NORTHEASTERN SECTION

NEWSLETTER

SPRING 1993

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FUTURE SECTION MEETINGS

June 11-12, 1993: UMass-Dartmouth
See this *Newsletter* for details

November 5-6, 1993: Westfield State College
Local Arrangements: Dianne Haber and Maureen Bardwell
Program Co-Chairs: Richard Porter, Northeastern University
and Miguel A. Garcia, Gateway Community-Technical College

June 3-4, 1994: Salve Regina College
Local Arrangements: William Stout
Program Chair: C. Edward Sandifer, Western Connecticut State University

CHAIRPERSON'S MESSAGE

As part of your mathematical revitalization this spring, be sure to plan to treat yourself to an opportunity to refresh your ideas and your outlook by joining your colleagues in one or more of the activities planned by the Northeastern Section of the MAA. Our Minicourse and Dinner Meetings were announced in separate fliers and this issue of the *Newsletter* contains information about the upcoming Section Meeting and Short Course. Newcomers are particularly encouraged to participate in these events!

I was very pleased by and grateful for the generous response to last fall's call for volunteers to assist with upcoming Section activities. Our programs are greatly enhanced by the diversity afforded by so many creative and helping hands. If you have enjoyed and benefited from NES programs, please consider volunteering your talents to help us continue and advance our efforts for fostering the understanding of mathematics and the enhancement of mathematics education. In particular, volunteers are sought to serve as hosts for next year's spring dinner meetings. Also, we are seeking a member of the NES, possibly with some computer experience, who would be interested in assisting us in the preparation and mailing of the spring fliers. If you can help with one of these or if you have suggestions for NES programs please do not hesitate to contact me.

Congratulations to all for the successful results of last fall's challenge to the NES members for donations to the Howard Eves Room in the MAA's Pólya Center. The generous donations of individual Section members included with the registration forms for our last Section Meeting were matched by the NES from the Section's treasury. As a result, the Section has been able to meet its goal and responsibility and *The Northeastern Section Friends of Howard Eves* will be listed in the Register of Donors among the Dodecahedra level donors to the Center Fund. In addition, Clayton Dodge of the University of Maine will be listed among the Octahedra level donors. Both of these listings will also be included in the wall plaque Honor Roll of Donors. Many thanks to all of you who helped the Section to honor Howard Eves in this most fitting way.

One of the special events at the Joint Meetings in San Antonio in January was the presentation of the first national MAA Awards for Distinguished College or University Teaching of Mathematics. Included in the seven extraordinary teachers who were feted at this event was the Northeastern Section's own Frank Morgan of Williams College. Congratulations are extended to him for this outstanding achievement and for continuing to promote the teaching of mathematics by doing just that wherever he goes. The 1993 Northeastern Section Award will be presented at the upcoming Section Meeting in June. Nominations for the 1994 award are now being accepted. See page 6 for more information.

Beginning next fall, *Math Horizons*, a new mathematics journal for students, will be published by the MAA. Multiple copies of this publication will be sent to every department without cost for the first year. It is intended that these will be mailed to the MAA Departmental Representatives who are asked to coordinate the distribution of the Journal. If your department does not have a Departmental Representative please contact Dennis Luciano (the NES Governor whose address is on the inside cover) who is currently updating the Departmental Representative list.

A record number of students participated in this past fall's Section Meeting at Trinity College which featured a workshop and presentation on environmental mathematics. To further foster the participation of students, we are pleased to announce that a Career Fair featuring speakers from a variety of career fields that utilize mathematics will be held this coming October at Bentley College. See page 22 for further details.

Next fall the NES will be asked to submit nominations for the position of Section Governor. If you would like to suggest a name for this position, please contact me and I will pass on your suggestion to the nomination committee.

The NES extends thanks to Lynne Durkin of Bentley College and her committee for the fine program presented at Trinity College last fall as well as to David Robbins and all who assisted in preparing the Local Arrangements for the meeting. The Section is grateful also to Betsey Whitman of Framingham State College who served as Publisher's Liaison, to Ed Sandifer of Western Connecticut State University and Joseph Witkowski of Keene State College who served as Contributed and Student Papers Coordinators, and to Karen Schroeder of Bentley College who served as Student Chapter Program Coordinator. Thanks also to our Section Photographer Dian^{n}e Haber of Westfield State College and to Malcolm MacGregor of Massachusetts Maritime Academy who videotaped the Christie Lecture for helping the NES to keep a more lively record of our section programs.

Due to the efforts of the Nominating Committee (Frank Battles of Massachusetts Maritime Academy, Helene Savicki of Dean Junior College and James Tattersall of Providence College), the election of Section Officers was accomplished in a smooth and efficient manner at last fall's meeting. Congratulations to all of our new Section Officers who are already hard at work. See the opposite page for an introduction to our new officers. Thanks are once again extended to the outgoing officers for their willingness to serve the NES/MAA.

Ron Tannenwald, Richard Faulkenberry, Cecilia Medeiros and the other members of the committees organizing our upcoming meeting have done an outstanding job. I hope that you agree that the program looks interesting and inviting and I look forward to seeing you at the University of Massachusetts at Dartmouth in June.

Laura L. Kelleher
Massachusetts Maritime Academy
Chairperson NES/MAA

SECTION BY-LAWS

The NES Executive Committee has been working on a revision of the Section By-laws and the proposed amendments have been forwarded to the MAA's Committee on Sections for comments and suggestions. The revision process includes a ratification by the members of the Section. Watch for the publication of the proposed revisions in a future *Newsletter* and plan to participate in the vote of the membership to be held during the following Section Meeting.

MEET THE NEW SECTION OFFICERS

The following were elected Section Officers at the Fall of 1992 Meeting. Congratulations to each of them!

VICE-CHAIRPERSON: Donna Beers, Simmons College.

Donna has served as Program Chair for two previous Section meetings: the June of 1990 meeting held at Roger Williams College and the Spring of 1987 meeting held at Connecticut College. She has been an invited speaker at our Section meetings on several occasions. She has served on the Executive Committee of the Section as New Programs Coordinator and is a member of the Regional Dinner Meetings Committee. She is on the Council of *COMAP*, the Boston Coordinator for Women and Mathematics (WAM), and an Associate Editor of *Mathematics Magazine*.

SECRETARY-TREASURER: Marilyn (Lynne) Durkin, Bentley College

Lynne was Program Chair for the Section's Fall of 1992 meeting at Trinity College and is an invited speaker for the Spring of 1993 meeting to be held at U-Mass-Dartmouth. She has presented a course on *Chaos, Fractals and Dynamics* at a National MAA meeting and for the Texas Section. She co-taught (with Bob Devaney) the student minicourse held at Roger Williams College in the Spring of 1990 and has also presented a similar student course for the Texas Section. She is a member of the MAA Speaker's Bureau.

TWO-YEAR COLLEGE REPRESENTATIVE :
Miguel Garcia, Gateway Community-Technical College

Miguel was on the Program Committee for the Section's Fall of 1992 meeting at Trinity College and was primarily in charge of arranging the Friday afternoon computer/calculator workshops. He is Program Co-Chair for the Fall of 1993 meeting to be held at Westfield State College.

