

# **NORTHEASTERN SECTION**



## **NEWSLETTER**

**FALL 2009**

**Volume 31**

**Number 2**

**Web Page:**

**<http://www.maa.org/northeastern>**

**Webmaster:**

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November 20 and 21, 2009                      Fall Section Meeting  
Western New England College, Springfield, MA  
Program Chair: Jennifer Beineke, Western New England College  
Local Chair: Ann Kizanis, Western New England College

Spring, 2010  
Salve Regina University, Newport, RI  
Fall 2010: Providence College, Providence, RI

November 20, 2009                      Section NExT Meeting  
Western New England College, Springfield, MA

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## Message from the Chair.....Jason Moliterno

Greetings! I hope that everyone had a nice summer and that your semesters are going well. This will be my last “Message from the Chair.” My term expires at the end of the upcoming Fall Meeting. After the meeting, Vice-Chair Rob Poodiack (Norwich University) assumes the position of Chair.

Before beginning my final message, I would like to take the time to wish our Section governor Ed Sandifer (Western Connecticut State University) the best of health. As many of you know, Ed suffered a severe stroke in August. At the time of my writing this, Ed has shown remarkable improvements. He is out of the acute rehab center at Danbury Hospital and is now home. He is continuing to have outpatient therapy and is continuing to show improvements. Let’s wish Ed well and pray for the best recovery possible.

It was great seeing so many of you at the Spring Meeting at Fairfield University this past May. It was a fantastic meeting with many wonderful invited speakers, student papers, and contributed papers. I would like to take the time to thank the Local Arrangements Committee: *Matt Coleman (chair), Joseph Dennin, Laura McSweeney, Shawn Rafalski, Janet Striuli, and Joan Weiss.* I would also like to thank *Vince Ferlini (Keene State College)* for all of his hard work chairing and basically being the Program Committee. Many thanks to the people who diligently served on these committees.

We are eagerly anticipating the upcoming Fall Meeting which will be held at Western New England College on November 20-21. Ann Kizanis (WNEC) is chairing the Local Arrangements Committee and Jennifer Beineke (WNEC) is chairing the Program Committee. It is shaping up to be an exciting meeting with many wonderful speakers lined up including Fernando Gouvea (Colby College) as the Christie Lecturer, Judy Walker (University of Nebraska, Lincoln) as the Polya Lecturer, Laura Taalman (James Madison University), and a debate between Colin Adams and Tom Garrity (both Williams College) Other highlights of this meeting:

- Solomon Friedberg (Boston College) is the most recent winner of the NES/MAA Award for Distinguished College/University Teaching. He was recognized at the Spring meeting and will be giving at talk at the Fall meeting. Congratulations again to Solomon Friedberg!

- The Fourth Annual Problem Solving Competition for undergraduates will be held on Friday afternoon of the meeting. Prizes will be given to the winning team. Rob Poodiack who has organized the competition for the past

three years will be handing off this role to Jenn Berg (Fitchburg State College) and Joe Fields (Southern Connecticut State University). We are thrilled to see new people being involved in the Section. To ease with the transition, Rob will still be accepting the registrations for the contest. Anyone interested in fielding a team of undergraduate students from their institution should get in touch with Rob.

- Karen Stanish (Keene State College) will be organizing the Section NExT workshop and luncheon which will take place on the Friday of the Fall Meeting. All untenured faculty members from our section are welcome to participate.

- We are proud to announce that on-line registration and payment will now be available for the Fall meeting! Many thanks to all who have taken part in helping our section reach this milestone.

So as you can see, we have a lot of wonderful things taking place at the Fall Meeting at Western New England College. I encourage all faculty, especially newer faculty, to attend. I promise that you won't be disappointed!

There are many other events that are being planned for the upcoming year. They include:

- The national Joint Meetings will be held in San Francisco on January 13-16, 2010. See the MAA website for more details.

- The Spring Meeting will be held at Salve Regina University on June 11-12, 2010. Ernie Rothman and Will Stout (both Salve Regina University) are the Local Arrangements Chairs and Lisa Humphreys (Rhode Island College) is the Program Committee Chair. It is shaping up to be a fantastic meeting. More details will follow as time gets closer.

- Dinner meetings are currently being planned for the Spring. Check back at the Dinner Meetings web page for details.

Finally, if anyone has ideas for what you like to see the Section offer, I would be happy to hear them. It has been my pleasure to serve all of you as Chair of the NES/MAA for the past two years. I wish Rob Poodiack the best as he serves as Chair for the next two years. I hope to see as many of you as possible at Western New England College on November 20

## **Message from the Governor.....Ed Sandifer**

From the editor: Ed attended his first Governors' meeting in Portland OR but he suffered a severe stroke in August. He is at home and recovering but he is not able to report at this time.

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

In the spring newsletter, I reported a balance of \$21,081.58. Since that time, the expenses from the successful spring meeting at Fairfield University were \$3,608.29 and the revenue from registrations was \$2,366.00. Moreover, the expenses for the printing and postage of the spring newsletter totaled \$913.01. We also earned \$269.73 in interest since the last newsletter and received our subvention check in the amount of \$3,400.00 from the national office. The 12-month CD that I opened in the amount of \$14,000 last year is now maturing, and I shall open a new CD in the amount of \$15,000. Our present balance is \$22,596.01.

