtechnology.shtml

Delaram Kahrobaei and Victoria Gitman received an NSF grant to host the second New York Women in Mathematics Conference on May 2nd. The title of the conference is Interdisciplinary Research in Logic, Group Theory, and Theoretical Computer Science. There are a number of invited speakers, a panel discussion, a graduate student poster session and a poster session for undergraduate students on the achievements of women mathematicians. Travel funds are available for women graduate students presenting posters. All interested members of the mathematical community are invited to attend. <u>http://www.nywimn.net/</u>.

Hans Schoutens is the PI of a CUNY Collaborative Incentive Grant 2005-2008 for the development of a Logic group at CUNY, and received an NSF grant from 2005-2008 to conduct research on "Ultraproducts." Hans is also the principal organizer for the Annual City Tech Research Conference scheduled for this spring on March 28. For more information contact Prof. Schoutens at HSchoutens@citytech.cuny.edu.

This past fall, the department began a Math Seminar Series as a forum for faculty to present their research including background or to share teaching strategies. This new series joins two existing series: a student-oriented math club and a joint math and physics colloquium. In the fall, there were 3 colloquium talks: Eliza Michalopoulou, NJIT "Inverse problems in underwater acoustics: matched field processing and global optimization." Les Johnson, NASA, "Space Science Research and Technology at NASA's Marshall Space Flight Center," Delaram Kahrobaei, City Tech, "Applications of Combinatorial Group Theory in Modern Cryptography." In the spring, there are presently 2 talks scheduled including: Feb 21, Gail Carpenter, Boston University, title TBA. Gail is the first woman recipient of the IEEE Neural Networks Pioneer Award for her work on neural models of cognitive learning principles which combine mathematical, psychological and anatomical concepts. Links to all 3 seminar series as well as more up-to-date news can be found at:

http://www.citytech.cuny.edu/academics/deptsites/mathematics/events.shtml.

Dowling to offer a B.S. in Applied Mathematics

The Dowling College Department of Mathematics is pleased to announce a new B.S. in Applied Mathematics. The program, available to students in September of 2008, is designed to prepare students for analytical careers in specialized growth industries such as bioengineering, computational mathematics, aviation science and mathematical economics. It explores the connections between mathematics and its applications at both the research and educational levels, and emphasizes applied mathematics as a unifying theme.

The Applied Mathematics degree is an interdisciplinary effort encompassing a broad range of activity and interest. By coordinating the strengths of Dowling's faculty we seek to encourage the development of new innovations in applied mathematics. The program sponsors a guest lecture series, undergraduate research opportunities, and provides scholarship funding for qualified students.

Faculty members involved in the program are engaged in strong interdisciplinary research. Recent research projects involve finding optimal conditions for enzyme production, examining temporal and spatial variations in water quality on New York's South Shore estuary tributaries, and the development of network design models with uncertain demand. In addition, the School of Aviation has been developing a "virtual airport" with simulated operations capability. Further details on the research can be obtained by contacting Dr. Fred Rispoli, the program chair (rispolif@dowling.edu).

The degree includes a core of 39 credits of mathematics and computer science courses. Students must also take an additional 24 credits in a concentration area. The effort in virtually all courses and research ranges from applied and algorithmic problems to the study of fundamental mathematical questions.

Manhattan College to Host Undergraduate Mathematics Conference

Manhattan College will host the 3rd Annual *Spuyten Duyvil Undergraduate Mathematics Conference* on April 5, 2008. The goal of the conference is to offer undergraduates the opportunity to attend and actively participate in a professional mathematics meeting, and more broadly, to encourage mathematical conversation among undergraduates. Registration for the one-day conference will be free, and lunch will be provided for those who pre-register.

Talks may range from expository talks, understandable by freshmen and sophomores, to presentations of results from undergraduate research experiences. Please encourage your undergraduates to consider making a presentation. Most talks will be fifteen minutes long. Presentations by teams of students, by faculty, or presentations of material from closely related fields are also welcomed. This year, undergraduates who wish to make a longer report on results from a research project may apply to give a 20 minute talk, or to present a poster.