MINUTES OF THE LAST MEETING

The Fall Meeting of the Northeastern Section was held on November 20-21, 1992 at Trinity College in Hartford, Connecticut. There were approximately 210 registrants.

Invited Papers

Environmental Mathematics via Energy Diagrams by B. A. Fusaro, Salisbury State University.
Newton's Method: Complex Numerics and Complex Dynamics by Paul Blanchard, Boston University.
The Christie Lecture: A Further Look at Fibonacci and Lucas Numbers by Peter Hilton, SUNY Binghamton.
Synchronous Fireflies by Steven Strogatz, Massachusetts Institute of Technology.
The Role of Mathematicians in Addressing Environmental Problems by Charles Hadlock, Bentley College.
Modeling Natural Resources by Michael Olinick, Middlebury College.

Workshops

Integrating the TI-81 Graphics Calculator into the Mathematics Curriculum: Pre-Calculus and Calculus by Donna Christie, Rhode Island College.
Chaos in the Classroom: Discrete and Continuous Population Models by Bob Decker, University of Hartford.
Newton's Method from a Calculus I Perspective by John Williams, University of Hartford.
Calculus Explorations and Modeling with Calculus T/L by Donald Small, USMA and Miguel Garcia, Gateway Community-Technical College.
Making a Difference in Undergraduate Mathematics: Suggestions for Preparing Proposals for External Funding by James Leitzel, MAA.

Student Chapter Presentation

Mathematics and the Environment by Charles Hadlock, Bentley College.

Student Workshop

Environmental Mathematics by B. A. Fusaro, Salisbury State University.

Contributed Papers Session

What Really Happens at an International Math Congress: A Report from ICME-7 by Barry Schiller, Rhode Island College.
Total and Partial Derivatives by Domina Eberle Spencer and Philip Jay Mann, University of Connecticut.
A Comparison of Three Equations for the Force Between Current Elements by Parry Moon, Massachusetts Institute of Technology, and Domina Eberle Spencer and Philip Jay Mann, University of Connecticut.
Using MATHEMATICA in the Calculus Classroom by David Mauro, Trinity College.
A Programmer's Approach to Godel's Theorem by Robert Gray, Computervision Corporation.
TOPDESK - A Knowledge Worker Team Support System by Ron DeGray, Saint Joseph College.

Student Papers Session

Algebraic Dynamics of Polynomial Maps over Finite Fields by Anjula Batra, Wellesley College.
General Relativity and the Bending of Light by Jamie Kerman, Williams College.
Tours of Checkerboards by Meg Forbush, Williams College.
Undergraduates Teaching Calculus by Lisa Uebelacker, Meg Forbush, Jamie Kerman, Heather Morton and Bill O'Brien, Williams College.
A Counterfeit Coin Problem by Christopher Cook, Westfield State College.
Quantifying Order in Plane Separation Problems by Cynthia Musante, Westfield State College.
Another Look at the Platonic Solids by Joseph C. W. Tsui, University of Hartford.

At the Business Meeting various items were discussed which are described elsewhere in this *Newsletter*. The election of Section Officers was held and thanks were extended to the outgoing officers. The Section financial report was given indicating a sound financial base for the Section. Thanks were extended to all who participated in the planning and running of the meeting. Book awards, certificates and a one year membership in the MAA were given to the student presenters.

PUBLISHERS

The following text book publishers exhibited their latest offerings in mathematics and computer science at the Fall of 1992 meeting held at Trinity College:

Addison-Wesley Publishing Company
Ms. Anne King
1 Jacob Way
Reading MA 01867

DC Heath and Company
Ms. Lori Norton
125 Spring Street
Lexington MA 02173
(800)-235-3565

Houghton Mifflin Company
John Pote
43 Flat Rock Hill Road
Old Lyme CT 06371
(203)-434-5933

Harcourt Brace Jovanovitch College Publishers, The Dryden Press, Saunders College Publishing
Ms. Cathy Lankenau
7555 Caldwell Avenue
Chicago IL
(708)-647-8822

Texas Instruments
Ms. Laura Pruett
PO Box 650311
Mail Station 3915
Dallas TX 75265
(214)-917-1584

Venture Publishing
George Best
9 Bartlett St., Suite 55
Andover MA 01810
(508)-475-3733

West Educational Publishing Company
Ms. Dianne Tiberii
610 Opperman Drive
St. Paul MN 55164-0526
(800)-328-9424

John Wiley and Sons
Richard Giggey
605 Third Avenue
New York NY 10158
(800)-328-5945

It is very helpful in terms of text and software selection to see so many recent titles on display and the income to the Section goes a long way toward defraying expenses associated with the meeting.

This year door prizes and student presenter book awards was donated by most of the above and by Janson Publishers. The drawings and presentations were held at the Business Meeting on Saturday.

We of the NES/MAA would like to thank all of the above mentioned companies for their contributions to the success of the Fall Meeting.

Betsey Whitman
Framingham State College
Publisher's Liaison NES/MAA

1994 NES/MAA AWARD FOR DISTINGUISHED COLLEGE OR UNIVERSITY TEACHING OF MATHEMATICS

Nominations are now being accepted for the 1994 NES/MAA Award for Distinguished College or University Teaching of Mathematics. Any member of the Northeastern Section may nominate any other NES/MAA member for this award.

Help us identify those who should be considered for this award!

Send for a complete nomination form

or

Send a one page letter in support of an outstanding teacher

and the Selection Committee will ask the candidate's Department Chairperson to complete the nomination form.

Recipients of the Section Awards are eligible to receive a National MAA Award. As established by the Board of Governors, the Awards are to be made to teachers of mathematics at the post-secondary level who have been widely recognized as extraordinarily successful. Their teaching effectiveness must be documented and must have had influence beyond their own institutions. Recipients must be members of the MAA teaching in the United States or Canada.

Contact: Professor Donna Beers, Teaching Award Chairperson, Department of Mathematics, Simmons College, 300 The Fenway, Boston MA 02115 (617)-738-2166

Single page letters of support must be received by June 19, 1993. Complete nomination forms must be received by October 1, 1993.

GOVERNOR'S MESSAGE

The Board of Governors all-day meeting prior to the national joint meetings in San Antonio proved not only to be very interesting, but also one which will probably be of historic interest in the future. As usual, the Board covered an agenda detailed in about 150 pages. Let me tell you about a few of the highlights of this meeting as well as my thoughts on some related issues.

The MAA Mathematical Center Fund campaign was successful. Approximately $615,000 in pledges and cash have been obtained toward its $600,000 goal. In particular, the Howard Eves Room in the Washington Headquarters has reached the $20,000 pledge goal. My personal thanks to all of the many contributors, and especially to Laura Kelleher for the Section's generous contribution, which more than matched the total individual pledges for the room over the last eight months of 1992. Incidentally, the Northeastern Section was one of the leaders among the sections in total contributions to the Mathematical Center Fund.

