NORTHEASTERN SECTION

NEWSLETTER

FALL 2002

Volume 24 **Number 2**

EXECUTIVE COMMITTEE

NORTHEASTERN SECTION
MATHEMATICAL ASSOCIATION OF AMERICA
FUTURE SECTION MEETINGS

November 22-23, 2002
Framingham State College, Framingham, MA

Program Committee	Sarah Mabrouk, Framingham State College
Local Arrangements	Sarah Mabrouk, Framingham State College

(Program starts on page 21.)
(See page 20 for calls for participation.)

June 13-14, 2003
Massachusetts College of the Liberal Arts, North Adams, MA

Local Arrangements	Freda Bennett, MCLA

November 21-22, 2003
Wellesley College, Wellesley, MA

Program Committee	Frank Ford, Providence College
Local Arrangements	Ann Trenk, Wellesley College

OTHER ACTIVITIES

Short Course:	(to be determined)
Short Course Committee:	Will Stout (stout@salve.edu) Dennis Luciano (dluciano@wnec.edu) Paul Estes (ple@mail.plymouth.edu)
Dinner Meetings Coordinator:	Lucy Kimball (lkimball@LNMTA.bentley.edu)
Awards:	NES/MAA Award for Distinguished Teaching(nominations solicited: see page 15)
Web page:	access it via http:/www.maa.org or directly with http://www.southernct.edu/organizations/nesmaa/
Webmaster:	Ross Gingrich, Southern Connecticut State University (gingrichr1@southernct.edu)
Section Project NexT: Coordinator:	First Meeting at Framingham meeting. Lisa Humpreys, Rhode Island College (lhumpheys@ric.edu) (See page 14 for details)

Message from the Chair……Ockle Johnson

Greetings! As we settle into another academic year, it is a good time to look back at some of the highlights of the summer and look forward to what the fall has to offer.
At our spring meeting, planned and hosted by Frank Morgan at Williams College, we had a record number of students sharing the results of their research. Paul Estes hosted and Cathy Frey, Gerard LaVarnway, and Rob Poodiak (with a little assistance from Paul Blanchard) delivered an excellent short course that served not only members of the section, but K-12 teachers as well. The Mathfest in Burlington was a great success. As our president, Ann Watkins, noted, our numbers bypassed the NASDAQ—perhaps not the best news for those approaching retirement age. The excellent program and enjoyable activities were due in no small measure to members of our section: Tony Jullianelle and others from Vermont worked on local arrangements, many members of our section planned the program, organized sessions and gave talks, and, of course, Jim Tattersall oversaw it all.
Now we look forward to a fall meeting not to miss. Sarah Mabrouk will be our host at Framingham State and has planned a program full of interesting talks and activities. Highlights include the talks by our Christie lecturer, Carl Pomerance, and our Distinguished Teaching Award winner, Laura Kelleher and a number of technology workshops. If you're still searching for texts for your spring courses, you will also be able to consult the many book representatives. And those of us involved in assessment activities as a result of recent or impending NEASC accreditation visits will certainly benefit from the Assessment workshop led by Bonnie Gold.
I am also very excited about the Northeastern Section NExT program we are inaugurating for new and relatively new colleagues prior to this year's fall Section meeting. By providing talks and workshops on issues of interest, opportunities for networking, and an introduction to Section activities, we hope to assist new faculty in their transition from graduate school to professional academic life. The program is open to all untenured full time faculty, both those who have and have not been National NExT fellows. Thanks to Lisa Humphreys who has been spearheading this effort. More information can be found in the Newsletter, on the web, and in the mailing sent to Department Chairs. So "older" faculty, please encourage your new faculty to participate, and new faculty, please join us.
Finally, at the business meeting this fall we will be electing new officers. In the Newsletter you can find out more about the nominees for Vice-Chair (Chair Elect), John Lutz and Sarah Mabrouk, Secretary/Treasurer, Ann Kizanis and Two-Year College Representative, Kathy Bavelas and Michael Latina. Thanks to Donna Beers and the Nominating Committee for their work.
See you in Framingham.

Message from the Governor .....Donna Beers

MathFest 2002 in Burlington was an overwhelming success! There was a record number (1245) of attendees; and, while the weather outside was sultry, we enjoyed beautiful presentations in air-conditioned comfort. As a member of the Northeastern Section, I'm probably partial, but I thought Joe Gallian's statistical case for the greatness of Red Sox

hitter Ted Williams was delightful, as was Colin Adams's (excuse me, Sir Randolph "Skipper" Bacon III's) presentation, "Blown Away: What Knot To Do When Sailing." As usual, many thanks are due Jim Tattersall of Providence College who, as Associate Secretary of the MAA, worked nonstop behind the scenes to make sure that the program ran smoothly.

I want to report on the Board of Governors meeting that took place on July 31. Here are some highlights:

- First, congratulations are in order: Our colleague Jim Tattersall was elected to a second five-year term as Associate Secretary of the MAA.
- Upcoming Joint Mathematics Meetings:
  The January 2003 Joint Mathematics Meeting (JMM) will take place in Baltimore. The MAA invited speakers will include David Fowler from the University of Warwick, Paul Sally from the University of Chicago, Joe Silverman from Brown University, Richard Tapia from Rice, and Robin Wilson from Open University. The MAA Short Course has been organized by Fred Rickey. The topic will be "Teaching and Learning about Mathematics in the Ancient World." Looking farther into the future, the Associate Secretary announced that the JMM meeting in January 2008 will take place in San Diego, and the JMM in 2009 will take place in Washington, D.C.
- News from Tina Straley, Executive Director of the MAA:
  - Membership numbers are high.
  - Attendance at national MAA meetings has been strong.
  - Amazon book sales are good; and there is every reason to believe that book sales will grow further with the addition of Barnes and Noble Online.
  - The MAA has been serving the NSF by hosting meetings to support programs of the Division of Undergraduate Education (DUE) and the Division of the Mathematical Sciences (DMS). This serves MAA members and keeps the MAA connected to the latest developments in undergraduate mathematics education. In addition, the MAA has 10 projects currently active or in the process of being awarded by the NSF.
  - The MAA has received funding from the NSF to hold a conference next February that will bring together faculty who are interested in bioinformatics or computational biology, an area that is red-hot and that combines mathematics, computer science, and biology. An outcome of the meeting is planning a new program, to be supported by the NSF and NIH, to fund the creation of new interdisciplinary undergraduate programs and curriculum. A special *Report to the Nation* will follow this conference.
  - Exciting learning/teaching trip: The MAA is planning a trip to Greece next summer. This will feature a guided tour by mathematics historian Victor Kac of MIT. Space will be limited to 30, so stay tuned. This may be the first of a series of such trips!

- Good news from MAA Treasurer John Kenelly of Clemson University:
  Despite the downturn in the stock market, the MAA's financial picture is good. Cost savings programs that were put into effect after 9/11 have helped to offset market losses. However, he offered some cautionary observations: First, the MAA is a dues-driven organization and income is flat, so there is a need to cultivate new revenue sources to support expanded member services; second, the MAA has not built adequate "rainy day" funds, so attention needs to be given to new and better ways to use the MAA's real estate asset; and third, the endowment of the MAA currently falls short of accepted standards for an organization to ride out "peaks and valleys" in its income stream. His special interest is development. Among other initiatives, he will be working to develop resources for renovating the MAA carriage house in Washington, D.C.
- Project NExT (New Experiences in Teaching):
  In Burlington the ninth group of Project NExT Fellows attended a 2 ½ -day workshop before the MathFest. Workshop themes included teaching how to write proofs, using writing to teach mathematics, group projects in upper division courses, academic and professional advising, and math modeling. Also included in the program were addresses by MAA leaders who are recognized nationally for their expertise. A special activity for new Fellows was a meeting with the 2001-02 Fellows for whom the Burlington meeting marked the close of their formal participation in Project NExT. The ninth group of Fellows brings the total number of participants in the program to 628. The Northeastern Section is fortunate to have 7 new NExT Fellows. They are: Jonathan Bihari, Tufts University; Elizabeth Brown, Dartmouth College; Dorothy Buck, Brown University; Charles Rocca, Western Connecticut State University; Dana Rowland, Merrimack College; Sarah Spence, Olin College of Engineering; and Gregory Warrington, University of Massachusetts at Amherst.
- News from the American Mathematics Competitions (AMC):
  The USA Mathematical Olympiad was held on May 3-4 at MIT. A total of 325 students participated, 200 of them at MIT and the remaining students at their local high schools. Tom Leighton, founder of Akamai Technologies and Chief Scientist, gave a general address to students at MIT on May 3 and MAA President-elect Ron Graham addressed them on May 4. Twelve students were named USAMO Winners, with the five students who scored perfect papers sharing first place. For the first time there were two females among the twelve winners. An additional 13 students received Honorable Mentions. The twelve winners were celebrated on Sunday, June 23, with a reception at the MAA headquarters. The USAMO ceremony took place the next day at the National Academy of Sciences, followed by a formal banquet in the Diplomatic Reception Rooms in the United States Department of State.
- News on the International Mathematical Olympiad (IMO):
  China won the 43rd IMO held in Glasgow, Scotland in July. The IMO is the world's most prestigious mathematics competition for secondary school pupils,

and some 500 students participated in this event. Of more than eighty participating countries, China placed first with 212 points, Russia second with 204 points, and the USA third with 171 points. The six-member USA team won four gold medals and one silver.