The Conference will feature a keynote address by Prof. Carl Pomerance of Dartmouth College, at least two concurrent sessions of talks by undergraduates, and a poster session. Prof. Pomerance will speak on *The Covering Congruences of Paul Erdos*.

For more information, please email kathryn.weld@manhattan.edu. To submit an abstract for a talk, or to register for the conference, please visit the website http://www.manhattan.edu/conferences/sdumc.

Funding for this conference is partially provided by NSF grant DMS-0241090 through the MAA Regional Undergraduate Mathematics Conferences Program, www.maa.org.

Steering Committee: Diego Domenici, SUNY New Paltz; Richard Goldstone, Manhattan College; Samuel Lightwood, Western CT; Bob McGrail, Bard College; Bjorn Schellenberg, CMSV; and Kathryn Weld, Manhattan College.

In Memoriam

Robert Payton, 78, mathematics professor at Adelphi University for 35 years, passed away August 15, 2007. He was born in Louisville, Kentucky and received his Ph.D. in Mathematics from Harvard University. He graduated from the University of Louisville and also received a graduate degree from Yale University. He served as the Treasurer of the Metropolitan Section of the MAA from 1980 to 1994.

The Greater Metropolitan New York Math Fair: A Tradition in Transition

The math fair that is loosely known as the *New York City Math Fair*, has undergone some major changes in leadership. Peter Shenkin, who had run the Fair since its start in 1968, has retired from the position. Fortunately for the Fair and for the students who are eager to participate, as of last year the Fair has been coordinated by Randy Asher of Brooklyn Technical HS as Chairperson, with Alan Palmer of Brooklyn Technical HS as the Director of Operations, and Russell Jay Hendel of Towson University as Coordinator of Judges. The Section extends a huge thanks to Peter Shenkin for his many years of unparalleled service, as well as to Randy, Alan, and Russell for their fine work in carrying on the tradition!

Conference on Math Education and Social Justice at LIU - Brooklyn

Join educators, parents, students, activists, and community members from around the country for the

2008 Creating Balance in an Unjust World: Conference on Math Education and Social Justice Long Island University/Brooklyn Campus • April 4-6, 2008 • http://www.radicalmath.org/conference

'Social Justice Math' is an exciting new field of education and study, and it is based on the idea that by integrating social and economic issues into mathematics curriculum, students are able to simultaneously learn about social justice and develop mathematical literacy.

Mathematics educators (K-12/college) are invited to share best practices to engage students and improve student learning.

Contact info: Dr. Maria Mercedes Franco, Department of Mathematics and Computer Science Queensborough Community College – CUNY, 56th Avenue, Bayside, NY 11364 mfranco@qcc.cuny.edu

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5th Annual Garden State Undergraduate Mathematics Conference (GSUMC) Saturday, 12 April 2008 William Paterson University Paterson, New Jersey



Keynote address: Dr. Arthur Benjamin, Mathematician and Magician, Harvey Mudd College

Combinatorial Trigonometry: or Mathematics to D.I.E. For

We encourage students to participate in the 5th Annual Garden State Undergraduate Mathematics Conference (GSUMC). In addition to the keynote address, the GSUMC includes:

- A Student Poster Session to Present Mathematical Work to Fellow Students (with prizes!).
- A Team Mathematics Competition, with prizes!

A complimentary lunch & refreshments will be served. Registration details and more information on the conference, its schedule, the competition (past problems), and poster session can be found at: http://phobos.ramapo.edu/~pweng/MAANJ/GSUMC/index.html

CALL FOR POSTERS: The conference will allow undergraduates to discuss mathematics with their peers at other schools. We invite students to present posters on any mathematical topic of interest at all levels of the mathematics curriculum. Poster presenters receive a free T-shirt and there will be prizes for the best posters.

For more information, please contact Dr. Thomas Hagedorn at hagedorn@tcnj.edu.