The Board of Governors approved the section on Mission and Goals from the MAA Strategic Plan as official policy of the MAA. In particular the Mission is: "To advance the mathematical sciences, especially at the collegiate level." The following program goals express the mission of the Association in particular terms:

A. Education. Stimulate active learning, promote effective teaching, and encourage appropriate assessment in the mathematical sciences.
B. Professional Development. Foster scholarship, professional development, and a spirit of association among mathematical scientists.
C. Students. Enhance the interests, talents, and achievements of all individuals in the mathematical sciences, especially members of under-represented groups.
D. Public Policy. Influence institutional and public policy through effective advocacy for the importance, uses, and needs of the mathematical sciences.

As reflected in these goals, the MAA is an association rooted in the essence and power of mathematics and devoted to education and exposition in the mathematical sciences. Everything that the Association undertakes is intended to emphasize the fundamental nature of mathematics, its strategic importance in a wide variety of applications, and the importance of mathematics education for all. Much has changed since 1987 in the environment within which the MAA operates, including several major reports, diverse political initiatives in support of national goals for education, and a nation-wide call for systematic change in the way mathematics education is carried out. I've written on much of this in my prior messages. These reports and initiatives reflect the growing sense of urgency for significant improvement in the way students learn mathematics at all levels. This urgency impacts everything the MAA does, since without effective college mathematics, there can be no real improvement in mathematics education at any level. With approximately 50% of secondary school teachers leaving every seven years, it is feasible to make significant changes in the way mathematics is perceived, valued, understood and taught, simply by creating change at the undergraduate level. We are the key to success, and the Strategic Plan will help focus our efforts to effectively support these national needs.

On November 3rd, 1992, there appeared on the ballot in the state of Colorado a very controversial and disturbing amendment, labeled Amendment 2. I am sure that most of you have already read about it. It is (as it appeared):

> "Shall there be an amendment to Article II of the Colorado Constitution to prohibit the State of Colorado and any of its political subdivisions from adopting or enforcing any law or policy which provides that homosexual, lesbian, or bisexual orientation, conduct, or relationships constitutes or entitles a person to claim any minority or protected status, quota preferences, or discrimination?"

What does this have to do with the MAA, you ask? Well the Joint Meetings are scheduled to be held in Denver, Colorado in January, 1995. Amendment 2 was approved by the State of Colorado last November. Clearly this constitutional amendment is aimed against homosexuals, lesbians, and bisexuals. The Colorado constitution now prohibits the inclusion of sexual orientation in state and municipal anti-discrimination clauses, and

consequently, prohibits any state or local laws protecting homosexuals, lesbians, and bisexuals from discrimination of any kind, e.g. in employment, housing, etc. In particular, antidiscrimination laws already existing in Denver, Boulder, and Aspen are now abolished as unconstitutional, and discrimination against these groups of individuals is explicitly protected by the Colorado constitution. Already many organizations have decided to boycott the state causing millions of dollars in lost revenues, and on the other side, there has been an increase in violence against these non-heterosexual groups.

The sites of our joint meetings are selected many years in advance of the meetings by the AMS-MAA Joint Meetings Committee. When a site has been selected, various contracts are signed on behalf of the AMS and MAA. It may be that there are financial penalties involved if AMS and MAA were to cancel one or several of these contracts. In the case of Denver, the AMS and MAA did not have a signed contract with the Convention Center, only a letter of agreement with the Convention Bureau stating the intended use of hotels and the Convention Center. As a result the AMS and MAA could be liable for an amount anywhere between $0 and $200,000, if they decided to change the site. Of course what makes this even more interesting is that neither organization has unilateral authority to cancel Denver, Colorado, as a site of the 1995 Joint Meetings. All of this caused a truly historic meeting on January 12, 1993 between the Council of the AMS and the Board of Governors of the MAA, the two governing bodies of their respective organizations. To the best of my knowledge, the meeting set a precedent when the two groups convened in the same room to discuss and make a joint recommendation on the Denver situation.

This meeting was chaired by Deborah Tepper Haimo, President of the MAA, and Michael Artin, President of the AMS. After some initial remarks concerning the task in front of the two groups, the floor was open to individual Council Members and Governors to speak on pros and cons of holding the Joint Meeting in Denver in 1995. It was indicated that if the site were not changed then most likely a significant number of non-heterosexual and heterosexual members of both associations would boycott the meeting. On the other hand, it was also clear that if the site were changed other members would do the same. Either way the attendance and program quality would suffer, and members would be alienated. The liability issue, of course, was mentioned several times, but in reality the decision of whether or not to change the site should not be based on uncertain financial losses. It would be both unfair and insulting to the many homosexual, lesbian, and bisexual members of the AMS and MAA to be asked to attend an annual meeting in an openly hostile and potentially dangerous place. The organizations have the duty to protect all participants at their meetings from possible discrimination targeted at particular subgroups. What group could be next? You or I could be a member of it. The only discrimination that I personally encountered was during my youth in the 50's and 60's when ethnic stereotypes were common parlance. I doubt that my children have been called wop, guinea, greaseball, dago, etc. I cannot imagine what real discrimination truly feels like. It is important that this dangerous and intolerant action in Colorado not become a national trend, and the AMS and MAA, along with many other organizations, can help ensure this by choosing the correct ethical path when we have the opportunity. One might hope that this will influence the people of Colorado to change their actions, if not their bias. Of course, other individuals believed that our organizations should not be used as pawns in a

political contest. I must admit, at times, I found their arguments somewhat compelling. For example, boycotting Colorado is a random way to punish and try to leverage some portion of a population; it's very much like punishing the whole class whenever a majority misbehaved, justice be damned. However, don't we as individuals, and as groups, have a moral responsibility to promote social change in the wake of gross discrimination?

As a further complication, Denver has one of the most progressive civil rights ordinances in America specifically prohibiting discrimination based on sexual orientation, and is doing everything possible to change the validity of the recently passed discriminatory amendment and to fight for Denver's right to protect its citizens fully, despite the Colorado vote. The discussion, as you can imagine, between Council members and Governors ensued for quite some time, slowly and deliberately, reaching what appeared to be consensus when considering several different resolutions. Late that Monday afternoon, the group agreed through a straw vote to place, what is known as the "Denver Resolution" before the AMS Council and MAA Board of Governors. The Council and Board then independently met in their respective quarters to further discuss and vote on the Denver Resolution, which was as follows:

DENVER RESOLUTION

> The [Council of the AMS; Board of Governors of the MAA] believes that the actions taken by the majority of those voting in Colorado in November 1992 with respect to discrimination against homosexuals were wrong. The[Council of the AMS; Board of Governors of the MAA] recommends that the joint meetings not take place in Colorado while language similar to that in Amendment 2 of the November 1992 General Election passed by the voters of Colorado remains in the Colorado constitution. One of the reasons for this resolution is that the AMS and MAA have the duty to protect all participants at their meetings from possible discrimination.
>
> The [Council of the AMS; Board of Governors of the MAA] delegates the responsibility for final action to the AMS Board of Trustees and the MAA Executive and Finance Committees, who will instruct the Joint Meetings Committee to make every effort to find a site for the January 1995 meeting in a state other than Colorado.
>
> The [Council of the AMS; Board of Governors of the MAA] requests that the sentiments of this resolution be communicated to the Governor of Colorado.