In closing, I urge you to attend our upcoming NES/MAA meeting. Sarah Mabrouk of Framingham State College has organized the fall meeting, to take place November 22-23, 2002 at Framingham State College. Also, Lisa Humphreys of Rhode Island College is initiating the Northeastern Section NExT and has planned a program for new (and almost new) colleagues on Friday morning and afternoon before the meeting. I look forward to seeing you and visiting with you at Framingham State.

Message from the Secretary-Treasurer .....Ann Kizanis

I gave my last Treasurer's report at the Spring meeting at Williams College. At this time, our balance was 7,089.86. The meeting at Williams College was a very good one, and we broke even from that meeting. During the summer, we had some expenses from the very successful summer short course, but we also received our annual subvention from the MAA. As a result, our present balance is $7,902.06. Note that this balance does not include $904.14, which is held by the Northeastern Section of the MAA for a future summer short course.

I am very pleased that our section is making more progress toward distributing an electronic newsletter. This Spring, we spent $2,058.16 on both the printing and postage of our newsletter. I am confident that we can save a substantial amount of money over time by introducing an electronic newsletter. In the future, these savings shall help to offset the expenses we incur each year. Our expenses have gone up over the past year, and as a result, our present balance is approximately $3200.00 less than it was last year at this time. Therefore, we are taking steps to cut the cost of our newsletters by sending more letters electronically and by saving on the postage from those newsletters that are mailed to our members.

I wrote the annual report of the Northeastern Section of the MAA at the beginning of the summer. David Stone, who collects all the annual reports and compiles the information, was impressed by all that we had done. We had a busy year, holding a fall meeting, four spring dinner meetings, a spring meeting, and a summer short course. We had outstanding speakers at these meetings, and we were very proud of the presentations made by the student speakers.

That's all for now. We are all looking forward to the fall meeting at Framingham State College in November, where I will update you further on our financial state.

Have a good semester everyone!

Two-year College Representative's Report ..... Kathy Bavelas

The fall MATYCONN meeting will be hosted by Middlesex Community College in Middletown, CT on Oct.25 from 2:30 to 7:30. Seok Sagong (Mx) will present his work on the Fibonacci Numbers and the Chinese Zodiac in the afternoon. He gave the presentation last year at the joint MAA-AMS meeting during the winter. Judy Moran

(Trinity College) will be the after dinner speaker. Her topic will be the "Geometry of Italian Tiles." Alice Burstein
(aburstein@mxcc.commnet.edu) is the college contact.
The annual AMATYC Conference will be held in Phoenix Arizona from Nov. 14 - 17.More than 160 sessions will be offered and a special symposium on ways to create and support equal opportunity in mathematics education with featured
speaker Julian Weissglass will be a highlight of the first day of the conference. Additional information and registration is available on the web at www.amatyc.org.

From the Newsletter Editor .....Frank Ford

Here we are again with another school year. I hope the beginning of the school year still excites you no matter how long you have been teaching and even if you are retired. This newsletter brings you announcements of our meeting in November and of the many changes in the colleges of our Section. As you must know, Massachusetts offered early retirement in its state colleges and universities this year. If you look in the **From the Colleges** section, you will see how many people took advantage of this. Even some of our very active members such as Diane Haber and Ed Connors have decided to retire. It makes some of us feel old to see friends retire. They seem too young.
This newsletter has important information about the elections that will be part of the Fall meeting this year. We will be electing officers to carry on the tradition of our Section. Donna Beers and her committee produced a slate that guarantees the Section will win no matter who wins the elections.
Every organization needs to renew itself and, for us, part of that renewal is our New Faculty talks at the Fall meeting. Please encourage your new faculty to give a brief talk that will serve to introduce them to our Section and get them involved. This year, we begin a new effort to involve new faculty under the guidance of Lisa Humpreys of Rhode Island College. Be sure to read about the Section's Project NExT project We have a small grant from the national Project NExT and we expect this first project NExT event to be the beginning of an important ongoing activity of the Section.
Ockle Johnson talks of the success of the Williamstown and Burlington meetings and I can echo his sentiment. Come join us at Framingham and Baltimore and see what all the shouting is about. I hope to see you there.

Papers Presented at the Spring 2002 MAA/NES Section Meeting:

Intrinsically chiral graphs
Garry Bowlin, Clarkson University
Bryan Heller, University of Rochester
Eman Kunz, SUNY Potsdam
Quincy Loney, SUNY Potsdam

On local zeta functions
Ramla Gabriel, Mount Holyoke College
Manjari Goenka, Mount Holyoke College
John Gonzalez, MIT
Ben Marko, University of Akron

Annalee Wiswell, Scripps College
Thomas Wright, Bowdoin College
Sarah Zubairy, University of Rochester

Computer calibration of curves
Mark Burkhardt, Williams College

Bubbles on a cone
Tracy Borawski, Williams College
Robert Lopez, Williams College

Square functions
Philippa Charters, Williams College
Lisa DeKeukelaere, Colby and Williams College
Edvard Major, Williams College
Anna Todd, Missouri Baptist and Williams College

Geometric decoupling of optimization problems
Neil Hoffman, Williams College

The double bubble on a torus
Eric Schoenfeld, Williams College
David Clark, Michigan Technical University
Donovan McFeron, University of Notre Dame
Virginia Peterson, University of Massachusetts, Amherst
Craig Phillips, Rutgers University
Alexandra Zuser, Marlboro College

Polynomial knots
David Clark, Michigan Technical University
Donovan McFeron, University of Notre Dame
Virginia Peterson, University of Massachusetts, Amherst
Craig Phillips, Rutgers University
Alexandra Zuser, Marlboro College

Tailored calibrations
Aaron Magid, Williams College

Competing double bubbles on a torus
George Lee, Harvard University and Williams College
Ben Steinhurst, Williams College

Convergence and continuity
Gerald M. Higdon, Fitchburg State College

The double bubble in three-dimensional spherical and hyperbolic space
Joseph Corneli, New College of Florida/University of Texas at Austin

Tilings and dynamics, I
Brian Katz, Williams College
Kristen Wickelgren, Harvard University and Williams College

Stability and eigenvalues: applications
Michelle Abdella, SUNY Brockport

The two-body problem in a photogravitational field
Michael Barbosu, SUNY Brockport
Title: Michael Barbosu, SUNY Brockport

Mapped-slicing -- a promising method for proving minimization
Joe Rabinoff, Harvard University and Williams College
Tilings and dynamics, II
Sarah Iams, Williams College
Brian Street, University of Virginia and Williams College
Student presentations on real-life applications of mathematics
Andrew Perry, Springfield College
The triple bubble
Gary R. Lawlor, Brigham Young University
Voting problems with three candidates
Anthony Doran, Wheaton College

From the Colleges

Phillip Hotchiss: **Westfield State College (MA)** had 3 and 1/2 retirements this past year: **Dianne Haber**, **Warren Hill and Robert McGuigan** retired as full time members of the Mathematics Department. In addition **Anne Pasquino**, who had a joint appointment with the Computer & Information Sciences Department retired in December. Two people were hired as replacements. **Dr. Anne Schwartz** (Ph.D. UC San Diego) comes from Bryn Mawr College in Pennsylvania and **Dr. Karin Vorwerk** (Ph.D. Clemson University) will become full time this year after teaching as an adjunct in the department last year. Also, **John Judge** was elected chair of the department upon the retirement of **Robert McGuigan**.

John Lutts: Umass-Boston lost 5 full-time faculty because of the state's early retirement incentive. They had lost one the year before and hope to be recruiting for three positions this year. On the bright side, **Maura Mast** received tenure. He also reports that he and **Dennis Wortman** are pondering how to continue their work at Dorchester HS this year. It is not clear that what they have been doing has been of any help. They had planned to monitor a special 9th grade group through its 4 years at Dorchester HS and they started this summer with 12 promising students from the 8th grades in Boston. The results of their efforts were mild and very few of the group will be going to the school as was hoped. He is asking for suggestions of alternative ways.

Lloyd Simons: **St. Michael's College (VT)** hired **Joanna Ellis-Monaghan** as Assistant Professor of Mathematics. Jo received her PhD from the University of North Carolina (1995) and her primary research interest is in algebraic combinatorics.

Ed Connors: Umass-Amherst lost fourteen (14) faculty from the Mathematics and Statistics area including seven that took early retirement. Among these was **Ed Connors**, who is now emeritus.