GSUMC 2008 is funded by NSF grant DMS-0536991 through the MAA Regional Undergraduate Mathematics Conferences program, www.maa.org/RUMC/.

CALL FOR PARTICIPANTS AND INVOLVEMENT

Call For Abstracts: General Contributed Paper and Poster Sessions

The Metropolitan New York Section of the MAA is soliciting abstracts for the *Contributed Paper and Poster Sessions* of its 2008 Spring Meeting to be held on Saturday, May 3 at the Courant Institute of Mathematical Sciences of NYU. All interested professionals and students are encouraged to submit an abstract. Once again this year the *Contributed Paper Sessions* will feature presentations on mathematical research as well as mathematics education. See page 8 for the particulars.

Call For Art-Work: Math-Art Show Exhibit

Visual Mathematics has become a very popular subject in contemporary mathematics. This year we are planning a poster session at the May 3rd Metro NY MAA Meeting at the Courant Institute. We will have an exhibit of mathematically inspired art. Some examples are computer generated visualization of mathematics, fractals, tessellations, geometric art, etc. To see a wide variety of such art from past exhibits such as the annual Math-Art show at the Joint Mathematical Meetings see the exhibit web pages at:

<u>http://www.bridgesmathart.org/amsmaa.html</u>. Another source is the MathImagery site of the AMS: <u>http://www.ams.org/mathimagery/</u>.

If you would like to exhibit your art in this poster session, please send jpg files of up to 5 of your artworks to: <u>aburns@liu.edu</u>.

The files should be in jpg format, no more than 600 pixels in the maximum dimension (length or width). The actual artworks may be larger. Please name the files with your last name, for example smith1.jpg, smith2.jpg, etc. In the email containing your files please send the following information: your name, your affiliation (i.e. name of college/university/industry), your e-mail address. For each artwork, please include: name of artwork, dimensions of artwork, year of completion, and a brief description of artwork.

Call for Math Fair Judges

The Al Kalfus Long Island Math Fair will hold its Final Round on Friday, April 4, 3 PM at Hofstra University. Judges are needed at all levels (grades 7-12). If you wish to judge on April 4, please contact Joe Quartararo at 631-584-2016 or cmleague@optonline.net.

The Greater Metropolitan New York Math Fair will hold its First Round on Sunday, March 9, and Second Round on Sunday, April 6. For judging, visit: www.bths.edu/forms/math_fair_judges/, or contact Russell Jay Hendel at RHendel@Towson.edu.

Go Back to School, Join *The Mathematics Speakers Bureau!!!*

Do you have a talk which would be suitable for local area students or their faculty? We are seeking mathematicians interested in sharing their knowledge, enthusiasm, and love of mathematics. Now in its 48th year, the Mathematics Speakers Bureau (MSB) is composed of dedicated mathematicians who volunteer to speak to students and faculty of regional middle schools, high schools, colleges and universities on topics reaching beyond the traditional mathematics curriculum.

The primary goals of the MSB are to stimulate the interests of local youth in mathematics, to provide opportunities for students to meet active and enthusiastic mathematicians, to motivate students towards careers in the mathematical sciences, and to encourage cooperation between corporate and academic institutions in the mathematical education of area youth. Volunteers provide information about talks they are willing to give and the Bureau, in turn, advertises these talks to the faculty of local area schools. Schools contact speaker volunteers directly to make specific arrangements for a visit. Volunteers determine the number of presentations they give in any given academic year and always maintain the right to decline any invitation to speak. The Bureau web-page (www.maa.org/metrony/speakers) contains an up-to-date listing of available speakers and their proposed talks. Additional information regarding the goals, history and operation of the Bureau can also be found at this site. If you wish to volunteer with the MSB, please contact Bureau Chair Abe Mantell at mantell@ncc.edu.

EVENTS CALENDAR

Al Kalfus Long Island Math Fair 2008

February 8, Friday, (Round 1 – Suffolk County) Half Hollow Hills HS (East & West) March 7, Friday, (Round 1 – Nassau County) Hofstra University April 4, Friday, (Final Round) Hofstra University All rounds begin at 3:00 PM. Grade Levels are 7-12 for math and 10-12 for computers. For more information, call Joseph Quartararo at (631) 584-2016.