The wording in the parentheses of the resolution depends on what body (Council of the AMS or Board of Governors of the MAA) was voting. How would you have voted? The vote in both groups was overwhelmingly in favor of the resolution. The Council of the AMS voted unanimously in favor, while the MAA vote, by secret ballot, was 36 in favor to 7 against, with 2 abstentions. The secret ballot was requested by one of the Governors, stating that given the "politically correct" environment in which we live such a ballot seemed appropriate. I believe just the opposite; I think it is "politically correct" to speak out and be recognized when taking such a position. So as of this date, it appears very unlikely that the Joint Meetings will be held in Denver, Colorado.

As an aside, the Governor of the Rocky Mountain Section was selling colorful buttons to help fund the movement in his state to repeal Amendment Two. Luckily I got his last one, right off the lapel of his sports jacket! The button has a pink triangle with a turquoise exterior, and an inscription that reads, "I am straight. But not narrow." I wore it the first few days in San Antonio and had some fun explaining it to those many curious individuals who approached me on its significance. Ken Ross, the Associate Secretary of the MAA, indicated to me that there was a similar measure on the ballot in Oregon which was defeated this past fall, and he patented the comment, "I am narrow, but not that narrow." The Governor of the Colorado Section left San Antonio with a long list of individuals to whom he owed buttons, and if you are interested in obtaining one, contact: Professor John Hodges, University of Colorado, Campus Box 426, Boulder, CO, 80309-0001.

In the 1989 report *Everybody Counts: A Report to the Nation on the Future of Mathematics Education,* published by the National Research Council, undergraduate mathematics is characterized as the "linchpin for revitalization of mathematics education." Since 1989, several other reports of national organizations included recommendations for strengthening this linchpin role of undergraduate mathematics. The Board of Governors approved the document *Guidelines For Programs and Departments In Undergraduate Mathematical Sciences,* which incorporates many of the recommendations of these prior reports. The document includes statements on planning and periodic review, faculty and staffing, curriculum and teaching, institutional and department resources, physical facilities, libraries, and student issues such as advising and co-curricular activities for majors. As such, these Guidelines deal with all aspects of the undergraduate mission -- general education, teacher education, mathematics courses serving other disciplines, and the mathematical education of majors. They are intended to address mathematics programs in two-year colleges as well as programs in four-year colleges and universities. Several professional associations representing many Arts and Sciences fields have published standards for departments in their disciplines, and college/university departments in these fields have benefited immensely because of these accepted standards.

These Guidelines are intended to be used by mathematical sciences programs in self studies, planning, and assessment of their undergraduate programs, as well as by college and university administrators and external reviewers. Mathematical sciences programs and their administrations can use the recommendations included in these Guidelines as a basis for resource allocation decisions and in planning for the future. If used prudently, these guidelines can be of enormous benefit to a mathematical sciences program, both in terms of self-improvement and in competition in the academic arena when resources are scarce. Consequently, it is imperative reading not only for administrators and department chairs, but for all faculty members. Trust me, it is in your self-interest to obtain a copy of these Guidelines, and to place it on the agenda of one of your future department meetings as a discussion item. Although the Board of Governors acted positively on this document, it is up to the Mathematical Sciences Community to truly implement these Guidelines and cause needed change in undergraduate mathematics education.

Dennis M. Luciano
Western New England College
Governor NES/MAA

SHORT COURSE IS A CALCULUS REFORM WORKSHOP

Do you teach calculus? Are you interested in changing the way you teach? Do you want to help your students become more active and effective learners? Five faculty members from Ithaca College will present the short course at the University of Maine June 13-18, 1993. This year the course is funded by the National Science Foundation, so enrollment is limited to 24 persons who will be teaching calculus during the 1993-1994 school year.

Ithaca College has developed a projects-based curriculum in first-year calculus, emphasizing graphical and numerical approaches. A modeling thread begins early in the course. Large problems, often open-ended, drive the curriculum. Students work on these projects outside of class in groups of about three, spending two to three weeks on each project. Clear written presentations of results are required.

Working on projects builds students' confidence. Working together encourages the students to work harder and better. The course is project driven. The classes are a mixture of traditional and new approaches. The students solve meaningful problems, right from the first day. The Ithaca team has presented minicourses on using group projects in calculus at several national meetings and has given a number of talks, panel presentations, and workshops regionally and locally. Several of their projects have been published in Volume 4 of the *Resources for Calculus Collection,* MAA Notes, 1993. An article describing their course will appear in *PRIMUS* in March. A volume of their materials will be published in late 1993.

Participants will work together in small groups on problems. They will also initiate development of a unit of material to use in their own classrooms. Participants are asked to bring with them ideas about teaching calculus (what works well for them, as well as difficulties) or a favorite problem or classroom activity, to share in small groups. Each evening, participants will reflect on the day's activities. There will be opportunities to share ideas about the goals of the calculus and for discussing teaching. Because the course is funded by the NSF, space will be provided on the application form for a signature from an appropriate official (Chair, Dean, etc.) stating that the applicant will teach calculus next school year.

Participants pay only their transportation to and from Orono and a non-refundable $20 acceptance fee upon notification of acceptance. Do not send money until you are billed. Room and board are available for non-participating family members who accompany a participant.

For further information contact: Clayton W. Dodge, 5752 Neville/Math, University of Maine, Orono, ME 04469-5752. Telephone: 207/866-4849 or 207/581-3908 (voice mail).

ALLEGHENY MOUNTAIN SECTION SHORT COURSE

A Short Course entitled *Unifying Themes in Discrete Mathematics* will be held June 21-25, 1993 at Allegheny College and will be given by Ralph Grimaldi of the Rose-Hulman Institute of Technology. Course registration will be $115 and room and board will be $105 for a total of $220. For further information and an application contact: George Bradley, Department of Mathematics and Computer Science, Duquesne University Pittsburgh PA 15282; (412)-434-5115; BRADLEY@DUQ3.DUQ.EDU.

NORTHEASTERN SECTION OF THE MAA
SPRING MEETING: JUNE 11-12, 1993
UNIVERSITY OF MASSACHUSETTS-DARTMOUTH

Registration and all sessions will be held in the Main Auditorium (**B** on your campus map). The most convenient parking lot is **LOT 4**.