Arthur Copeland: University of New Hampshire's Donovan von Orsdol took early retirement. He was MAA Associate Secretary (preceding **Jim Tattersall** and following **Ken Ross**) from 1994 through 1997; Associate Executive Director of the AMS from 1989 through 1991, being most visible in that position as editor of the Notices; chaired the Mathematics Department from 1987 to 1989 and from 1991 to 1993. He coauthored a paper with **David Burton** that appears in the MAA publication "Learn from the Masters" and has published in the Monthly.

Ron DeGray: St Joseph College (CT) Associate Professor **Dorothy Mazaitis** has retired. She chaired the Department of Mathematical Sciences since 1999. Associate Professor of Mathematics **Ron Degray** has been appointed Department Chair effective fall 2002. **Joseph Manthey** has joined the department as Visiting Assistant Professor of Mathematics. Joseph has a B.S. in Mathematics-Physics Education from the University of Wisconsin, Eau-Claire, a M.S. in Applied Mathematics from the University of Central Florida and a Ph.D. in Applied and Computational Mathematics from Old Dominion University.

Barry Schiller: Rhode Island College has recognized the outstanding service of **Helen Salzberg**, now starting her 14th year as Math/CS Department Chair, by awarding her the Patrick J O'Regan Distinguished Service Award. Though on temporary full-time appointments, the Department also welcomes back **Dr. Donna Christy** (who had left for child care) **and Dr. Peter Andreozzi** (retired Seekonk Prinicpal). Finally, it notes its 2002 Math Awareness Day celebration was highlighted by a talk by Mt. Holyoke's **George Cobb**, entitled "Women, Mathematics, and Academic Salaries: Victims of Numbers?"

Bonnie Shulman: Bates College welcomes **Meredith Greer** from Vanderbilt University, who joins the department in a tenure track position, replacing **Robin Brooks**, who has retired. **Jeff Hildebrand** has a one-year appointment replacing **John Rhodes** who is on leave, enjoying his Phillips Fellowship. Finally, **Warren Johnson**, who was a one-year replacement last year, will be staying on for another year.

Roger Williams University has appointed **Dr. Barbara Leasher** as a Visiting Assistant Professor of Mathematics.

Gerald M. Leibowitz: **UConn** welcomed **Professor Vadim Olshevsky** to the faulty in Fall 2002. Visiting faculty include **Ravindra Bapat** and **Taiping Ye**. And although a number of post-doctoral fellows have left for (more) permanent academic and business positions, the Department hired eight new post-docs**: Ines Armendariz, Fabiana Cardetti, Zhixiong Chen, Jennifer Hill, Moritz Kassmann, Kyle Kniesl, Dahae You, and Zhenbu Zhang**. They join continuing post-docs **Yasar Sozen** and **Alexander Stokolos**. **Chuck Vinson** adds that two new Assistant Professors will be joining the Department

in January after spending fall semester in Bielefeld, Germany on the final semester of their NSF postdocs **- Maria Gordina** and **Alexander Teplyaev**. Finally, the Department anticipates final approval this fall by the state Board of Higher Education of a new **Professional Master's in Applied Financial Mathematics**.

Matt Coleman: **Fairfield University** held the conference "Technology, Pedagogy and Course Redesign, II" this past June 13-15. There were 54 attendees, from New England, NY and NJ. **Matt Coleman** has become Associate Dean of Arts and Sciences on a one-year appointment.

Mary Platt: In the summer of 2003, **Salem State College(MA)** will be a satellite site for a **Reconnect conference for DIMACS** (The Center for Discrete Mathematics and Theoretical Computer Science at Rutgers University). Reconnect exposes faculty teaching undergraduates to a current research topic relevant to the classroom through a series of lectures by a leading expert. The participants then write materials that are useful for their classrooms. Participants have the possibility of following up by preparing these materials for publication in the DIMACS Educational Modules Series. Planning for Reconnect 2003 at Salem State is underway and for more information contact **Professor Maura Murray** at mmurray@salemstate.edu. Three members of the Department retired at the end of the Spring 2002 semester. All had served the College for many years. They are **Harold Harutunian, Woon-Chung Lam, Thomas Kyrouz.** The Department welcomes two new colleagues this Fall**. Christopher Boucher** is an Assistant Professor and comes from Illinois Wesleyan University. **Michael Nourai** is the new Computer Science/Mathematics Laboratory Instructor.

Ann Kizanis of **Western New England College** has become Associate Dean of Arts and Sciences.

Philip K. Hotchkiss: **Mary Ann Connors** of **Westfield State College(MA)** is a member of the Editorial Panel of the National Council of Teacher of Mathematics 2005 Yearbook, entitled *Technology-Supported Mathematics Learning Environments*. The 2005 yearbook guidelines are now online and can be viewed at the following web address: http://www.nctm.org/publications/yearbook.htm. She was the guest on the call-in talk radio show, Math Medley, on July 27, 2002 hosted by **Dr. Pat Kenschaf**t (http://www.csam.montclair.edu/~kenschaft/WALEsched.html). It broadcasts live from Phoenix at 9:00 AM at 1100 on the AM dial and is syndicated to Providence at noon at 990 on their AM dial. The title of the show was "Using Technology to Teach Mathematics."

Jim Ward: **Bowdoin** has hired **Thomas Pietraho** (B.A. and M.S. from the University of Chicago, Ph.D. from M.I.T.) as a tenure track Assistant Professor,

and **Jennifer Taback** (B.A. from Yale, Ph.D. from the University of Chicago) has joined as a Visiting Assistant Professor. Thom spent last year as a Scott Assistant Professor at the University of Utah and specializes in the representation theory of real reductive Lie groups; Jennifer is on leave from the University of Albany and specializes in geometric group theory and large-scale geometry. Among their other accomplishments, Jennifer and Thom are wife and husband. **Sarah-Marie Belcastro** has left for a tenure track position at Xavier University in Cincinnati.

Ross Gingrich: **Southern Connecticut State College** hired four new people in the last two years. **Emmett Dennis** and **Cindy Gubitose** are in their second year, and **Ray Mugno** and **John Scheuermann** are in their first year. Emmett and Cindy are in Mathematics Education and were hired to help with the Developmental Mathematics program. Ray is a statistician, and John is an applied mathematician. In the same period, four people left the department. **Leo Kuczynski, Kerry Grant, and Bob Nowlan** retired after the end of the 2000-2001 academic year. Also, **Francine Roy** left Southern and took a new position at the University of Rhode Island. **Terri Bennett and Richard DeCesare** have been granted tenure. Terri, Rich, and **Alain D'Amour** have been promoted to the rank of Associate Professor, and **Gerald Schultz** was promoted to the rank of Professor. **Terry Sandifer** was on sabbatical leave last year and **Marty Hartog** is on sabbatical leave this year. And, **Ross Gingrich** is now the Mathematics Department Chairperson. Finally, Southern is in the middle of several major construction projects. In the summer of 2001 the Department had to move to temporary quarters in a different part of Engleman Hall due to renovation work in their old wing in Engleman. They are scheduled to move to brand new offices in a newly constructed wing of Engleman Hall in January 2003.

Gerald T. LaVarnway: At **Norwich University(VT), Professor Cathy Frey** has assumed the duties of chair of the department. In addition, Norwich welcomes **Dr. Dan McQuillan** as a new member of the department. Dan has accepted a tenure track position and came on board in July. Dan completed his graduate work at the University of Western Ontario with a specialty in Algebra. Recent developments around the department include successful implementation of on-line mathematics placement testing, resurrecting the monthly colloquium series, integrating technology in a variety of ways to improve teaching and learning at the undergraduate level, and a weekly mathematics and physics seminar.

The Inaugural Northeastern Section NExT
Friday, November 22, 2002: 10:00 am - 2:00 pm
Framingham State College, Framingham, MA

The Northeastern Section is inaugurating a Section NExT program for new and relatively new colleagues at this year's fall Section meeting. By providing talks and workshops on issues of interest, opportunities to meet and share ideas with other new colleagues, and an introduction into Section activities, we hope to assist new faculty in their transition from graduate school to professional academic life. We welcome all untenured full time faculty, both those who have and have not been National NExT fellows.

10:00-10:30 Registration of prospective Section NExT fellows and preliminary information. Fireplace Lounge, College Center

10:30-11:30 *Trials and Errors*, by Prof. Charles Vinsonhaler of The University of Connecticut. Prof. Vinsonhaler, who is a former NES/MAA Distinguished Teacher recipient, will share several classroom projects from calculus that worked and some that didn't work, under the hypothesis that we learn more from our failures than from our successes. Fireplace Lounge, College Center

11:30-12:00 Discussion of future plans for NES Section NExT.
Fireplace Lounge, College Center
12:00-1:00 Lunch McCarthy's, College Center

1:00-2:00 *Profound Understanding of Fundamental Statistics*, by Prof. Mary Sullivan of Rhode Island College. Prof Sullivan is the chair of SIGMAA in Statistics Education. She will demonstrate hands on activities that explore concepts typically found in a first course in statistics. Participants are encouraged to bring a TI-83+. Fireplace Lounge, College Center

3:00 Section Meeting begins.