The expenses for our spring 2009 meeting were \$2,297.44 less than our fall 2008 meeting expenses, and the revenue from spring meeting registrations was \$3,358.00 less than the revenue from fall meeting registrations. The expenses for the postage and printing of our newsletter last spring were \$366.71 less than the fall 2008 newsletter expenses.

In the spring, I wrote and submitted the yearly Financial Report of the Northeastern Section of the MAA. I also wrote our section's Annual Report at the beginning of the summer.

That is my update for now! We are all looking forward to the Fall MAA meeting at Western New England College, where we are all anticipating the upcoming meeting and finalizing our work on the arrangements. The meeting shall take place on November 20-21, and I will update you further on our finances at that time. I wish you all a very enjoyable fall semester!

## **Two-year College Representative's Report .....Phil Mahler**

NEMATYC will meet on April 9-10, 2010, at MassBay Community College. Information is always at the web site, [www.nematyc.org](http://www.nematyc.org) . MATYCONN had its fall meeting October 23, 2009 at Tunxis Community College. Details are always at [www.matyconn.org](http://www.matyconn.org) . AMATYC met in Las Vegas this year, November 12-15 ([www.amatyc.org](http://www.amatyc.org)). As you have undoubtedly read in the press, the community colleges are bursting at the seams this fall, as those newly unemployed seek job training and new skills and credentials. This also reflects the lowered ability of many to pay for higher education, thus selecting the options that cost less. Of continuing interest to me is what is appropriate mathematics for the 90% of our students who never take calculus. Both CUPM and the AMATYC Standards speak to this issue, but change is slow, and community colleges always have to keep the need for transferability in mind, which can limit innovation as well.

## **From the Newsletter Editor ..... Frank Ford**

We are all saddened by the illness of Ed Sandifer. I saw him at the MathFest in Portland and I had no idea he had medical problems. He was his usual self cracking jokes as always. I'm glad he is recuperating and I look forward to seeing him at meetings in the near future.

It is hard to believe that Jason Molitierno has only a short time left in his term as Chair of the Section. He has had a busy term and has continued the work of so many people in keeping this Section prospering. He will be on the executive committee for another two years as Past Chair and he gets to lead the committee choosing our next distinguished teacher winner. Be sure to send him your nominations.

I opened my copy of *The College Mathematics Journal* last week and there at the top of the first article was a picture of our soon-to-be Chair, Rob Poodiac. Nice to see one of our executive committee in such a prominent place.

I hope to see many of you in Springfield in November and in San Francisco in January.

### Student Presentations at the Spring 2009 Meeting

#### **Reduced Implicate Tries: Trees on Speed(I)**

Kevin Palmer and Melody Johnson, University of New Haven

#### **Reduced Implicate Tries: Trees on Speed(II)**

Melody Johnson and Kevin Palmer, University of New Haven

### Contributed Papers Presented at the Spring 2009 Meeting

#### **Homotopy Exact Sequence of Fibrations in Module Theory: A Tribute to Peter Hilton**

C. Joanna Su, Providence College

#### **Classroom Voting and Clickers in Contemporary Mathematics**

John McGivney-Burelle, University of Hartford

#### **Emulating the Mathematics research Process with Gifted Elementary Students**

Mako Haruta, University of Hartford

#### **How to Excel in Math Transformation**

John Loase, Concordia College

#### **Starting a Senior Capstone Course: Reflections & Lessons Learned**

Eric Johnson, United States Coast Guard Academy

### **From the Colleges**

**Dartmouth** (reporter **Carl Pomerance**) Dartmouth has two new John Wesley postdoctoral instructors: **Erik van Erp**, coming from U. Pennsylvania, in the fields of operator algebras and noncommutative geometry; **Andrew Yang**, coming from Princeton U., in the field of number theory. A former JWY postdoctoral instructor, **Joe Mileti**, has accepted a tenure track position at Grinnell College in Iowa. Professor **Pete Winkler** gave a talk in Rome, Italy on "Mathematical revelations in bridge". He also has completed a new book "Cryptobridge". Professor **Dan Rockmore** was featured in a SIAM News article on artist Vincent Van Gogh. Both Pete and Dan gave hour talks at the Joint Mathematics Meetings in Washington, DC in January. Chance News, a project of Professor

Emeritus **J. Laurie Snell**, continues to feature lively news articles that are of interest in probability theory and statistics. The website is [www.dartmouth.edu/~chance](http://www.dartmouth.edu/~chance) Laurie is assisted by Professors **Peter Doyle** of Dartmouth, **Bill Peterson** of Middlebury College, and several others outside of the Northeastern Section. Professor **Dorothy Wallace** gave a half-day workshop on quantitative literacy for schools in the Appalachian College Association. Professor **Carl Pomerance** gave plenary lectures at the Fibonacci Association biennial conference (Patras, Greece) and the Canadian Number Theory biennial conference (Waterloo, Ontario), as well as at a feestschrift in Leiden, The Netherlands in honor of Hendrik Lenstra. Professor **Georgia Benkart** of U. Wisconsin gave our Kemeny Lecture Series, and Professor **Ken Ono**, also from Wisconsin, gave our Prosser Lecture. In 2009, we had 45 graduating math majors in addition to 10 math minors. Of the majors, 6 wrote honors theses. Three students received their PhD's: **Jonathan Brown** (analysis, postdoc position at Ben-Gurion U. in Israel), **Geoff Goehle** (analysis, tenure track position at Western Carolina U.), and **John (Matt) Mahoney** (analysis, visiting scholar at Dartmouth). Geoff won the college-wide Hannah Croasdale award for excellence among all Dartmouth PhD recipients.