Friday, June 11

2:00-6:00 Registration

2:00-3:00 Executive Committee Meeting

3:00-4:15 **An Invitation to Explore Calculus with TEMATH**
Bob Kowalczyk and Adam Hausknecht, UMass-Dartmouth

3:00-4:15 **What's New for MATHLAB?**
Cleve Moler, The MathWorks

4:30-5:45 **MATHCAD Workshop**
Benjamin N. Levy, Beverly High School

4:30-5:30 **The Dynamics of the Complex Exponential Function-Pictures with Proofs**
Marilyn Durkin, Bentley College

6:00-7:00 Reception

7:00-8:15 Dinner

8:20-8:30 **Welcoming Remarks**

8:30-9:30 **Can We See the Mandelbrot Set?**
John Ewing, Indiana University and Editor of the *Monthly*

9:45 Social

Saturday, June 12

7:30-11:00 Registration

7:50-8:50 Student Paper Session

9:00-9:50 **Student Chapter Presentation**
Cryptology:
From Caesar Ciphers to Public-Key Cryptosytems
Dennis M. Luciano, Western New England College

9:00-9:50 **Coxeter Groups and their Supergroups**
Norman W. Johnson, Wheaton College

10:00-10:25 Coffee Break

10:30-11:30 **Symmetrical Combinations of 3 or 4 Hollow Triangles**
H. S. M. Coxeter, University of Toronto

11:35-11:55 Business Meeting

12:00-12:55 Lunch

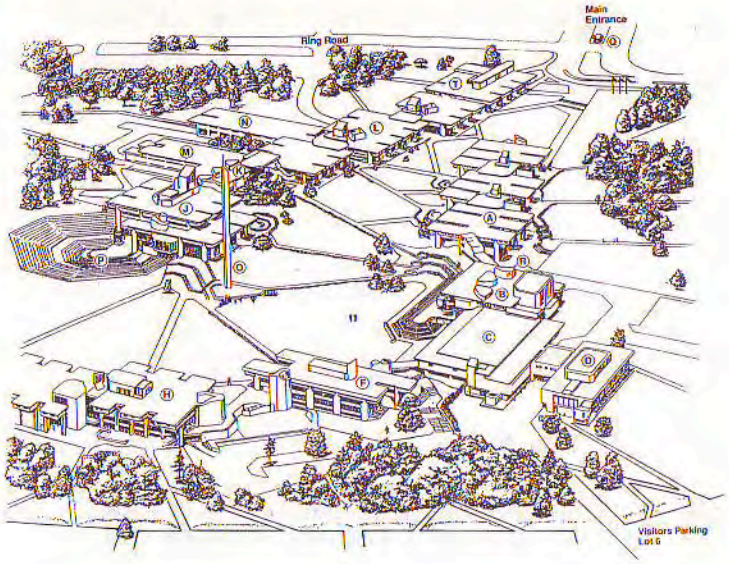
1:00-1:50 **The Shape of Space**
Jeffrey R. Weeks, University of Minnesota

2:00-2:55 **Interactive Electronics Books for Calculus of Surfaces**
Thomas F. Banchoff, Brown University

3:00-3:55 Contributed Paper Session

PROGRAM COMMITTEE:
Co-Chairs: Richard Faulkenberry, UMass-Dartmouth and
Cecilia Medeiros, Bristol Community College
Dwayne Cameron, Old Rochester Regional High School
Thomas Moore, Bridgewater State College

LOCAL ARRANGEMENTS COORDINATOR:
Ronald Tannenwald, UMass-Dartmouth



Key	
	Visitors please park in Lot 6
A	Liberal Arts and Business Building (Group I)
B	Main Auditorium
C	MacLean Campus Center
D	Resident's Dining Hall
E	Residence Halls
F	Foster Administration Building
G	Power Plant, Campus Police
H	Visual and Performing Arts Building (Group VI)
I	Tripp Athletic Center
J	Library
K	Lecture Halls
L	Science and Engineering Building (Group II)
M	Textile Building
N	Violette Building
O	Tower (Campanile)
P	Amphitheater
Q	Information Booth
R	Auditorium Annex
T	Dion Science and Engineering Building
U	Cedar Dell Village (student townhouses)

DIRECTIONS TO UMASS-DARTMOUTH

From Boston and Points North:
Route 128 to Route 24 south; at Exit 12 take Route 140 south to Exit 2, Route I-195 west; Route I-195 west to Exit 12A.

From Cape Cod and Points East:
Route I-195 west to Exit 12A.

From Providence and Points North:
Route I-195 east to Exit 12.

From Exits 12 or 12A to the UMass-Dartmouth Campus:
Go south on Faunce Corner Road for about 1 mile to Route 6 (State Road); cross Route 6 and continue on for about half a mile to where Old Westport Road bears hard to the right; continue on Old Westport Road for almost a mile. Campus entrance is on left.

Parking:
It is most convenient if you park in **LOT 4**.

See the campus map on the opposite page for additional detail. Registration and all sessions will be held in the Main Auditorium.

ACCOMMODATIONS

For those wishing to stay off-campus, there is a *Comfort Inn* which is quite convenient to the campus. It is located right off of Exit 12A from Route I-195 at 171 Faunce Corner Road, North Dartmouth MA 02747. For reservations call toll free: (800)-228-5150.

UMASS-DARTMOUTH

UMass-Dartmouth is located mid-way between Fall River and New Bedford on the "gateway to Cape Cod". Its 5,000 undergraduates are in programs offered through the Colleges of Liberal Arts, Engineering, Business, Nursing and Visual & Performing Arts. The Mathematics Department has sixteen full-time members and graduates about 22 majors per year. There is a modest M. S. program and an emerging M. A. T. degree. Computer and Information Sciences is a separate department.

CALL FOR CONTRIBUTED PAPERS

Participants are invited to submit contributed papers for either the Fall or Spring Meeting. We are particularly interested in papers pertaining to teaching, new courses, new techniques and in research you or your students have done relating to classroom material. We encourage you to share your experiences with our colleagues. Your presentation should be approximately 15 minutes in length. Please send a typed abstract, together with a list of any special equipment you may need to: Ed Sandifer, Department of Mathematics and Computer Science, Western Connecticut State University, Danbury CT 06810. Telephone (203)-797-4310 or BitNet at SANDIFER@WCSU.CTSTATEU.EDU. The deadline for the Spring Meeting is May 15 and for the Fall Meeting is October 15.

STUDENT CHAPTERS

The Student Chapters Presentation at the June Meeting will be Dennis Luciano of Western New England College who will discuss **Cryptology: From Caesar Ciphers to Public Key-Cryptosytems**. All students and faculty are invited to this presentation.

In January, at the San Antonio meeting, the Committee on Student Chapters sponsored a paper session in which student chapter advisors and section coordinators presented ideas for student activities. A variety of ideas from running mathematics contests for high school students and mathematics summer camps for middle school students to tutoring programs, career fairs, museum trips and softball games were given in nine presentations. The Committee intends to make this paper session a regular feature of national meetings. NES Student Chapter advisors should consider making a presentation at next winter's Joint Meetings which will be held in Cincinnati.

In October, 1993 the MAA Northeastern Section and Bentley College will co-sponsor a Mathematics Career Fair for college and high school students. For more details see page 22 of this *Newsletter*.

The Section currently has twenty-five Student Chapters. I would like to encourage others to form a Chapter at their school. If you would like suggestions for activities for Student Chapters or more information on forming a Chapter contact me at: Mathematical Sciences Department, Bentley College, 175 Forest Street, Waltham MA 02154-4705.

Karen J. Schroeder
Bentley College
Student Chapters Coordinator

CALL FOR STUDENT PAPERS

Students (and recent graduates) from the Northeastern Section are invited to present papers at the Spring Meeting on topics in mathematics, statistics, or computer science. The presentations will be 15 to 20 minutes in length, on either expository work, research projects, employment experiences, or problems from mathematical periodicals. Prizes will be awarded and the registration fee, cost of meals and dormitory room will be waived for **one** student presenter per paper at the Spring Meeting.