8:00 Saturday morning: New Colleague's Sessions.

If you are interested, please contact Lisa Humphreys of Rhode Island College at Lhumpheys@ric.edu. You should also register for the Section meeting by completing the registration form in the Section Newsletter and check off that you will be participating in the Section NExT program Note that the Section NExT activities are free.

We also invite all colleagues new to the Section to give a talk during the New Colleague's Sessions on Saturday morning. For more information, see page 20 of this newsletter.

Nominations for 2003 NES/MAA Distinguished Reaching Award

Each year the Northeastern Section recognizes one of the outstanding teachers in the Section with its Distinguished Teaching Award. We are now soliciting nominations for the 2003 award. Preliminary nominations should be sent to Ed Sandifer (sandifer@wcsu.ctstateu.edu) by November 1, 2002. A nomination consists of: name and school of nominee; and the name, mailing address, e-mail address, and phone number of the nominator. Nominators will receive a packet and be asked for additional information; this information will be due November 28, 2002. Candidates should be known as outstanding teachers on their own campuses and their influence should extend to the broader mathematical community. The files of nominated candidates remain open in future years.

Election of Officers

The Section will elect officers at the Business Meeting of the Fall Meeting at Framingham State on Saturday, November 23rd. The person who becomes Vice-Chair will succeed Ockle Johnson as Chair of the Section at the end of the Fall Meeting of the Section in November of 2003 and will serve for two years as Chair. All candidates elected will become members of the Executive Committee of the Section immediately.

A Nominating Committee consisting of Donna Beers, Governor of the Section, as committee chair and members Tommy Ratliff from Wheaton College, Barry Schiller from Rhode Island College and Lois Martin, Massasoit Community College, has proposed the slate below. Any member of the Section may nominate a candidate from the floor during the business meeting. Biographies submitted by the candidates follow the slate.

Candidates for Vice Chair

John Lutts	UMass-Boston
Sarah Mabrouk	Framingham State College

Candidate for Secretary/Treasurer

Ann Kizanis	Western New England College

Candidates for Two-Year College Representative

Kathleen Bavelas	
Michael Latina	Community College of Rhode Island

Biographies

John A. Lutts

John Lutts received his BS in mathematics from Spring Hill College (Mobile, AL) in 1957, MA in mathematics from the University of PA in 1959**,** and his PhD in mathematics from the University of PA in 1961. He taught as an instructor and associate professor at Loyola College from 1965 to 1966, as an assistant professor at the University of Massachusetts at Boston from 1966 to 1970, and as an associate professor at the University of Massachusetts at Boston from 1970 to the present His fields of research interest are approximation theory, Lie groups, and history of mathematics. His other service to Mathematics has included supervising of potential high school teachers of mathematics, being an MAA member since 1957, hosting the fall regional meeting of NE section of MAA at the University of Mass in 1996, tutoring and running professional development workshops at Dorchester HS, helping develop a new kind of college algebra course and text with Kime & Clark (Wiley), and promoting active use of graphing calculators in precalculus and introductory statistics courses. His goals for the future of NE Region MAA are to actively recruit attendance of more MAA members at NE fall sectional meetings, to actively recruit students to attend regional fall meetings of MAA, to encourage growth through workshops in special math topics throughout the year in this region, to encourage the NE section MAA institutions to work with high schools, and to continue the good work of current and previous officers in the NE MAA section

Sarah Mabrouk

Sarah did her graduate work at Boston University in Numerical Analysis with Robin Esch. While researching and writing her dissertation, she taught as a lecturer for the College of Arts and Sciences at Boston University, and after completing her Doctorate, she taught for the Boston University College of General Studies. She joined the faculty of the Mathematics Department at Framingham State College in Fall 2000. She was Program Chair of the Spring 2001 meeting and Program Co-Chair with Philip Blau for the Spring 1999 meeting. Sarah is Program Chair and Local Arrangements Coordinator for the

Fall 2002 meeting at Framingham State College. In addition to being active in the Northeastern Section, she has organized several paper sessions for the Joint Mathematics meetings and for Mathfests. She is grateful for the encouragement that she has received from the leadership and members of the Section to become involved through presenting papers and participating on program committees. She would like to maintain this tradition by encouraging the involvement of others, especially new faculty, high school teachers, and students. She believes that the Section has had great leadership and she would do her best to meet the high standard that has been set.

Ann Kizanis

Ann Kizanis graduated with a B.A. in Mathematics from Connecticut College in 1985. During her time there, she received the Julia Welles Bower Prize for Excellence in Mathematics each year. She also received the Rosemary Park Fellowship for Teaching in 1985 and was given the award of Winthrop Scholar.

Ann then spent six years at Wesleyan University and worked in the area of Archimedean lattice-ordered groups. She graduated with a Ph.D. from Wesleyan University in 1991. She then began working as an Assistant Professor of Mathematics at Western New England College. She was granted tenure in 1995 and was promoted to Associate Professor in 1996. While at Western New England College, she received the Teaching Excellence Award in 1995, as well as the Golden Bear Award, given in recognition of unselfish commitment to the student body at the college. Ann has had three papers published on her area of interest, Epicompletions of Archimean lattice-ordered groups. She is presently in the process of writing a paper after having received release time to continue her joint work of the last year with her thesis advisor at Wesleyan University.

Ann remains very active in governance and department affairs at the college. She has been a member of many committees at the college during the last eleven years. Among them, she has served on the Faculty Senate for three terms, was chair of a retention task force, has been chair of the First Year Program Committee since 1997, and is presently chair of the Carnegie Teaching Academy Campus Program. She also served as advisor to the Math Club from 1992-2000.

She has been a member of the Mathematical Association of America since graduate school. She was a member of the Program Committee for the Fall Meeting of the NES/MAA that was held at Western New England College in 1997 and was also Publisher Liaison for the Spring Meetings in 1995, 1996. She has served as Secretary/Treasurer of the Northeastern Section of the Mathematical Association of America for the last two years. Ann has learned a

great deal during this time and enjoys working and interacting with members of the Northeastern Section. She hopes to continue to serve the section and become further involved in MAA activities in the future.

Recently, Ann has accepted the position of Associate Dean of the School of Arts and Sciences at the college. She is enjoying the challenges of this new position as well as the rewarding experiences she receives from teaching. She loves teaching and is delighted when students begin to see the beauty of mathematics.

In her free time, Ann enjoys traveling. She visits her relatives in Greece each summer. She and her husband enjoy sight seeing, visiting family, and relaxing while in Greece. They also enjoy cooking together, visiting museums, and working outside on gardening and landscaping.

Kathy Bavelas

Kathy Bavelas is a Professor of Mathematics at Manchester Community College (1985- present). She was the first Chair of the Mathematics Department (1989-1996) and co-chair from '97-'98. She was the Distinguished Professor in Residence at the CT Academy for Education in Mathematics, Science and Technology from '96 – 97. She received a BA from UCONN in 1966, an MS from Central CT State University in 1973 and an M.A.L.S. from Wesleyan University in 1997. She is currently serving as the Two-Year College Representative for the Northeastern Section. She has been a department liaison to the MAA since 1986 and has just accepted serving on the Committee on MAA/Department Liaisons (2003-6). She presently is on the Executive Board of ATOMIC (CT Association of Mathematics Teachers in CT), is a MATYCONN (Mathematics Association of Two-Year Colleges in CT) Representative to the CT Mathematics, Science and Technology Leadership Council and is a CT State Delegate to AMATYC (American Mathematics Association of Two-Year Colleges) . She has also been active in MATYCONN, serving as Secretary, 1990-'92, Vice-president,'92-'94, President, '94-'96, Past President '96- 97 and Secretary, '97-98 and a workshop presenter at regional and national NCTM, AMATYC, ATOMIC and NES/MAA meetings. She is an active member of the National Council of Teachers of Mathematics and has served as the State and MATYCONN Delegate to the national AMATYC Convention for years. She is included in Who's Who Among America's Teachers 1998, 2000, 2002, is a CT Academy Fellow, 1997 and a PIMMS Fellow (Project to Increase Mastery in Math and Sci.), 1996. She received the MCC Teaching Excellence and Distinguished Service Award in 1997. She is the higher education representative to the CAPT (CT Academic Performance Test) Mathematics Advisory Committee.

Michael Latina

Michael R. Latina has been a full time faculty member at the Community College of Rhode Island since 1970. He has been an MAA member since 1967. His degrees include a BS in Mathematics from WPI (1968), a Sc.M. in Applied Mathematics from Brown (1970), and a Ph.D. in Applied Mathematics from Brown (1979). Dr. Latina's research interests include differential equations, control systems, and the stability of dynamical systems. He regularly teaches calculus and advanced engineering mathematics to engineering students.

Companies that will exhibit at the Fall Meeting

Representatives from the following companies will have Book/Technology displays during the Fall Meeting at Framingham.