The department has just been awarded a Graduate Assistance in Areas of National Need grant. This award will help greatly to build our graduate program.

**Fairfield University** (reporter **Matt Coleman**) Fairfield University has two new hires to report: **Chris Staecker** and **John Lasseter**. Chris works in topological fixed point theory. He received his Ph.D. from UCLA in 2005, and comes to us after a four-year stint at Messiah College. John is a computer scientist with a Ph.D. from U. Oregon. He comes to us from a visiting position at Willamette University, and his research areas are static program analysis and the theory of programming languages.

**Framingham State College** (reporter **Sarah Mabrouk**) We are delighted to welcome **Chi Leah Arpin** (Chi is pronounced like the Greek letter or the boy's name Kai) to the Mathematics Department family! Chi Leah was born on Monday, June 29, 2009 at 6:45 PM

to **Sheree and Gregg Arpin**. At birth, Chi Leah was weighed 8 pounds, 0 ounces and was 19.75 inches long. Sheree and Gregg are enjoying their beautiful baby daughter.

**Lyndon State College** (reporter **Kevin Farrell**) Lyndon State has two students whom are double majors in Applied Mathematics and Meteorology and are giving a talk about their work in meteorology: “Storm Chasing during VORTEX 2”

**Providence College** (reporter **Frank Ford**) Providence College hired **Lynette Boos** to a tenure track position. She just completed a postdoctoral at Trinity College and received her doctorate from Bowling Green University. Her area is real analysis. We also hired **Joseph Shomberg** who received his doctorate from the University of Wisconsin at Milwaukee and will be teaching applied mathematics courses. **Clem DeMayo, Dick Derderian** and **Ann O’Connell** retired this year. **Jason Price**, alumnus and newly-minted Ph.D. from the University of Vermont, was the speaker at the Pi Mu Epsilon induction. **Wes Cramer**, Ph.D. from the University of Virginia, is our new adjunct. He is in town while his fiancé is enrolled in the medical school at Brown University.

**St Michael’s College** (reporter **George Ashline**) **Lloyd Simons** recently was promoted to full professor. **Zsu Kadas** and **George Ashline** have returned from their sabbaticals. **Jim Hefferon** recently completed his term as department chair, and **George Ashline** has become the next chair. **Jo Ellis-Monaghan** has been named an Associate Editor of PRIMUS (Problems, Resources, and Issues in Mathematics Undergraduate Studies), a refereed Taylor & Francis journal devoted to dialogue and exchange of ideas among those interested in teaching undergraduate mathematics. At the beginning of October, we inducted twelve undergraduates into the Vermont Alpha chapter of Pi Mu Epsilon.

**UMass-Boston** (reporter **John Lutz**) **Steve Jackson** has been promoted to Associate Professor and won tenure. The previous year we hired Assistant Professor **Eduardo Gonzalez**

**Yale University** (reporter **George Seligman**) Professor **Ilya Piatetski-Shapiro** died on February 22, 2009 A memorial conference in his honor was held on September 13, 2009.

Professors **Gil Kalai** and **Alex Lubotsky** have been appointed to

multiyear positions as Adjunct Professors. Visitors for the academic year are Professor **Douglas Lind**, of the University of Washington, and **Marianna Csoernyei**, of University College, London. Associate Professor **Mara Neusel**, of Texas Tech University, is visiting for the fall semester. New to the faculty are Gibbs Assistant Professors **Ian Biringer**, **Corina Calinescu**, **Anna Lachowska**, **Neta Rabin** and Andrew **James Wells**. A conference on Representation Theory and Mathematical Physics, to honor Professor **Gregg Zuckerman** on his 60th birthday, was held at Yale October 24-27, 2009. For further information: [mary.delvecchio@yale.edu](mailto:mary.delvecchio@yale.edu)

## **Northeastern Section NExT at Fall Meeting.....Karen Stanish**

**Friday, November 20, 2009:**

**12:00-1:00PM    Lunch**

**1:00-2:00PM    *An Introduction to Sage: Free and Open-Source Mathematics Software - Online!***

Karl-Dieter Crisman, Gordon College    and  
Northeastern Section NExT fellow

The Northeastern section will be holding 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.**

Lunch will be provided for the Section NExT program, and **the meeting registration fee will be waived for all Section NExT participants.** To register for the Section NExT program, you should contact Karen Stanish, and you should fill out the preregistration form for the meeting and check off that you will be attending the Section NExT program.