Almost every college/university has students working on projects, problems, and mathematical research. The success of a student paper session depends primarily on faculty members identifying prospective papers, encouraging their students and arranging departmental financial support when possible. If there are no potential student papers on your campus for the Spring Meeting, we urge you to initiate student projects now for presentation at the Fall Meeting.

Interested students should send an abstract and current address, with phone number, by May 21 to: Joseph C. Witkowski, Department of Mathematics and Computer Science, Keene State College, Keene NH 03431. Telephone (603)-358-2555. All proposals will be reviewed by department faculty members.

ABSTRACTS/SPEAKERS

An Invitation to Explore Calculus with TEMATH

Adam O. Hausknecht and Robert Kowalczyk, UMass-Dartmouth

TEMATH (Tools for Exploring Mathematics) is a Macintosh numerical mathematics package designed for learning and teaching mathematics. This workshop is divided into two segments. The first segment is an introduction to TEMATH for beginners. The second segment is devoted to working through several student-tested laboratory assignments for calculus. Some familiarity with the Macintosh is assumed.

Adam O. Hausknecht, who co-authored TEMATH with Professor Kowalczyk, received his Ph. D. in algebra from U. C. Berkeley in 1975. In the Fall of 1982, he joined the Mathematics Department of UMass-Dartmouth where he helped form the Department of Computer and Information Sciences. He has taught a wide range of mathematics and computer science courses including college algebra, calculus, combinatorics, abstract algebra, Pascal, data structures, compiler design and theory of computation. His interests include developing mathematics software for education, computer algebra systems, and noncommutative algebra. He enjoys bicycling, hiking, mysteries, baking and listening to the blues (but not all at the same time).

Robert Kowalczyk received a B. A. in mathematics from UMass-Dartmouth and a Ph. D. in applied mathematics from Brown University. He worked for Raytheon Company for four years before joining the faculty at UMass-Dartmouth in 1975. He has integrated technology into his mathematics classes since the days of "punched computer cards". He teaches classes in calculus, numerical analysis and statistics. He uses the computer as a demonstration tool and a visualization tool in all of his classes. He is an avid traveler, photographer, square dancer and round dancer.

What's New for MATLAB

Cleve Moler, The MathWorks

MATLAB is an interactive "matrix laboratory" for tasks involving matrices, graphics and general numeric computation and is designed for IBM compatible PC's. This workshop will trace MATLAB's development -- past, present and a peek at the future. The new capabilities of Version 4, including 3D, color, animated graphics for scientific visualization and sparse matrices for large structured problems, will be demonstrated. SIMULINK, Toolboxes, and MATLAB's relation to other mathematical software will be discussed.

Cleve Moler is the original author of MATLAB and is chairman, cofounder, and chief scientist at The MathWorks. Before the MathWorks, he was a professor for almost twenty years in mathematics and computer science at Michigan, Stanford and New Mexico. During this time, he was also a member of the teams that developed LINPACK and EISPACK. Later, he spent five years with two computer hardware manufacturers, the Intel Hypercube organization and Ardent Computer. His professional interests center on numerical analysis and mathematical software.

MATHCAD Workshop

Benjamin N. Levy, Beverly High School

The MAA's Interactive Mathematics Text Project uses technology in a cutting-edge methodology for active learning. An interactive text is a computer document from which symbolic, numerical, and graphical tools can be invoked under the student's control. Examples of interactive materials will be shown for the range of mathematics, from high school algebra to linear algebra. Participants will be introduced to Mathcad, a multi-media mathematical authoring environment for DOS/Windows, Macintosh, and Unix.

Benjamin N. Levy is an instructor for IMPT workshops and co-editor of the Computers section of *Consortium*, the COMAP journal. His interactive text *Algebra I Explorations* was published in March. He has been an AP Calculus reader and received an Edythe May Sliffe Award for Distinguished High School Mathematics Teaching from the MAA.

The Dynamics of the Complex Exponential Function - Pictures and Proofs

Marilyn Durkin, Bentley College

The complex exponential function $E_\lambda(z)=\lambda e^z$ exhibits several very different behaviors depending on the value of λ. These behaviors can be seen when we look at the Julia sets associated with various parameter values. The most striking changes are "explosions" in the Julia set which occur with slight parameter changes. In these cases the Julia set changes suddenly from a nowhere dense set to the entire complex plane.

The first part of the talk will explore, using slides and proofs, the various dynamical possibilities as we vary the parameter value. In the second half we will prove that the computer pictures do not just serve to indicate what is happening, but that they themselves are mathematically correct.

Lynne Durkin received her Ph. D. from Boston University in the field of Dynamical Systems under the direction of Robert Devaney. She taught at Salem State College and Boston University prior to coming to Bentley College in 1989. Her research has centered on the dynamics of complex functions, in particular the complex exponential. She is currently interested in using dynamical systems to stimulate interest in the field of mathematics at the undergraduate and high school level. Accordingly, she has developed the elective course "Chaos, Fractals and Dynamics" at Bentley as well as giving talks at numerous high schools and colleges around the country.

Can We See the Mandelbrot Set?

John Ewing, Indiana University

The Mandelbrot Set is easy to describe and easy to draw on any computer. Those pretty pictures have a magical and mysterious quality that fascinates everyone who sees them. But are they really pictures of the Mandelbrot Set? Are we really seeing its fine detail or merely an artifice of the computer and algorithm? Can we ever know?

John Ewing was born in Bronxville, New York and graduated from St. Lawrence University in 1966. After receiving a Ph. D. from Brown

University, he spent a year at Aarhus University and was a John Wesley Young Instructor at Dartmouth College for two years. He then joined the faculty at Indiana University in 1973. Except for occasional visits away (at Virginia, Newcastle and Göttingen), he has remained at Indiana ever since. He served as chair of the department from 1986-89 and again at present.

In 1980, he began working with the *Mathematical Intelligencer* and served as Editor-in-Chief until 1986. He is currently Editor of the *American Mathematical Monthly*, having served as Associate Editor from 1981-1991. He is a member of several editorial boards for the Springer-Verlag book series. In 1976 he shared the Lester R. Ford Award for expository writing, and in 1991 was named the first George Pólya Lecturer of the MAA. Ewing's research has included various areas associated to Algebraic Topology, including Number Theory and Topological Dynamics.

If Ewing sees more clearly than others, it is because his wife of 28 years is an optometrist. They enjoy the quiet living and fine music of Bloomington with their 3 children, 2 dogs, and cat.

Student Chapter Session

Cryptology: From Caesar Ciphers to Public Key-Cryptosytems

Dennis M. Luciano, Western New England College

This presentation will describe a sequence of examples of ciphers employed throughout the ages and discuss possible methods of breaking these ciphers. The sequence begins with the Caesar cipher and ends with an example given in 1977 of a public-key cryptosystem, the latter being a beautiful application of elementary number theory.

Dennis M. Luciano received his B. A. from LeMoyne College and his M. A. and Ph. D. from Syracuse University. He joined the faculty at Western New England College in 1977 and currently holds the rank of Professor and is Department Chairperson there. His research interests are graph theory and applications of number theory to cryptology. He is currently serving as Governor of the Northeastern Section of the MAA.