- Academic Press
- Addison-Wesley
- Brooks-Cole
- John Wiley & Sons
- Key College
- MAA
- A.K. Peters
- Prentice Hall
- Quant Systems
- Texas Instruments

Springer-Verlag will provide catalogs and offer a discounted rate.

Call for Student Papers for Fall Meeting

Students (and recent graduates) from the Northeastern Section are invited to present talks at the Fall meeting on topics in mathematics, statistics, or computer science. The presentations should be 10-15 minutes in length, on expository work, research projects, employment experiences, or problems from mathematical periodicals. The registration fee and cost of meals will be waived for one student presenter per paper. Interested students should contact Michael Cullinane, mcullina@keene.edu, or Lisa Humphreys, lhumphreys@ric.edu. The deadline for submission is November 1.

Call for Contributed Papers

Participants at the Fall Meeting of the section are invited to submit contributed papers. We are particularly interested in papers that will appeal to a variety of participants. If you are planning to speak about results of your research, keep in mind that the audience most likely will not be familiar with your specialty, so you will want to give some motivation and context for your work. Your presentations should be approximately 15 minutes in length. Please send an abstract and your mailing address together with a list of any special equipment you may need to Tommy Ratliff at tratliff@wheatoncollege.edu. Email submissions are preferred, but you may also send a typed submission to Tommy Ratliff; Department of Mathematics; Wheaton College; Norton, MA 02766
The deadline for submission of abstracts is November 1.

Call for New Colleague Talks

New faculty members are invited to present short presentations on their research or teaching interests. This introduces the local MAA to the new faculty and the new faculty to the local MAA. The coordinators are Phil Hotchkiss of Westfield State College (MA) and Chris Aubuchon of Johnson State College(VT). If you are interested in presenting, please send an email to photchkiss@wisdom.wsc.ma.edu or to aubuchoc@badger.jsc.vsc.edu or call Phil at (413) 572-5575 by Nov. 1.

NORTHEASTERN SECTION OF THE MAA
FALL MEETING: November 22 – 23, 2002
FRAMINGHAM STATE COLLEGE, FRAMINGHAM, MASSACHUSETTS
THEME: Changing Face of Mathematics – A Mathematics Sampler
Program Chair: Sarah L. Mabrouk, Framingham State College
Local Arrangements: Sarah L. Mabrouk
(see page 14 for pre-conference Project NExT Activities)
(Map of Framingham State Campus is on page 34)

Friday, November 22, 2002

2:30 – 6:00 p.m.	Registration . . . . . Lobby of Athletic and Recreation Center next to Dwight Hall
2:30 – 3:30 p.m.	Executive Committee Meeting . .. VIP Room D. Justin McCarthy College Center
3:00 – 3:50 p.m.	Ray Griffin, Framingham State College . . . . . Dwight Auditorium **"*Mission Mathematics*: Linking Aerospace and the NCTM Standards"**
4:00 – 4:50 p.m.	Laura L. Kelleher, Massachusetts Maritime Academy . . . . . Dwight Auditorium 2002 NES/MAA Distinguished Teacher Award Winner **"Discrete Mathematics in the Schools"**
5:00 – 5:50 p.m.	♦ Student Papers . . . Hemenway Hall 212 ♦ Jeff A. Libby, United States Military Academy. . . . . .Hemenway Hall 208 Bart D. Stewart, United States Military Academy Workshop*: **"Promoting Visual Cues with '*EXCEL*'lent Tools"**
6:00 – 6:40 p.m.	Reception with cash bar and hors d'oeuvres Hosted by the Development and Alumni Relations Office, Framingham State College McCarthy's, D. Justin McCarthy College Center
6:45 – 8:00 p.m.	Banquet . . . . . Forum, D. Justin McCarthy College Center

8:00 – 8:10 p.m.	Opening Remarks. . . . . Dwight Auditorium
8:10 – 9:00 p.m.	**Christie Lecture**: Carl Pomerance, Bell Laboratories . . . . . Dwight Auditorium **"Primal Screens"**
9:00 – 9:30 p.m.	Coffee and Dessert Reception . . . . . 42 Adams Road Hosted by The Alumni Association, Framingham State College

Saturday, November 23, 2002

8:00 a.m. – Noon	Registration . . . . . Lobby of Athletic and Recreation Center next to Dwight Hall
8:00 – 8:50 a.m.	New Colleagues Talks . Dwight Auditorium
9:00 – 9:50 a.m.	Dorothy Wallace, Dartmouth College . . . . . Dwight Auditorium **"Sharing Uncommon Ground: How Will The Case For Numeracy Affect The Mathematics Community"**
9:00 – 10:30 a.m.	Mary Ann Connors, Westfield State College Workshop*: **"Statistics With The TI-83 Plus (TI-83 Plus Silver Edition)**..Hemingway 307
10:00 – 10:30 a.m.	Break . . . . . Lobby of Athletic and Recreation Center next to Dwight Hall
10:30 – 11:20 a.m.	Emma Previato, Institute For Advanced Study . . . . . Dwight Auditorium **"Algebra, Geometry And Physics: The Dynamics Of Adding And Multiplying"**
11:30 – 12:00 p.m.	Business Meeting . . . . Dwight Auditorium
12:00 – 1:00 p.m.	Lunch. . . . . Forum, D. Justin McCarthy College Center
1:00 – 1:50 p.m.	Thomas Koshy, Framingham State College . . . . . Dwight Auditorium **"Fibonacci, Lucas, and Graphs"**

2:00 – 2:50 p.m. Gilbert Strang, Massachusetts Institute of Technology . . . . . Dwight Auditorium
"Pascal Matrices"

3:00 – 4:30 p.m.

- Bonnie Gold, Monmouth University . . . . . Dwight Auditorium
  Workshop: **"Assessment Of Student Learning In Undergraduate Mathematics"**

- Mary Ann Connors, Westfield State College. . . . . Hemenway Hall 307
  Workshop*: **"Calculus With The TI-89/TI-92 Plus/Voyage 200"**

- John Lutts, University of Massachusetts – Boston .. .. Hemenway Hall 208
  Workshop*: **"*The Geometer's SketchPad (GSP4)*: A Tool For Exploration, Conjecture and Experiment in High School Geometry"**

3:00 – 3:40 p.m. Student Panel Discussion . . . . . Hemenway Hall 212
"What Can I Do With A Mathematics Major?"

3:45 – 4:30 p.m. Student Panel Discussion . . . . . Hemenway Hall 212 **"Why Should I Go To Graduate School?"**

4:30 – 5:30 p.m. Contributed Papers. . . . . Hemenway Hall 115

*Enrollment for technology workshops is limited to 25 each. Please contact Sarah Mabrouk, Framingham State College, by email, smabrouk@frc.mass.edu, or by phone, (508)626-4785, to pre-register.

Hotel Information

Lodging for the Meeting is available at hotels in Framingham (Best Western, Econo Lodge, and Sheraton) and in Natick (Courtyard By Marriott, Crowne Plaza, and Hampton Inn). Each hotel is offering a special meeting rate for those who call and make reservations; to get the special meeting rate, please use the code NES/MAA. In general, reserved room blocks will be held until November 2,

2002. However, room blocks for which reservations are not being made may be released if event reservations are not being made and if hotels need the rooms. It is best to make reservations as early as possible. You can ensure that your room will be held by making your reservations using a credit card. You must add state and local taxes, currently 9.7%, to the nightly room rate.

Best Western (130 Worcester Road, Framingham, MA 01702, Phone: (508)872-8811, Fax: (508)875-4136) Rate: $69.00 per night for 1 bed; $79.00 per night for 2 beds; 25 rooms on hold; Cancellation Policy: 4 pm day of arrival; Check in: 2 pm; Check out: 11 am.

Courtyard By Marriott (342 Speen Street, Natick, MA 01760, Phone: (508)655-6100, Fax: (508)655-6104) Rate: $104 per night; 10 rooms on hold; Check in: 3 pm; Check out: 12 pm.

Crowne Plaza Boston-Natick (1360 Worcester Road, Natick, MA 01760, Phone: (508)653-8800, Fax: (508)653-1708) Rate: $99.00 per night; 20 rooms on hold; Cancellation Policy: 6 pm night of arrival; Check in: 3 pm; Check out: 12 pm.

Econo Lodge (1186 Worcester Road, Framingham, MA 01701, Phone: (508)879-1510, Fax: (508)875-2686) Rate: $64.99 per night; 20 rooms on hold; Cancellation Policy: 24 hours prior to arrival; Check in: 3 pm; Check out: 11 am.

Hampton Inn Boston/Natick (319 Speen Street, Natick, MA 01760, Phone: (508)653-5000 , Fax: (508)651-9733) Rate: $89 per night includes deluxe continental breakfast; 20 rooms on hold: 10 with two double beds, 10 King Study; Cancellation policy: 6 pm night of arrival; Check in: 3 pm; Check out: 12 pm.