41st Greater Metropolitan New York Math Fair 2008

March 9, Sunday, (Round 1) Polytechnic University, Brooklyn, NY April 6, Sunday, (Round 2) Polytechnic University, Brooklyn, NY For more information contact Russell Jay Hendel at RHendel@Towson.Edu For judging, visit: www.bths.edu/forms/math_fair_judges/

ATMNYC Mini-Conference • March 13, 2008, Middle School 74Q, Bayside, NY For more information e-mail: zzplot@aol.com, or visit: www.atmnyc.org

AMS Eastern Section Spring Meeting

March 15-16, 2008, Courant Institute of Mathematical Sciences of NYU, New York, NY For more information visit: www.ams.org/amsmtgs/2149_program.html

NYSMATYC Annual Conference • April 4-6, 2008, Suffern Holiday Inn, Suffern, NY For more information visit: www.nysmatyc.org/conf2008

Spuyten Duyvil Undergraduate Mathematics Conference

April 5, 2008, Manhattan College, Riverdale, NY For more information visit: home.manhattan.edu/~joan.harnett/sdumc

- NCTM Annual Meeting and Exposition April 9-12, 2008, Salt Lake City, UT For more information visit: www.nctm.org/conferences/
- MAA Seaway Section Spring Meeting April 11-12, 2008, Syracuse University, Syracuse, NY For more information visit: www.maa.org/Seaway
- MAA New Jersey Section Spring Meeting April 12, 2008, William Paterson University, Wayne, NJ For more information visit: www.maa.org/NewJersey

Hudson River Undergraduate Mathematics Conference XV

April 19, 2008, St. Lawrence College, Canton, NY For more information visit: www.skidmore.edu/academics/mcs/pages/hrumc.htm

- Metropolitan New York Section Meeting May 3, 2008, Courant Institute, New York University, NY For more information see this newsletter, or visit: www.maa.org/MetroNY
- 4th Cornell Probability Summer School June 23-July 4, 2008, Cornell University, Ithaca, NY For more information visit: www.math.cornell.edu/~durrett/CPSS2008/
- MathFest July 31 August 2, 2008, Madison, WI For more information visit: www.maa.org/mathfest
- AMS Eastern Section Fall Meeting October 11-12, 2008, Wesleyan University, Middletown, CT For more information visit: www.ams.org/amsmtgs/2154_program.html
- AMATYC Annual Conference November 20-23, 2008, Washington, DC For more information visit: www.amatyc.org/Events/conferences/2008DC/
- ATMNYC 2008 Fall Conference November 22, 2008, Hunter College, New York, NY For more information visit: www.atmnyc.org/2008fallconf.html
- **MAA-AMS Joint Mathematics Meeting** January 5-8, 2009, Washington, D.C. For more information visit: www.ams.org/amsmtgs/national.html

MetroMATH Needs You!!!

Consider submitting a short announcement, commentary, article, study, experience, or other newsworthy item in the next issue of *MetroMath*. Contact the editor, Abe Mantell, via e-mail: mantell@ncc.edu.

Survey on Perceptions of Doctoral Studies in Mathematics

Marla Sole, a doctoral candidate at NYU and faculty member at the New School, is conducting a study on factors that are perceived by both mathematics doctoral students and the faculty who have influenced them in graduate school and their decisions involving their eventual careers. She is hoping to have current faculty, as well as current and former mathematics doctoral students participate in her study. You can participate by either agreeing to complete a survey online and/or participate in an interview. The surveys will take no more than 30 minutes to complete and the interview will take no more than one hour.

If you are interested in participating, or have any questions about this study, please contact Marla Sole at SoleM@newschool.edu, or you may phone her at (212) 229-5100 ext. 1487. She would be most appreciative of your participation and believes that her study will provide important insights into doctoral mathematics programs. Once she has received NYU's IRB approval, expected by mid-end March, information about the study and the surveys will be available online at http://homepages.nyu.edu/~mas398/.