Coxeter Groups and their Supergroups

Norman V. Johnson, Wheaton College

Discrete groups generated by reflections have found wide application since H. S. M. Coxeter systematized and enumerated them sixty years ago. They include the symmetry groups of all regular polytopes and honeycombs, such as the Platonic solids and the Pythagorean tessellations, and many semi-regular or "uniform" figures, like the Archimedean solids.

All but a few Coxeter groups belong to one of three families of finite (spherical) groups or to one of four families of infinite (Euclidean) groups, some of which are subgroups of others. Exceptional groups are found in spaces of 2, 3, 4, 6, 7, and 8 dimensions, and some of them also contain one or more of the other groups as subgroups. In addition, many Coxeter groups have automorphisms permuting their generators; these can be adjusted to produce larger "augmented" groups. The occurrence of one Coxeter group as a subgroup of another or of such an augmented group implies that certain regular or uniform figures can be symmetrically combined to form regular or uniform compounds, such as the familiar Star of David (two triangles) and Kepler's *stella octagula* (two tetrahedra).

Norman V. Johnson is a former student of Professor Coxeter, receiving his Ph. D. in mathematics from the University of Toronto in 1966. He is a professor of mathematics at Wheaton College, where he has taught since 1967. Perhaps his best known contribution to geometry is the first tabulation and description of the 92 nonuniform complex polyhedra with regular faces. His forthcoming book, *Uniform Polytopes*, applies the theory of Coxeter groups to the problem of determining the uniform figures (polyhedra, honeycombs, or compounds) that can be realized in Euclidean or non-Euclidean space of any number of dimensions.

Symmetrical Combinations of 3 or 4 Hollow Triangles
H. S. M. Coxeter, University of Toronto

A *hollow triangle* is the planar region bounded by two homothetic and concentric equilateral triangles, that is, a flat triangular "ring". The edges of the inner triangle are half as long as those of the outer triangle.

The Australian sculptor John Robinson assembled *three* such triangular rings to form a structure (called *Intuition*) in which certain points on two outer edges of each ring fit into two inner corners of the next, in cyclic order. The topology of the assembly is that of the "Borromean rings", and its symmetry group is C_3, cyclically permuting the three hollow triangles.

Quite independently, the American artist George Odom assembled *four* such triangular rings to form a rigid structure in which the midpoints of the three outer edges of each ring fit into inner corners of the three remaining rings. The four rings are mutually interlocked, and the symmetry group is the octahedral group O or S_4: 24 rotations permuting the four hollow triangles in all the 4! possible ways. The positions of the 24 vertices of the 4 pairs of homothetic equilateral triangles are most naturally indicated by means of the 4-dimensional Cartesian coordinates involving the integers

$$0, \pm 1, \pm 2.$$

Born in England, H. S. M. ("Donald") Coxeter was an undergraduate, graduate and postgraduate student at Trinity College, Cambridge University. In 1936 he joined the faculty at the University of Toronto, where he is now Professor Emeritus. He has been a visiting professor at colleges and universities on three continents. He was a co-founder and the first editor of the *Canadian Journal of Mathematics* and was the president of the International Congress of Mathematicians at Vancouver in 1974. He is a fellow of both the Royal Society of London and the Royal Society of Canada.

From his first published paper in 1928, Professor Coxeter has written and lectured extensively, primarily on geometry and discrete mathematics. His early work laid the foundations for what are now known as the Coxeter groups. He is the author of several books, including the classic *Regular Polytopes* and its sequel *Regular Complex Polytopes*, and the co-author (with O. J. Moser) of *Generators and Relations for Discrete Groups*. His widely translated *Introduction to Geometry* has been read by college students and their teachers all over the world.

The Shape of Space
Jeffrey R. Weeks, The Geometry Center, University of Minnesota

What does one mean by the phrase "the shape of space"? What are some possible shapes for our own 3-dimensional universe, and how might we determine which is correct? In what sense is space expanding? How might one measure the curvature of space? What is the connection between the curvature of space, the density of matter, and the eventual fate of the universe? This G-rated talk provides an elementary introduction to the concept of a 3-dimensional manifold and its cosmological significance. No specific mathematical background is required, and students at all levels are encouraged to attend.

Dr. Weeks is a graduate of Dartmouth College with graduate degrees from Princeton. He has taught at Princeton, Stockton, Ithaca and Middlebury, and is currently working at The Geometry Center at the University of Minnesota. His book, *The Shape of Space*, was published in 1985 by Marcel Dekker and is the result of his interest in cosmology, teaching and exposition.

Interactive Electronics Books for Calculus of Surfaces
Thomas F. Banchoff, Brown University

Interactive computer graphics provides some of the most effective illustrations of the concepts of geometry and calculus of surfaces. New electronic book technology makes it possible to create laboratory demonstrations that allow third-semester calculus classes to investigate phenomena not available in standard blackboard presentations or conventional textbooks. This preliminary report will exhibit slides and videotapes of work in progress in courses in differential geometry and calculus of surfaces in collaboration with student assistants at Brown University.

Thomas F. Banchoff received his B. A. from the University of Notre Dame and his M. A. and Ph. D. from the University of California, Berkeley. He has been on the faculty of Brown University since 1967. He has served as Associate Editor of *Mathematics Magazine* and the *American Mathematical Monthly* and is currently serving as Associate Editor of *Geometriae Dedicata* and Acquisitions Editor for the American Mathematical Society. He received the *Lester Ford Award for Exposition in Mathematics* in 1978 and the *Joseph Priestly Medal* from Dickinson College in 1987.

NES/MAA MINICOURSE

The Third Annual Northeastern Section Minicourse, *Great Theorems from Mathematical Analysis: 1689-1881*, is being held at Boston College on Saturday, April 24, 1993. The presenter is William Dunham, the Koehler Professor of Mathematics at Muhlenburg College and a recent recipient of the MAA's Pólya Award. John Smith of Boston College is in charge of local arrangements.

CAREER FAIR

Next fall, the MAA Northeastern Section and Bentley College will co-sponsor a Mathematical Sciences Career Fair for college and high school students and faculty. It will be held at Bentley College, Waltham, Massachusetts on Saturday, October 30, 1993.

Invitations have been sent to representatives from the actuarial profession, operations research, statistics, technology, mathematical research, environmental mathematics, medical research and other professions that use mathematics. The day will begin with a keynote address. Participants will then attend workshops in three areas of interest and will learn about and work on problems from those disciplines. In addition, it is anticipated that representatives of graduate programs in mathematics and related fields will be available to meet with interested students.

All interested college and high school students and faculty are welcome to attend. In early September, information will be mailed to Student Chapter advisors, mathematics department chairpersons and some high school mathematics department chairpersons. If you are interested in more information or wish to be included on the mailing list, contact: Karen J. Schroeder, Mathematical Sciences Department, Bentley College, 175 Forest Street, Waltham MA 02154-4705.