**Abstract:** There is a lot of software out there for math professors to choose from, for both research and teaching. However, many are very expensive, or require students (and faculty!) to be on site to use them; others are free, but not particularly comprehensive. Sage (<http://www.sagemath.org>) is both free and a full-featured system, which students can use from freshman year through when they become scientists themselves.

In this workshop, we will learn the basics of how to use Sage through the its web browser interface - anytime, anywhere. We will try Sage out on topics from calculus, number theory, graph theory, linear algebra, and maybe a few audience requests (modular forms? DNA sequences?). Depending on interest, we will also talk about ways to implement it in courses, especially GUI interactive features, labs, and different options for accessing it. Feel free to try it out ahead of time at <http://www.sagenb.org>!

**Bio of presenter:** Karl-Dieter Crisman came to Gordon College shortly after finishing his PhD at the University of Chicago.ÊÊ Two of his main activities are research in the mathematics of voting and choice, and developing ways for students in courses from calculus to number theory to see the whole forest of math (not just the trees).Ê To his surprise, the mathematics software Sage has quickly become instrumental in both areas, so he gives talks about it whenever he has a chance.

3:00PM      Section Meeting Begins

## **NES/MAA Award for Distinguished College/University Teaching of Mathematics**

Here is information on the award. This year, Jason Molieterno will be in charge of the award committee. His contact information is:

Dr. Jason J. Molieterno  
Associate Professor of Mathematics  
Sacred Heart University  
5151 Park Avenue  
Fairfield, CT 06825-1000

There is no packet of forms to fill out in order to make nominations for the 2009 Northeastern Section of the

Mathematical Association of America (NES/MAA) Award for Distinguished College or University Teaching of Mathematics: you create the nomination packet with various letters written by those familiar with the candidate's teaching/research/publications. The eligibility and nomination requirements as well as some hyperlinks to help you in creating the nomination packet are listed below.

The eligibility requirements are

- college or university teachers who currently teach a mathematical science at least half-time during the academic year in a public or private college or university in the United States or Canada (those on approved leave (sabbatical or other) during the academic year in which they are nominated qualify if they fulfilled the requirements in the previous year),
- at least five years experience in teaching a mathematical science, and
- has membership in the Mathematical Association of America and is teaching in the Northeastern Section, and the nomination requirements,
- widely recognized as extraordinarily successful in his/her teaching,
- has teaching effectiveness that can be documented,
- has influence in teaching beyond his/her own institution, and
- fosters curiosity and generates excitement about mathematics in students.

Nominations for the *2009 NES/MAA Award for Distinguished College or University Teaching of Mathematics* are due in January of 2010, and the winner of the Section's award for distinguished teaching is then nominated for the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics. General information for the distinguished teaching as well as a list of past recipients of the award can be found on the Sections Awards page of the NES/MAA web site, more detailed information about the Section award, eligibility, and nomination process can be found on the MAA website. Information about the

nomination process as well as about the National award can be found on the MAA website,

- <http://www.maa.org/Awards/teachingawards.htm>
- [http://www.maa.org/Awards/Haimo\\_EGN.pdf](http://www.maa.org/Awards/Haimo_EGN.pdf) (general guidelines/eligibility information)
- [http://www.maa.org/Awards/Haimo\\_NF.pdf](http://www.maa.org/Awards/Haimo_NF.pdf) (Nomination Form).

The *typed* completed Nomination Form must accompany the nomination packet that you create and nominations should include no more than five letters of recommendation of no more than one page each,

- two letters from present or former students
- two letters from colleagues one of whom could be the department chair, and
- one additional letter from anyone qualified to comment on extraordinary teaching success.

In addition to these letters, the nomination should include a narrative describing the nominee's background, experience, teaching style, special contributions, other teaching awards, evidence of unusual/extraordinary achievement/success in teaching; this narrative should be no more than five double spaced pages. Additional documentation on the nominee's teaching success including but not limited to summaries of peer or student teaching evaluations, comments on teaching, possible increases in the number of undergraduate/graduate degrees in mathematics directly related to the nominee, and student successes in mathematics competitions may be included on no more than three additional pages.

The Nomination Form,

[http://www.maa.org/Awards/Haimo\\_NF.pdf](http://www.maa.org/Awards/Haimo_NF.pdf) contains a note that states that "if the nomination packet significantly exceeds the prescribed limits" then "it will not be eligible for consideration for a national award." Since the nomination packet for the Section award will be forwarded to MAA for consideration for the National award, it is important to consider this caution and not exceed "the prescribed limits."

## **The Fourth NES/MAA Collegiate Mathematics Contest**

(Rob Poodiack is in charge of registration for the Collegiate Programming Contest. You can register and see more information at his site:

<http://www2.norwich.edu/rpodiac/NESMAA/mathcompetition.html>. The information below was taken directly from his site. The deadline for registration is November 2nd. —the editor.)