Sheraton Framingham Hotel (1657 Worcester Road, Framingham, MA 01701, Phone: (508)879-7200, Fax: (508)875-7593) Rate: $119 per night; 10 rooms on hold; Check in: 3 pm; Check out: 12 pm.

For additional information about these hotels, please check the Lodging page of the Meeting web site,

http://www.frc.mass.edu/smabrouk/nes_maa/fall_2002/Hotels/lodging.htm.

Directions to Framingham State College Campus

From the Massachusetts Turnpike (I-90): Take Exit 12, follow Rt. 9 East two miles to the Edgell Rd.-Main St., Framingham Exit; Take your first right onto State Street and the Framingham State Campus.

From I-95 (Route 128): Take Exit 25 to the Massachusetts Turnpike (I-90) West, and follow the directions above.

From Route 495: Take Exit 22 to the Massachusetts Turnpike (I-90) East, and follow the directions above.

From Route 9 East: Take the Edgell Road/Main Street, Framingham Exit; take your first right onto State Street and the Framingham State College Campus.

From Route 9 West: Take Framingham Center/Edgell Road exit (stay in the middle lane), turn left at intersection/lights to cross the Rte 9 overpass (stay in the right-hand lane), take first right onto High Street, take the first left onto State Street and the Framingham State College Campus.

Abstracts and Biographies of Speakers

Michelle Hopkins Capozzoli

Framingham State College

Workshop: Using the Power of JMP to Teach Statistics

Abstract: SAS-JMP is a statistical software package produced by SAS. With its flexibility and easy interface, it can be a powerful teaching tool in the classroom. This workshop will give an introduction to the software, as well as how it can be used to further advance the teaching and learning of statistics. Specific examples will be presented.

Bio: Dr. Capozzoli is an assistant professor at Framingham State College. After receiving her Ph.D. from the University of New Hampshire, she worked at Bristol-Myers Squibb as a Biostatistician in their Non-Clinical Department. As a member of the Connecticut Chapter of the American Statistical Association, she has given presentations at several seminars for teaching AP statistics. Dr. Capozzoli has also published articles in the areas of interrater agreement, accelerated life testing, and Bayesian analysis.

Mary Ann Connors

Westfield State College

Workshop: Statistics with the TI-83 Plus (TI-83 Plus Silver Edition)

Abstract: The purpose of this workshop is to present several examples that illustrate how the use of a handheld TI-83 Plus can enrich and enhance the teaching and learning of statistics. Some of these examples will provide the opportunity for student active learning.

Workshop: Calculus with the TI-89/ TI-92 Plus/ Voyage 200

Abstract: The purpose of this workshop is to present several examples that illustrate how the use of a handheld computer algebra system (TI-89/ TI-92 Plus/ Voyage 200) can enrich and enhance the teaching and learning of calculus. Some of these examples will provide the opportunity for student active learning.

Bio: Mary Ann Connors is a faculty member in the Department of Mathematics and Program Director of Secondary Mathematics Certification at Westfield State College http://www.wsc.ma.edu/math/faculty/connors/mconnors.asp. She is a former member of the Department of Mathematical Sciences at the United States Military Academy at West Point.

She is a faculty consultant for the College Board and Educational Testing Service and a Texas Instruments College Short Course Instructor. She served as a member of the AP Calculus Development and Test Writing Committee. She is a member of the Phi Delta Kappa Fraternity in Education and several national, regional and local mathematical organizations. She is a member of the Editorial Panel of the 2005 Yearbook of the National Council of Teachers of Mathematics, *Technology-Supported Mathematics Learning Environments* (http://www.nctm.org/publications/yearbook.htm). Dr. Connors has presented Advanced Placement (AP) Calculus Calculator Workshops, National Science Foundation Funded workshops on Calculus Reform using appropriate

technology, and the Texas Instruments/Ohio State Technology Short Courses. She has also presented workshops on fractals at national and international meetings. Her publications include numerous articles, papers, and a fractal project on the World Wide Web (http://www.math.umass.edu/~mconnors/fractal/fractal.html). She was the guest on the call-in talk radio show *Math Medley* entitled "Using Technology to Teach Mathematics" (http://www.csam.montclair.edu/~kenschaft/WALEsched.html).
Dr. Connors is married to Edward Connors, Professor Emeritus of Mathematics at the University of Massachusetts Amherst. They have two children.

Bonnie Gold
Monmouth University
Title: Assessment of Student Learning in Undergraduate Mathematics
Abstract: The SAUM Project ("Supporting Assessment in Undergraduate Mathematics"), sponsored jointly by the NSF and the MAA, has as its goal the improvement of student learning in mathematics through an increased understanding and use of effective assessment methods. This session will introduce you to the SAUM project, give an overview of assessment, share some assessment activities departments in the section are engaging in, and give you a chance to ask questions you have about assessment, as well as to share with others what you are doing.
Bio: Bonnie Gold is chair of the Mathematics Department at Monmouth University in New Jersey. She has helped the two departments she has been part of develop their assessment programs, and is the editor, with Sandra Keith and William Marion, of Assessment Practices in Undergraduate Mathematics, MAA Notes # 49. She has helped run several workshops on assessment. More generally, she has been involved with the MAA's efforts to improve teaching at the college level in a variety of ways, including chairing the Committee on the Teaching of Undergraduate Mathematics and editing MAA Online's Innovative Teaching Exchange.

Ray Griffin
Framingham State College
Title: *Mission Mathematics:* Linking Aerospace and the NCTM Standards
Abstract: Mission Mathematics is a collaborative project of the National Aeronautics and Space Administration and the National Council Teachers of Mathematics. The project links the science of aeronautics to the standards NCTM has developed for all aspects of mathematics education. The mathematics in the different activities in this K to 12 program does not represent the entirety of an elementary, middle school or high mathematics program. Rather, the program involves strategically selected aerospace topics that illustrate how this important science context can develop mathematical thinking using instruction based upon the NCTM Standards documents: *Curriculum Mathematics, Professional Standards for Teaching Mathematics,* and *Assessment Standards for School Mathematics.*
The *Mission Mathematics* presentation will provide participants with an overview of this program with selected examples from each of the three grade division: elementary,

middle school and high school.
Bio: Ray Griffin is the Director of the *Christa Corrigan McAuliffe Center for Education and Teaching Excellence.* Prior to Framingham State College, Ray taught mathematics in Massachusetts, the Philippine Islands and the United Kingdom. Ray's career also includes employment at System Engineering Laboratories and Digital Equipment Corporation as a mathematics software application Senior Product Manager.

Laura L. Kelleher
Massachusetts Maritime Academy
Title: Discrete Mathematics In The Schools
Abstract: In *Principles and Standards for School Mathematics* the National Council of Teachers of Mathematics recommends including combinatorics, iteration and recursion, and vertex-edge graphs as an integral part of the school mathematics curriculum. Many teachers of school mathematics have not previously studied these topics or have not considered ways of presenting this material to students in K-12 classrooms. Examples from *The Leadership Program in Discrete Mathematics* will be used to demonstrate ways of reformulating these topics to instill in both teachers and their students an understanding of concepts and applications of discrete mathematics.
Bio: Laura Kelleher is the recipient of the *Award for Distinguished College or University Teaching of Mathematics* from the NES/MAA for 2002. She received her Ph.D. in mathematics from Northeastern University, writing her dissertation in the field of graph Theory. She teaches mathematics and chairs the Department of Science and Mathematics at Massachusetts Maritime Academy where she received the Academy's first *Award for Teaching Excellence*. She served as Chairperson and as Secretary/Treasurer for the Northeastern Section of the MAA and has been a member of several national MAA committees. In 1997 she was a co-recipient of the *Certificate for Meritorious Service* from the NES/MAA. She enjoys exploring applications of graph theory and combinatorics with K-8 teachers through Rutgers University's *Leadership Program in Discrete Mathematics*.

Thomas Koshy
Framingham State College
Title: Fibonacci, Lucas, and Graphs
Abstract: The palindromic year 2002 marks the 800th anniversary of the well-known rabbit problem by Fibonacci. Closely related to Fibonacci numbers, which occur in such diverse areas as art, architecture, biology, chemistry, electrical engineering, geometry, graph theory, music, origami, poetry, physics, physiology, psychology, and neurophysiology, are the Lucas numbers. Fibonacci and Lucas numbers are a source of great fun and excitement; they stimulate intellectual curiosity and sharpen mathematical skills, such as pattern recognition, conjecturing, proof techniques, and problem-solving; and they continue to be a fertile ground for creative amateurs and mathematicians alike. This talk presents a few delightful applications of Fibonacci and Lucas numbers to combinatorics and graph theory. A minimal exposure to graph theory would be helpful, but not required.
Bio: Thomas Koshy received his B.Sc. in Mathematics and Physics and his M.Sc. in

Mathematics from the University of Kerala, India and his Ph.D. with specialization in Algebraic Coding Theory at Boston University under the direction of Edwin Weiss. Tom has written numerous journal and newspaper articles and five textbooks. His most recent textbooks are *Elementary Number Theory With Applications* published by Academic Press and *Fibonacci And Lucas Numbers With Applications* published by John Wiley & Sons. Tom is a frequent invited speaker for the National Council of Teachers of Mathematics (NCTM) and the New England Mathematical Association of Two Year Colleges (NEMATYC). He has given numerous presentations to high schools, colleges, and universities in the United States and in India. Tom has taught at Framingham State College for thirty years, serving on a variety of committees as well as serving as Chair of the Mathematics Department. His honors and awards include the College's Distinguished Service Award and the College Citation for Meritorious Service Award. Tom has been an active volunteer at the Salvation Army Miracle Kitchen in Framingham for sixteen years, done the Walk For Hunger in Boston for seventeen years, and volunteered for the WGBH Phonathon for five years.