DINNER MEETINGS

This spring the second annual round of NES/MAA Regional Dinner Meetings is being held. Shown below is a list of those meetings which are scheduled:

Western Massachusetts Region (3/30): Lucy Dechene, coordinator
Speakers: Lucy Dechene and Christine Cosgrove of Fitchburg State College,
Groups, Graphs and Fullerenes

New Hampshire Region (4/7): Larry Barden, coordinator
Speaker: Glenn Stevens of Boston University,
Number Theory and Geometry in Classical Mathematics

Vermont Region (4/15): Steve Ingram, coordinator
Panel Discussion:
Mathematics Education in Vermont-Where are the Colleges and the Faculty?

Rhode Island Region (4/21): Frank Ford, coordinator
Speaker: Richard Lavoie of Providence College
Writing a Book for a "Mathematics for the Humanities" Course

We are planning now for another series of such meetings for the spring of 1994. If you are interested in serving as a coordinator (especially if your region was not represented for Spring 1993) or in assisting a coordinator please contact: Thomas Koshy of Framingham State College (508-626-4727), Coordinator of Regional Dinner Meetings.

SUMMER INSTITUTE IN VERMONT: JULY 25-31, 1993

Vermont Technical College is pleased to host its fifth annual Summer Mathematics Institute in Vermont. The Institute is sponsored by AMATYC but is open to nonmembers and to teachers at any level. We offer two workshops, one in the mornings and the other in the afternoons.

VISUALIZATION AND BEYOND

Instructors: Steven Ingram, Beth Gambler, Leonard Gambler, John Knox and Carol Rogers.

If students can now do with the push of a few buttons much of the mathematics that we used to spend days teaching, what is left for us to teach? How do we change our teaching in this new era of graphics calculators and symbolic manipulators?

What topics become more important? Which less? Can we drop some topics? Which stay? Which go? Which new topics replace them? Can we cover more material? Should we cover more material? Is there a limit to how much we can cram into a semester, calculators or not? Can we teach the same topics but in more depth? How deep can we take our students before they drown?

The rapid advance of technology for the classroom has left many of us with our heads spinning, perhaps feeling a little left behind? After an introduction to the use of graphics calculators and computer software for mathematics instruction, this workshop hopes to provide a forum for discussion of the issues raised above, and perhaps arrive at a sensible way to come to terms with the new technology and to use it in the most effective way.

COMPUTER AIDED STATISTICS

Instructor: William Holmes, Jr.

Statistics is a topic that deserves greater attention, according to NCTM Standards, but is one often neglected. There is probably no other area in which mathematics can make such a significant contribution to the undergraduate student. It is also a subject that has greatly benefited from technology.

In this workshop we will introduce the use of calculators and computers for statistical calculations. Software will include Minitab, Quattro, Lotus and Derive.

In addition, we will pursue the theme of the other workshop; given these powerful computational tools, how do we use them in the most effective way. And if calculators and computers can greatly reduce the time spent on computation, what do we do instead? Finally, if we agree that more statistics should be offered, we might discuss where to fit it into the curriculum.

Interested? Contact the Director for a brochure: Paul Calter, Summer Mathematics Institute, Vermont Technical College, Randolph Center, VT 05061; College: (802)-728-3391; Home: (802)-728-5042; FAX: (802)-728-9124; E-Mail: CALTER@VSCNET.BITNET.

NEMATYC MEETING: NEW DATE

The annual meeting of the New England Mathematics Association of Two-Year Colleges which was to be held at Middlesex Community College in Middletown CT on Saturday March 13, 1993 was postponed due to the "Blizzard of '93". It has been rescheduled for **Saturday, April 17, 1993.** An exciting program is being offered. Contact: Steve Krevisky, Middlesex Community College, 100 Training Hill Road, Middletown CT 06457; Telephone: (203)-343-5792.

FALL 1993 MEETING

Planning is already underway for our Fall Meeting which will be held on **November 5-6, 1993** at Westfield State College. Please note this early date! This date was chosen to avoid conflict with the National AMATYC Meeting, described below. Since the deadline for preregistration will be **October 22,** you should try to preregister as soon as possible after receiving your *Fall Newsletter.*

AMATYC NATIONAL MEETING: BOSTON 1993

The 19th annual conference of the American Mathematical Association of Two Year Colleges will take place on November 18-21, 1993 at the Sheraton Hotel and Towers, Boston MA. Conference Co-Chairs are Jack Keating of Massasoit Community College and Helene Savicki of Dean Junior College. Helene is the past Two-Year College Representative for the NES/MAA. Phil Mahler of Middlesex Community College (MA) is heading up local arrangements. The conference will include workshops, minicourses and expository presentations on topics covering the first two years of undergraduate mathematics, including statistics, technology, pedagogy, developmental mathematics, calculus and precalculus, assessment and placement, and the NCTM standards. The featured speaker will be Herb Gross of Bunker Hill Community College. Herb is a nationally renowned, entertaining speaker, and was the co-convenor of the first AMATYC national meeting. If you are not a member of AMATYC but would like a conference announcement and registration form, send a short note stating your request with your name and address to Cheryl Cleaves, AMATYC Conference Information, State Technical Institute at Memphis, 5983 Macon Cove, Memphis TN 38134. (FAX 901-373-2503, EMAIL: Internet-CCLEAVES@MEMSTVX1.MEMST.EDU Bitnet- CCLEAVES@MEMSTVX1.

EDITOR'S MESSAGE

Wednesday, September 1, 1993 is the date when all information for the *Fall Newsletter* must be received by the editor (address on inside front cover). If your material could come to me on an IBM compatible floppy disk as an ASCII file, along with a hard copy, that would be very much appreciated.

Congratulations to Jim Ward, past Governor and Chair of the NES, who is now Academic Dean at Bowdoin College and to Donna Beers, our Vice-Chairperson, who will be promoted to Full Professor at Simmons College this coming Fall. Thanks to all for their timely and well written input for this issue. Also, many thanks to Laura Kelleher for her invaluable assistance in the preparation and mailing of this *Newsletter.*

PRE-REGISTRATION FORM

SPRING MEETING OF THE NORTHEASTERN SECTION-MAA

JUNE 10-11, 1993 **UMASS-DARTMOUTH**

Mail Registration Form to: Ronald Tannenwald
Department of Mathematics
UMass-Dartmouth
North Dartmouth MA 02747

Checks should be made out to: **NES/MAA**

You may register at the meeting if you wish; however, it would facilitate the organization of 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 preregistration fees. In any case, meals and housing cannot be guaranteed unless reservations are received by Friday, May 28, 1993. Spouses and guests are welcome at all meals and in the dormitories.

REGISTRATION:

Name:_____

Institution:_____

Address:_____

City, State, Zip:_____

Telephone: (_____)_____

E-MAIL:_____

PRE-REGISTRATION FEE:

MAA Member ($10.00)
Non-member ($15.00)
Student or unemployed ($5.00) } $_____

MEALS:

Banquet 7:00 p. m. Friday: Number ( ) x $18.00 $_____

Breakfast 7:30 a. m. Saturday: Number ( ) x $5.00 $_____

Luncheon 12:00 p. m. Saturday: Number ( ) x $10.00 $_____

HOUSING:

Friday Evening: Number ( ) x $25.00 $_____

TOTAL: $_____

Northeastern Section MAA
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Massachusetts Maritime Academy
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