**The Northeastern Section of the Mathematical Association of America will hold its fourth Collegiate Mathematics Competition on November 20th, 2009 at the Fall Meeting at Western New England College.** This will be a team competition for undergraduate students open to all colleges and universities of the Section. This will be great fun for first-time competitors as well as competition veterans. It can also be a great warm-up for the Putnam exam, which takes place a couple of weeks after the Collegiate Mathematics Competition. The questions are meant to be stimulating, but not as difficult as those on the Putnam exam.

The competition will take place during the Fall 2009 Section Meeting at Western New England College in Springfield, MA, on *Friday, November 20th from 1:00 to 3:00 p.m.* The competition stands at the center of a great day for students at the meeting, including opportunities to hear accessible talks by faculty and student speakers, and if desired, a banquet and after-dinner talk.

Registration for the conference itself can be found at <http://mars.wnec.edu/~thull/nasmaaf09/>. Team members need to register for the conference and the competition by Tuesday, November 17th, 2009.

Winning teams will be announced and prizes awarded after the banquet. **Prizes include copies of Mathematica for Students (courtesy of Wolfram Research) and \$100 for the winning team, \$75 for the second place team, and \$50 for the third place team.**

## **Call for Undergraduate Presentations**

Undergraduate students 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 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 submit:

- the title of the presentation,
- an abstract of no more than 80 words,
- full name,
- email address,
- mailing address,
- college/university affiliation,
- indication of desire to attend the Friday Banquet, the Saturday lunch, or both,
- the name and email address of a faculty sponsor,

to Raimundo Kovac, rkovac@ric.edu, or Julie Levandosky, jlevandosky@frc.mass.edu; please use “NES/MAA Undergraduate Student Paper Session - Submission” for the subject line. The deadline for abstract submissions is November 6. Presenters must also have their registration submitted to Western New England College.

## **Call for New Faculty Papers**

New faculty participating the Northeastern Section Fall MAA meeting are invited to submit papers for the New Faculty session. The purpose of these talks is to introduce you to the section. These talks should focus on either your research or pedagogical activities. If you are giving a talk on your research, please remember that there will be people in the audience that are unfamiliar with your research area so it might be helpful to give some background and motivation. Your presentations should be approximately 15 minutes in length. Overhead projectors and computers with

projection capabilities **may** be available.

Please send an abstract and your mailing address together with a list of any special equipment you may need to Thomas Hull at [thull@wnec.edu](mailto:thull@wnec.edu). Email submissions are requested.

The deadline for submission of abstracts for the Fall 2009 Meeting at Western New England College is November 6th, 2009.

Presenters must also have their registration submitted to Western New England College.

### **Call for Contributed Papers and Graduate Student Papers**

Participants at the Fall Meeting of the section are invited to submit contributed papers. We are particularly interested in papers which 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 presentation 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 Eric Johnson at [Eric.C.Johnson@uscga.edu](mailto:Eric.C.Johnson@uscga.edu). E-mail submissions are preferred, but you may also send a typed submission to

Eric C. Johnson  
U.S. Coast Guard Academy  
Mathematics Department  
15 Mohegan Avenue  
New London, CT 06320

The deadline for submission of abstracts for the Fall 2009 Meeting at Western New England College is November 6th, 2009.

Presenters must also have their registration submitted to Western New England College.

**WESTERN NEW ENGLAND COLLEGE,  
SPRINGFIELD, MA**

**54TH FALL MEETING OF NES/MAA**

**Meeting web site: <http://mars.wnec.edu/~thull/nesmaaf09/>**

**Friday, November 20, 2009 Northeastern Section NExT**

**Program**

11:30 – 5:30 Registration

12:00 – 2:00 Section NExT

**NES/MAA 54th Meeting**

**Friday, November 20, 2009**

11:30– 5:30 Registration

1:00 – 3:00 Student Problem Solving Competition

2:00 – 2:50 Executive Committee Meeting

3:00 – 3:50 Panel: New England's Recipe for Stronger  
Mathematics in Elementary School

Moderator: Eileen Lee, Massachusetts Department  
of Higher Education

4:00 – 4:50 Distinguished Teacher Lecture: Stitching Primes  
Together

Solomon Friedberg, Boston College

5:00 – 5:50 Undergraduate Student Papers

6:00 – 6:30 Reception (St. Germain Campus Center)

6:30 – 8:00 Banquet (Rivers Memorial)

8:00 – 9:00 Welcome/Debate: Derivative vs. Integral: The Final  
Challenge

Colin Adams and Tom Garrity, Williams College

9:00 – 10:00 Ice Cream Party

**Saturday, November 21, 2009**

8:30 – 11:00 Registration

8:30 – 9:00 Continental Breakfast

9:00 – 9:50 Christie Lecture: The Dedekind Move in History  
and in the Classroom

Fernando Gouvêa, Colby College

9:55 – 10:30 Business Meeting

10:30 – 11:00 Break (view exhibits)

11:00 – 11:50 New Colleague Talks

11:00 – 11:50 Student Workshop: Origami-Math

Tom Hull, Western New England College  
 12:00 – 1:00 Lunch (Rivers Memorial)  
 1:10 – 2:00 Pólya Lecture: Codes on Graphs: Shannon's  
 Theorem and Beyond  
 Judy Walker, University of Nebraska – Lincoln  
 2:15 – 3:15 Contributed Papers  
 2:15 – 3:15 A Case Studies Workshop  
 Solomon Friedberg, Boston College  
 3:30 – 4:30 Invited Address: Sudoku: Questions, Variations,  
 and Research  
 Laura Taalman, James Madison University