John A. Lutts
University of Massachusetts – Boston
Title: *The Geometer's SketchPad (GSP4)*: A Tool for Exploration, Conjecture and Experiment in High School Geometry
Abstract: NCTM in the several versions of its *Standards* has repeatedly called for changes in the way geometry is taught in high school. It has asked for a decreased emphasis on the presentation of geometry as a complete deductive system and an increase in fostering both open exploration and conjecturing and an increase in attention to transformation geometry. The *Geometer's SketchPad* is an ideal tool to use in pursuing such interests. In this presentation I shall introduce the basics of GSP4 and outline several explorations on which students could embark and invite the audience to try the software out for themselves and/or to share their own experiences with it. (If there is time, I shall also hint as to how this software might be used at the college level.)
Bio: John Lutts received his BS in mathematics from Spring Hill College, Mobile , Alabama in 1957, his MA in mathematics from the University of Pennsylvania in 1959 and his PhD in mathematics from the University of Pennsylvania in 1961. He was a lecturer in mathematics at Loyola College, Baltimore, Maryland from 1964 to1966. He was an Asst. Prof. in mathematics at the University of Massachusetts at Boston from 1966 to 1970. Since 1970, he have been an Assoc. Prof. in mathematics at the University of Massachusetts at Boston. He has been a member of MAA since 1957. His fields of interest are: approximation theory, Lie Groups, history of mathematics, and the training of future high school teachers in mathematics.
His interest in *The Geometer's SketchPad* came about while working on sabbatical in Fall 2001 with the mathematics faculty at Dorchester High School, an inner city high school in Boston. While there, he was asked to provide a series of workshops on the use of this software as part of the professional development efforts of that faculty.

Jeff A. Libby
United States Military Academy
Bart D. Stewart
United States Military Academy
Workshop: **Promoting Visual Cues with "*EXCEL*"lent Tools**

Abstract: With modern advances, technology continues to weave itself within our classrooms. Such advances, while certainly able to enhance a student's ability to learn objectives and concepts, come with an associated cost – specifically, the responsibility of learning some non-user friendly computer software. In an effort to reduce the software learning curve, it is possible to create a totally interactive environment that rivals some popular Java Applets in mere minutes using nothing more than Microsoft Office. In this talk, we intend to share the interactive tool building process and its effect in and outside the classroom.

Why an interactive environment? Our main reason was the fact that students learn through repetition, taking notes, and audio and visual cues. The challenge for us, as instructors, was to prepare lessons that incorporate each of these methods. Rather than observing static charts/graphs and listening to the instructor, students can enter a dynamic environment that promotes opportunity for self-exploration and discovery. The exploration fosters a deeper understanding of material rather than simply resting on the periphery.

With the "point and click" technology, our students are able to investigate a myriad of Discrete Dynamical System behaviors, both linear and nonlinear, through observing the effect of varying parameters in a numerical and graphical fashion simultaneously. Add-ins also exist for analytic solutions as well. Creating this type of environment not only adds new dimension to students' focus, creativity, and willingness to explore, but it also presents an easy, adaptable tool for all of us that remains only a "point and click" away. You may view samples at

http://www.dean.usma.edu/math/people/stewart/interactive_tools.htm.

Bios: Captain Bart Stewart teaches undergraduate courses in discrete dynamical systems, freshman calculus, and introduction to differential equations. He is a junior faculty member of the Department of Mathematics Sciences at the United States Military Academy. He served for nine years as a personnel officer in the United States Army. He holds a Bachelor of Science degree in Mathematics from the United States Military academy, and a masters in Management, Troy State university, and Applied Mathematics, Naval Postgraduate School. His research interests include applied numerical methods, chaos, math modeling, and applications of innovative technology to education.

Major Jeff Libby teaches undergraduate courses in advanced discrete dynamical systems, freshman calculus, introduction to differential equations, and will be teaching the advanced sections next year. He is a junior faculty member of the

Department of Mathematics Sciences at the United States Military Academy. He served for eleven years as an aviation officer in the United States Army. He holds a Bachelor of Science degree in civil engineering from the United States Military academy, and a masters in Applied Mathematics from the Naval postgraduate School. His research interests include finite element modeling and applications of innovative technology to education.

Carl Pomerance
Bell Laboratories
Title: Primal Screens
Abstract: In August of this year a sensational paper appeared out of India giving a fast test for determining if a given number is prime or composite. This test of Manindra Agrawal and his two students, Neeraj Kayal and Nitin Saxena, has caught the imagination of a far wider public than is usually the case in mathematics. Articles have appeared in newspapers all over the world, as well as news magazines such as US News and World Report, and the major scientific magazines. Come and find out what all the excitement is about.
Bio: Carl Pomerance received his B.A. from Brown University in 1966 and his Ph.D. from Harvard University in 1972 under the direction of John Tate. During the period 1972—99 he was a professor at the University of Georgia, with visiting positions at the University of Illinois at Urbana-Champaign, the University of Limoges, Bell Communications Research, and the Institute for Advanced Study. Currently, he is a Member of Technical Staff at Bell Laboratories and a Research Professor Emeritus at the University of Georgia.
A number theorist, Pomerance specializes in analytic, combinatorial, and computational number theory. He considers the late Paul Erdos as his greatest influence.
Pomerance was an invited speaker at the 1994 International Congress of Mathematicians, the Mathematical Association of America Polya Lecturer in 1993--95, and the MAA Hedrick Lecturer in 1999. He has won the Chauvenet Prize (1985), the Haimo Award for Distinguished Teaching in the USA (1997), and the Conant Prize (2001). In addition he is the co-author with Richard Crandall of the new book, Prime Numbers: A Computational Perspective.

Emma Previato
Institute For Advanced Study
Title: Algebra, Geometry and Physics: The Dynamics of Adding and Multiplying
Abstract: The nature of algebraic objects, curves and moduli, turned out to have important physical meaning, at least since the times of Fermat. In the latest third of the twentieth century, this connection soared to infinite dimensions. At present, mathematicians and physicists together are exploring the properties of the dynamical solutions attached to special loci in moduli spaces. This talk will focus on examples such as billiards and bundles over elliptic and hyperelliptic curves.
Bio: Emma Previato received her PhD from Harvard University in 1983. Her advisor, David Mumford, was awarded a Fields Medal for his advancement of

modern Algebraic Geometry; Emma's dissertation concerned applications of algebraic geometry to non-linear wave equations and other dynamical systems. In 1983 Emma became an assistant professor at Boston University, where she is now a full professor having left her post at times to pursue her research as a visitor, among other places, at the Institute for Advanced Studies (Princeton, NJ); the Mittag-Leffler Institute (Royal Academy of Sweden); the Bunting Institute (Radcliffe College); the Mathematical Sciences Research Institute (Berkeley, CA). She is editor and writer of two books and some 40 technical articles. Emma supervised two doctoral and several undergraduate dissertations and is currently nurturing four graduate students, in areas as diverse as classical projective geometry and coding theory.

Gilbert Strang
Massachusetts Institute of Technology
Title: Pascal Matrices
Abstract: This is joint work with Alan Edelman at MIT and a little bit with Pascal. They had all the ideas.
Put the famous Pascal triangle into a matrix. It could go into a lower triangular L or its transpose L' or a symmetric matrix S:

$$L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 1 & 2 & 1 & 0 \\ 1 & 3 & 3 & 1 \end{bmatrix} \qquad L' = \begin{bmatrix} 1 & 1 & 1 & 1 \\ 0 & 1 & 2 & 3 \\ 0 & 0 & 1 & 3 \\ 0 & 0 & 0 & 1 \end{bmatrix} \qquad S = \begin{bmatrix} 1 & 1 & 1 & 1 \\ 1 & 2 & 3 & 4 \\ 1 & 3 & 6 & 10 \\ 1 & 4 & 10 & 20 \end{bmatrix}$$

These binomial numbers come from a recursion, or from the formula for i choose j, or functionally from the coefficients of $(1+x)^i$.

The amazing thing is that L times L' equals S. (OK for 4 by 4) It follows that S has determinant 1. The matrices have other unexpected properties too, that give beautiful examples in teaching linear algebra. The proof of $LL' = S$ comes 3 ways, I don't know which you will prefer:

1. By induction using the recursion formula for the matrix entries.
2. By an identity for the coefficients $i + j$ choose j in S.
3. By applying both sides to the column vector $\begin{bmatrix} 1 & x & x^2 & x^3 & \dots \end{bmatrix}'$.