<u>Disclaimer</u>: This survey is not sponsored by the MAA nor does the MAA have any connection to it in any manner. This Newsletter will grant limited space to contributed items that might be of interest to the community.

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NEWS FROM THE MAA

(much more can be found at: http://www.maa.org/news/news.html)

NSF Seeks 13 Percent Increase in Science and Mathematics Funding

The National Science Foundation has requested a 13.6 percent budget increase – an additional \$800 million – to fund research in the physical sciences. For fiscal year 2009 the additional \$800 million – for a total budget of nearly \$7 billion – would be spearheaded by 20 percent hikes for research in the STEM areas.

The budget emphasizes investment in new knowledge and talent while also maintaining support for existing research efforts that advance the frontiers of discovery and ensure that the U.S. remains a leader in science and technology. NSF Director Arden L. Bement Jr. indicated that "More than a dozen major studies have now concluded that a substantial increase in federal funding for basic scientific research is critical to ensure the preeminence of America's scientific and technological enterprise."

In FY 2009, the NSF envisions that one of the main activities in its Education and Human Resources Directorate would be to enrich the education of science, technology, engineering and mathematics teachers. Major activities associated with this endeavor include financial support of the Math and Science Partnership program (up \$2.5 million to \$51 million) and the Robert Noyce Scholarship Program (up \$800,000 to \$11.6 million).

Funding for Graduate Research fellowships in FY 2009 would increase by \$29 million (or 30 percent) to \$125 million. This would support about 3,075 fellows, an increase of 700 over the FY 2008 level. The GRF program recognizes the growing significance of a changing global environment for scientists and engineers, and stresses increased opportunities for students to expand their knowledge of research and education in other nations.

Funding for the Office of International Science and Engineering would increase by nearly 15 percent to \$47 million. A major focus in FY 2009 is the Partnerships for International Research and Education program, who's funding would increases by 25 percent to \$15 million. This program funds innovative, (continued)

international collaborative research projects that link U.S. institutions and researchers at all career levels, with premier international collaborators to work at the most promising frontiers of new knowledge.

The America COMPETES Act of 2007, said the NSF, underscored the need to strengthen the nation's science and engineering workforce, placing special emphasis on improving opportunities for scientists and engineers at the beginning of their careers. Therefore, the support of the Faculty Early Career Development (CAREER) Program – the NSF's flagship program for young faculty – increases by over \$14 million to \$182 million. Other activities that traditionally involve young faculty – the Research Experiences for Undergraduates Program (REU) and Research in Undergraduate Institutions Program (RUI) – also receive increased funding.

The FY 2009 request includes what the NSF calls four major cross-foundation investments that aim to have a significant impact across science and engineering, especially in such areas of national priority as manufacturing, computing, energy, cybersecurity, sensors and materials.

More information is available at: nsf.gov.

Peers Affect High School Girls' Decisions to Take Mathematics

Researchers claim that friends have an impact on whether high school girls study mathematics.

A five-member team from the University of Texas (Austin), the University of Pennsylvania, and Michigan State University questioned more than 6,500 high school students ranging in age from 13-19 who had a variety of relationships with peers. After tracking their mathematics courses, the researchers found that all teenage girls—as well as boys with close friends and those who achieved good grades – took more high-level mathematics courses. But the connection between those relationships and the mathematics classes was strongest for girls.

Social factors, apparently, also mean more for girls in decisions about mathematics coursework, especially when enrollment is optional and when girls are already doing well academically.

"Girls have caught up with boys in math course taking in high school but the reasons for taking math still differ by gender," wrote the researchers. "For all adolescents, math course taking was associated with the achievement of their close friends and, to a lesser extent, their course-mates. These associations tended to be stronger toward the end of high school and weaker among adolescents with a prior record of failure in school. Each of these patterns was somewhat more consistent among girls." Their article, "Peer Group Contexts of Girl's and Boy's Academic Experiences," appeared in the January/February issue of Child Development.