### **Program Committee:**

Jennifer Beineke (Chair), Western New England College  
 College  
 Lauren Brewer, Springfield Technical Community College  
 Sharon Frechette, College of the Holy Cross  
 Vanessa Hill, Springfield Technical Community College  
 Thomas Hull (local arrangements liason), Western New  
 England College  
 Rachel Schwell, Central Connecticut State University

### **Local Arrangements:**

[Ann Kizanis](#) (Chair), Western New England College  
 Richard Pelosi, Western New England College  
 Thomas Hull, Western New England College

### **Abstracts/Biographies**

#### **Panel: New England's Recipe for Stronger Mathematics in Elementary School**

**Moderator:** Eileen Lee, Massachusetts Department of Higher  
 Education

#### **Panelists:**

Donna Beers, Simmons College  
 Thomas DeFranco, University of Connecticut  
 Anne Goodrow, Rhode Island College  
 Karen Graham, University of New Hampshire

#### **Biographical Information**

**Donna Beers** is Professor of Mathematics at Simmons College

where she has taught since 1986. She has chaired the Mathematics Department at Simmons and also directed the Honors and IT programs. Her scholarly interests include modern algebra, pedagogy, and teacher preparation. With a colleague in Education, she developed a learning community for pre-service elementary teachers, described in an article which will appear in PRIMUS. Since graduate school, she has been an active member of the MAA. She has served as vice-chair, chair, and governor of the Northeastern Section; she has also served on editorial boards for several MAA journals, e.g, The American Mathematical Monthly and Mathematics Magazine. Among her professional activities, she serves as outside consultant for mathematics program reviews. With Richard Gillman of Valparaiso University, she organized and taught a faculty minicourse, Developing Departmental Self-Studies, at the 2008 and 2009 Joint Mathematics Meetings. She initiated the Simmons Student Chapter of the MAA, and her advisees regularly present at undergraduate conferences. In fall, 2006, she spent a sabbatical leave as Visiting Mathematician at MAA headquarters in Washington, D.C. In 2007, she was awarded the MAA Certificate for Meritorious Service.

**Thomas C. DeFranco** is Dean of the Neag School of Education and holds a joint appointment in the Department of Mathematics at the University of Connecticut. Early on in his career his research focused on mathematical problem solving as well as the teaching and learning of mathematics at the K-16 level. Based on much of that work, he has authored or co-authored numerous articles in both mathematics and mathematics education, a book on mathematical problem-solving, and has been the principal or co-principal investigator on a number of grants involving the preparation of secondary mathematics teachers. Recently, his research has shifted to examining student learning of Calculus, including the use of fMRI as a tool to examine the effect of learning on the connectivity of brain regions involved in processing symbolic integration problems. He has also developed and co-taught a mathematics pedagogy course to Teaching Assistants in the Mathematics Department and serves as co-director of the Center for Research in Mathematics Education at

UConn.

**Anne M. Goodrow** is an Associate Professor in the Elementary Education Department at Rhode Island College. She teaches elementary mathematics methods at both the undergraduate and graduate levels, and works with inservice teachers in the school setting. She is also an Assistant Director of Rhode Island's STEM Center.

**Karen J. Graham** is a Professor of Mathematics at the University of New Hampshire (UNH) and was appointed as the inaugural director of the University's Joan and James Leitzel Center for Mathematics, Science, and Engineering Education in January 2003. In addition, she directs UNH's summer Master of Science program for teachers of mathematics. She holds a Ph.D. in mathematics education from the University of New Hampshire and is an experienced teacher and mathematics education researcher. Her professional and scholarly interests include the teaching and learning of calculus, mathematics curriculum evaluation, and mathematics teacher development and knowledge of mathematics for teaching. Dr. Graham has directed numerous federal and state-funded projects including the NSF-funded UNH GK-12 initiative, *Promoting Research to Benefit Understanding (PROBE)*, *New Hampshire Leadership Network for Mathematics Teachers Grades 5-12*, *Making Mathematical Connections in Courses for Prospective Teachers* and *UNH GEO-Teach: Transforming Earth System Science Education*. Dr. Graham has served on several national, regional, and state committees and has presented numerous lectures and workshops on her work at the state, regional and national level. In 1998 she was the recipient of New Hampshire Teachers of Mathematics' Richard H. Balomenos Mathematics Education Service Award for her service to the mathematics education community in New Hampshire.

**Eileen Lee** is the Director of Educator Policy at the Massachusetts Department of Higher Education and administers the federally funded Improving Teacher Quality Grant Program. Eileen earned a B.S. in Chemical Engineering from Rensselaer Polytechnic Institute, a Masters in Education from Harvard Graduate School of Education, and a Ph.D. in Mathematics from Boston University.