The third way also gives a proof that $S^3 = -I$ but we doubt that result.

Bio: Gilbert Strang was an undergraduate at MIT and a Rhodes Scholar at Balliol College, Oxford. His doctorate was from UCLA and since then he has taught at MIT. He has been a Sloan Fellow and a Fairchild Scholar and is a Fellow of the American Academy of Arts and Sciences. He is a Professor of

Mathematics at MIT and an Honorary Fellow of Balliol College.
Professor Strang has published a monograph with George Fix, "An Analysis of the Finite Element Method", and six textbooks: Introduction to Linear Algebra (1993, 1998, 2003 to come), Linear Algebra and Its Applications (1976, 1980, 1988), Introduction to Applied Mathematics (1986), Calculus (1991), Wavelets and Filter Banks, with Truong Nguyen (1996), Linear Algebra, Geodesy, and GPS, with Kai Borre (1997)
He served as President of SIAM during 1999 and 2000. His home page is http://math.mit.edu/~gs.

Dorothy Wallace
Dartmouth College
Title: Sharing Uncommon Ground: How Will The Case For Numeracy Affect The Mathematics Community
Abstract: The volume "Mathematics and Democracy" has sparked a one sided debate about the undebatable value of a quantitatively literate population. In this talk we will outline how the call for numeracy overlaps with the goals of mathematics education and how various institutions have approached the issue. We will touch on both large scale issues and also particular interventions in mathematics education that target goals of numeracy. We will open a conversation on how to improve the numeracy of students at our institutions without sacrificing the mission of traditional mathematics education.
Bio: Professor Wallace grew up in San Mateo, California. She received her Bachelor of Science from Yale University and her Ph.D. in Mathematics from the University of California at San Diego. Before coming to Dartmouth 15 years ago she held positions at Florida International University, the University of California at Berkeley and Stanford University. She works primarily in number theory, although she has also published papers in applied mathematics and mathematics education as well. Her work with the Math Across the Curriculum project at Dartmouth included the development of several interdisciplinary courses in mathematics and art and literature. She was designated CASE New Hampshire Professor of the Year for 2000.

Student Panel Discussion: What Can I Do With A Mathematics Major?
Abstract: Mathematics is fun and intellectually stimulating to study. Studying mathematics helps one to develop skills that will be beneficial in the workplace. Join area college graduates and college students for a panel discussion of the benefits of a mathematics major workplace.

Student Panel Discussion: Why Should I Go To Graduate School?
Abstract: Graduating from college and you cannot decide if you want to work or if you want to go to graduate school? Join area graduate students for a discussion of the benefits of graduate study. Find out what it is like to go to graduate school to pursue a Master's degree or a Doctorate.

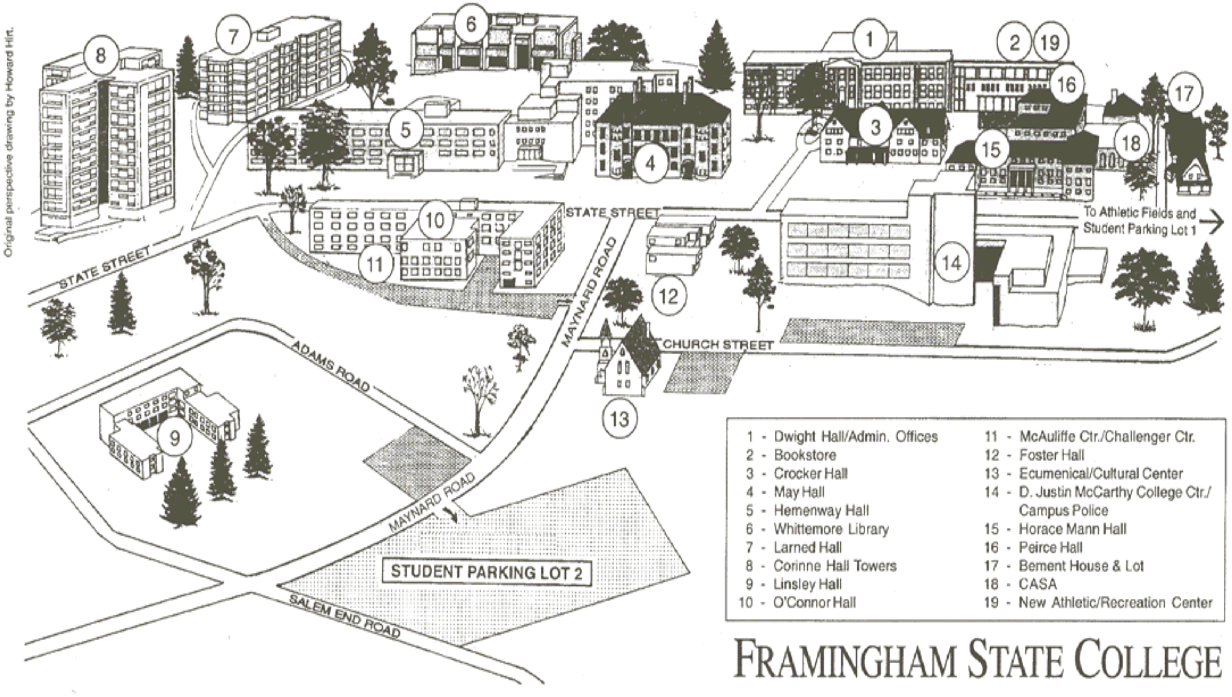
About Framingham State College

Framingham State College was founded by Horace Mann in 1839 as the first state-supported institution of public higher education in the United States for the training of teachers. Located in Framingham, Massachusetts, a community 20 miles west of Boston, the College assists in fulfilling the workforce needs of the Commonwealth with an emphasis on the rapidly growing high technology and service region known as MetroWest. The College integrates liberal arts and science programs with a variety of professional programs at the Baccalaureate and Master's levels.

The College offers distinctive programs in:

- Teacher Education and Preparation – Programs to prepare teachers at all levels of Pre-Kindergarten through Grade 12 education.
- Nutrition, Dietetics, Food Technology, Chemistry and Biology – Unique professional programs integrated with foundation sciences.
- Business and its Applications Across the Disciplines – Programs with special preparation for the new technological economy.
- Advanced Technology – Programs infusing information technology throughout the curriculum.

Framingham State College draws the majority of its students from within Massachusetts and the New England region. Traditional college-age students, as well as non-traditional students seeking higher education on either a full- or part-time basis, are served and are accorded opportunities to participate in campus life through a variety of co-curricular programs and activities and to develop the necessary knowledge and skills to compete in a global and technological society.



FRAMINGHAM STATE COLLEGE

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Admissions Tel. (508) 620-1220
www.framingham.edu

Pre-Registration Form: Fall 2002 NES/MAA Meeting, November 22-23, 2002

If you have questions about registration, you can also contact Sarah Mabrouk by phone, (508)626-4785, or by email, smabrouk@frc.mass.edu.

Checks should be made to: NES/MAA. Mail this form to :

Sarah L. Mabrouk
Framingham State College
100 State Street, PO Box 9101
Framingham, MA 01701-9101

Please pre-register! You may register at the meeting if you wish; however, it would help to plan the meeting if you pre-register by mail and it will save you money in that on-site registration fees are five dollars more than pre-registration fees. Also, meals cannot be guaranteed unless reservations are received by Friday, November 2, 2002. It may not be possible to buy tickets to the banquet or lunch at the meeting. Spouses and guests are welcome at all meals.

PRE-REGISTRATION (please type or print):

Name:

Name as you want it to appear on your name badge:

Affiliation:

Address:

Telephone:

E-mail:

Need Parking: (Check all that apply.)

Friday, November 22, 2002 _____

Saturday, November 23, 2002 _____

Special Needs Parking* _____

*Please contact Sarah Mabrouk for Special Needs Parking.

Pre-registration Fee:

MAA Member ($20.00)

Non-member ($25.00)

Student or unemployed ($5.00) $ _____

Meals

Reception and Banquet Friday ($28.00 per person) $ _____

Luncheon Saturday ($19.00 per person) $_____

Total $ _____

Attending (Check all that apply):

Friday, November 22, 2002 _____

Saturday, November 23, 2002 _____

Participating in Section NeXT _____

Workshops (Check all that apply)

_____ Excel (Friday, November 22, 2002)

_____ SAS-JMP. (Friday, November 22, 2002)

_____ TI-83 Statistics (Saturday, November 23, 2002)

_____ TI-89/TI-92/Voyage 200 (Saturday, November 23, 2002)

_____ GSP4 (Saturday, November 23, 2002)

Please call, (508)626-4785, or email, smabrouk@frc.mass.edu, Sarah Mabrouk, Framingham State College, to pre-register for these workshops. Enrollment is limited.

Frank Ford
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