Source: United Press International

Up Next: An MSP Solicitation

The NSF's Math and Science Partnership (MSP) program is a research and development effort that supports innovative partnerships to improve K-12 student achievement in mathematics and science. MSP projects are expected to raise the achievement levels of all students and significantly reduce achievement gaps in the mathematics and science performance of diverse student populations.

In order to improve the mathematics and science achievement of the Nation's students, MSP projects contribute to the knowledge base for mathematics and science education and serve as models that have a sufficiently strong evidence base to be replicated in educational practice.

In this latest solicitation, NSF seeks to support six types of awards:

 Targeted Partnerships focus on studying and addressing issues within a specific grade range or at a critical juncture in education, and/or within a specific disciplinary focus in mathematics or the sciences;

(continued)

- Institute Partnerships/Teacher Institutes for the 21st Century are designed to meet national needs for teacher leaders/master teachers who have deep knowledge of disciplinary content and are school- or district-based intellectual leaders in mathematics and science;
- MSP-Start Partnerships are for awardees new to the MSP program, especially from minorityserving institutions, community colleges and primarily undergraduate institutions, to support the necessary data analysis, project design, evaluation and team building activities needed to develop a full MSP Targeted or Institute Partnership;
- Phase II Partnerships for prior MSP Partnership awardees focus on specific innovative areas of their work where evidence of significant positive impact is clearly documented and where an investment of additional resources and time would produce more robust findings and results;
- Research, Evaluation and Technical Assistance (RETA) projects directly support the work of the Partnerships, especially by developing tools to assess teachers? growth in the knowledge of mathematics or the sciences needed for teaching, conducting longitudinal studies of teachers and their students who participate in the MSP projects, or engaging the national disciplinary and professional societies in MSP work; and
- Innovation through Institutional Integration (I3) projects enable institutions to think and act strategically about the creative integration of NSF-funded awards, with particular emphasis on awards managed through programs in the Directorate for Education and Human Resources (EHR), but not limited to those awards. For Fiscal Year 2008, proposals are being solicited in six EHR programs that advance I3 goals: CREST, ITEST, MSP, Noyce, RDE, and TCUP.

For information on this year's MSP program, see: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5756&org=NSF&sel_org=NSF&from=fund

April is Mathematics Awareness Month

The American Mathematical Society (AMS), the American Statistical Association (ASA), the Mathematical Association of America (MAA), and the Society for Industrial and Applied Mathematics (SIAM) announce that the theme for Mathematics Awareness Month 2008 is Math and Voting. For more, check: http://www.mathaware.org



I Believe in Arithmetic (Part II)*, © 2007

by Seymour W. Pustilnik (seemorew@earthlink.net)

It is now another time. Time to do another step. A continuation from Step One. The addition, where we added the numbers one to nine, adding them two at a time, with explanation involving samples and illustration. The two berries added to four berries giving six. And the shorter way for this to say 2+4=6 so the addition would not take all day. Thus we have done the addition of single digits with much practice. Now what we must do is the multiplication of one to nine. Leading to subtraction, division and the thinking in this Step Two. Here again we take the numbers one to nine and we multiply them two at a time. As a sample and example we take 3 times 5 bananas. 5+5+5 is 15 or three 5's just 3×5=15. Again 3×7 is three 7's or 7+7+7 or 3×7 . Thus we see what multiplication must be. It is repeated addition and this simplification is its justification. We just add the same number of things to itself a number of times and We are able to have the times table. Now we practice and practice all these "facts." This we do until we are through. We have done more than we did before. Knowing how to multiply and add does in fact open the way to know how To divide, think, and subtract. But of course this is discourse for another day. In which with fractions, decimals, percents, and the calculus we play.

* See last year's issue (February 2007) of MetroMath for Part I.

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Abe Mantell, Editor **MAA MetroMath** Mathematics Department Nassau Community College Garden City, NY 11530-6793