She has taught mathematics at both the high school and college level and was a Mathematics Professor from 2001 to 2007 at Framingham State College where she taught a full range of courses, including mathematics for elementary teachers. Currently she advises higher education elementary teacher preparation programs in Massachusetts about appropriate math coursework and program requirements. She also works with high school math teachers about curriculum alignment and mathematics for college-readiness, with special interest in seeing high schools offer Quantitative Reasoning courses.

### **Distinguished Teacher Lecture**

#### **Solomon Friedberg - Stitching Primes Together**

**Abstract:** Whole numbers that are two or more have factorizations; they are products of a finite number of primes. Can we find a way to do something interesting with all the prime numbers at once?

**Solomon Friedberg** is Professor and Chair of the department of mathematics at Boston College. He came to BC in 1996 after having served on the University of California, Santa Cruz faculty since 1985. His research focuses on number theory and representation theory, and he is the author of over 60 papers in these areas. Friedberg holds master's and doctoral degrees from the University of Chicago and a bachelor's degree from the University of California, San Diego.

Friedberg is founder and director of the Boston College Mathematics Case Studies Project, a project to develop new case studies for use in TA-development programs for mathematics graduate students. In 2007, he presented a series of talks on case studies in Chile, where a project of nationwide scope -- directly motivated by the materials he developed-- is underway to use these methods to improve the pedagogical skills of future high school teachers. He returned to Chile in 2008 for additional work with their project. He is also involved in K-12 mathematics education, and serves on the Massachusetts Board of Education's Mathematics and Science Advisory Council. He is in his second two-year term as editor of *Issues in Mathematical Education*.

### **After-Dinner Debate**

## **Colin Adams and Tom Garrity**

### **Derivative vs. Integral: The Final Challenge**

**Abstract:** Ever since Newton and Leibniz, the derivative and the integral have been locked in mortal combat, trying to prove who is the better, tearing equations asunder in the process and leaving shattered math symbols in their wake. Tonight we will determine once and for all who will be crowned the victor, derivative or integral. And mathematics can revert once again to the bucolic garden of Eden, where students frolic with equations in peace and harmony.

**Colin Adams** is the Thomas T. Read Professor of mathematics at Williams College. He is the recipient of the MAA Haimo Teaching award and the Robert Foster Cherry Teaching Award, and the author of a variety of books, including the recently published "Introduction to Topology: Pure and Applied" and the book of humorous math stories "Riot at the Calc Exam and Other Mathematically Bent Stories".

**Tom Garrity** is the William R. Keenan Jr. Professor and Chair of the Mathematics and Statistics Department at Williams College, where he is also the director of the Williams College Project for Effective Teaching. He is a recipient of the MAA Haimo Teaching Award and the author of "All the Mathematics You Missed but Need to Know for Graduate School".

### **Christie Lecture**

#### **Fernando Gouvêa - The Dedekind Move in History and in the Classroom**

**Abstract:** Richard Dedekind repeatedly used an inspired intellectual move: faced with an entity he wanted to define precisely, he found a set that completely determined that entity and then *defined* the entity to be that set. Dedekind himself used this move several times, and it has since become commonplace. Learning to use it is one of the more difficult and important hurdles for any undergraduate mathematics student. This talk will explain the move and some of the things Dedekind used it for, and then consider how we should treat it in the classroom.

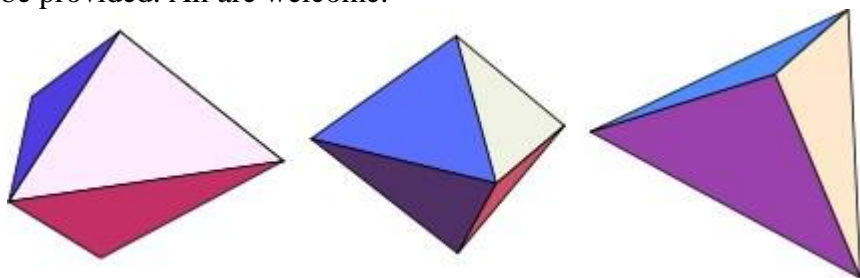
**Biography:** Born in Brazil and educated at São Paulo and Harvard, Fernando Q. Gouvêa is now Carter Professor of

Mathematics at Colby College in Waterville, ME. He is the author of several books, including an introduction to the p-adic numbers and, with William P. Berlinghoff, a "gentle history" of mathematics. Fernando is also the editor of MAA FOCUS, the newsmagazine of the Mathematical Association of America, and of MAA Reviews, an online book review service. While his mathematical training and early work focused on number theory, he has recently developed an interest in the history of mathematics.

### **Student Workshop:**

#### **Tom Hull - Origami-Math**

**Abstract:** WANTED: Folks with flexible fingers for folding with a mathematical mind to match! In this workshop we will be folding ourselves some math, sampling some seriously sweet origami models that have a mathematical bend to boot. Plenty of paper will be provided. All are welcome.



**Tom Hull** is an associate professor at Western New England College and has also taught at Merrimack College and the University of Cincinnati. He obtained his Ph.D. on list colorings from the University of Rhode Island, but now he devotes his research time to studying the intersections between origami and math. His most recent book, *Project Origami*, describes activities that incorporate origami throughout the math curriculum.

#### **PólyaLecture: Judy Walker - Codes on Graphs: Shannon's Theorem and Beyond**

**Abstract:** Whenever information is transmitted across a channel, errors are bound to occur. It is the goal of coding theory to find efficient ways of adding redundancy to the information so that errors can be detected and even corrected. Coding theory began in 1948 with Shannon's groundbreaking result that efficient, reliable transmission of information is possible. This result was existential

rather than constructive, however, and the challenge over the past half century has been to actually find the codes that Shannon proved must exist. In the past 10-15 years, it has been shown that certain graph-based codes come close to achieving Shannon capacity. Even with these recent advances, however, it is not clear whether Shannon's challenge has truly been answered. We will discuss the current situation as well as what the next big problems are for the field of coding theory.

**Judy Walker** is Professor and Graduate Chair at the University of Nebraska-Lincoln. Her main research interests are in algebraic coding theory, and her current work focuses primarily on codes on graphs. She has also studied connections between coding theory and both algebraic geometry and number theory. She is co-founder of the Nebraska Conference for Undergraduate Women in Mathematics and an editor for the *Journal of Pure and Applied Algebra*, *Advances in Mathematics of Communications* and the *Rose-Hulman Undergraduate Math Journal*.

### **Invited Address**

#### **Laura Taalman - Sudoku: Questions, Variations, and Research**

**Abstract:** Sudoku puzzles and their variants are linked to many mathematical problems involving combinatorics, Latin squares, magic squares, polyominoes, symmetries, computer algorithms, the rook problem, graph colorings, and permutation group theory. In this talk we will explore variations of Sudoku and the many open problems and new results in this new field of recreational mathematics. Many of the problems we will discuss are suitable for undergraduate research projects. Puzzle handouts will be available for all to enjoy!

[Click here for a sample Product Sudoku puzzle](#) (designed by Laura Taalman and Brainfreeze Puzzles). **Rules:** Fill in the grid so that the numbers 1 through 9 each appear exactly once in each row, column, and block, and so that no repeated entries are in any shaded region. The product of the values in each shaded region is shown at the upper left corner of the region.



**Biographical Sketch:** Laura Taalman is an Associate Professor of Mathematics at James Madison University. She received her Ph.D in mathematics from Duke University, and her undergraduate degree from the University of Chicago. Her research includes singular algebraic geometry, knot theory, and the mathematics of puzzles. She is the author of a textbook that combines calculus, pre-calculus, and algebra into one course, one of the organizers of the Shenandoah Undergraduate Mathematics and Statistics (SUMS) Conference at JMU, and a recipient of the MAA Trevor Evans award and the MAA Alder Award. As part of Brainfreeze Puzzles, she is an author of the puzzle books Color Sudoku and Naked Sudoku.

### Hotel Information

See <http://mars.wnec.edu/~thull/nesmaaf09/travel.html> for information on hotels.

### Questions?

Have questions? Send an email to one of the below people.

Hotel Information: [Ann Kizanis](#)

Registration: [Thomas Hull](#)

Contributed Paper Talks: [Eric Johnson](#)

New Colleague Talks: [Thomas Hull](#)

Student Talks: [Raimundo Kovac](#)

Other Inquiries: [Ann Kizanis](#)

Checks should be made to: NES/MAA and mailed with this completed form to:

NES/MAA Registration  
c/o Thomas Hull, Mailbox H-5174, Western New England College  
1215 Wilbraham Road  
Springfield, MA 01119-2684

Please pre-register by Friday November 6, 2009! You may register at the meeting if you wish; however, it would help us plan the meeting if you pre-register by mail. Pre-registration will also save you money since the on-site registration fees are five dollars more than the pre-registration fees. It may not be possible to buy tickets to the banquet or lunch at the meeting. Please note that to get guaranteed hotel rates, you must contact the hotels listed on the meeting website by October 30.

**PRE-REGISTRATION (please type or print):**

Name: \_\_\_\_\_

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

Affiliation: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

E-mail: \_\_\_\_\_

Pre-registration Fee: Waived for Section NExT attendees, check here if attending Section NExT: \_\_\_\_\_

MAA Member (\$25.00)  
Non-member (\$30.00)  
Student or unemployed (\$10.00) \$ \_\_\_\_\_

Meals: Friday Banquet (\$30.00 per person) \$ \_\_\_\_\_  
Italian buffet with vegetarian options

Saturday Luncheon (\$15.00 per person) \$ \_\_\_\_\_  
Sandwich buffet, beverages and dessert

Total \$ \_\_\_\_\_

Please provide the following demographic information, which the MAA Committee on Section will use to help formulate policy on section meetings.

\_\_\_\_\_ College faculty member    \_\_\_\_\_ Graduate student    \_\_\_\_\_ High school teacher  
\_\_\_\_\_ Undergraduate student    \_\_\_\_\_ Mathematician in business, industry or government

For college faculty, what is the highest degree offered by your department?

\_\_\_\_\_ Associate    \_\_\_\_\_ Bachelor    \_\_\_\_\_ Master    \_\_\_\_\_ Doctorate

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