NORTHEASTERN SECTION



NEWSLETTER

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UPCOMING SECTION MEETING

June 3 and 4, 2016

Spring Section Meeting

Univeersity of New England Biddeford, Maine Program Chair: Vince Ferlini Local Arrangements Chair: Karen Standish

Coordinators

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COLLEGIATE MATHEMATICS

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ACTIVITY GRANTS Karl-Dieter Crisman Department of Mathematics and Computer Science Gordon College Wenham, MA 01984 karl.crisman@gordon.edu

Message from the (Past) Chair.....Eric C. Johnson

As I sit here writing my last "Message from the Chair" it's hard to believe it's December already, never mind that my two years as Chair have passed. 2015 has been a busy year for the NES/MAA. We began our yearlong MAA Centennial celebration at our Spring Meeting at Keene State College with a stimulating slate of speakers, viewing a special MAA Centennial video, singing *Happy Birthday* to the MAA, and birthday cake. Thanks again to Vince Ferlini and the rest of the Program Committee, and to Karen Stanish and the rest of the Local Arrangements Committee for putting together and hosting such an excellent conference. The MAA Centennial celebration continued and culminated at MathFest in Washington D.C. in August, where attendance records were smashed, new Section banners were unveiled, and the following picture was taken of NES/MAA members with our new banner. As always, MathFest



provided a wonderful opportunity to catch up with old friends, meet new colleagues, and plan future section meetings. On a sad note, Frank Battles, longtime professor of Mathematics at the Massachusetts Maritime Academy, and for whom our own Battles Lecture is named in honor of everything Frank did for the NES/MAA, passed away shortly thereafter, at the end of August. Laura Kelleher and James Tattersall compiled / wrote a nice tribute to Frank that I shared with everyone at the Fall Meeting.

Speaking of the Fall Meeting, most recently we celebrated the 60th Anniversary of the NES/MAA at our Fall Meeting at Gordon College this past November 20-21. Once again, thank you to Karl-Dieter Crisman and the rest of the Program Committee for putting together an exciting slate of speakers, and to Mike Veatch and the entire Local Arrangements Committee for hosting such an enjoyable meeting.

Highlights included approving expenditure of \$2500 to fund a Project NExT Fellow, James Tattersall's Christie Lecture, presentation of the 2015 NES/MAA Award for Distinguished College or University Teaching to Donna Beers of Simmons College, and presentation of the 2015 Howard Eves Award to C. Edward Sandifer.

Looking ahead, the 2016 Joint Math Meetings will be in Seattle, WA January 6-9. From there it's on to the University of New England in Biddeford, ME for our 2016 Spring Meeting June 3-4. MathFest 2016 will be in Columbus, OH August 3-6, and the 2016 NES/MAA Fall Meeting will be at Trinity College in Hartford, CT November 18-19. One of the more important things that will happen at the Trinity meeting will be election of new Section officers. The NES/MAA is always looking for volunteers to serve the section in various capacities (on program and/or local arrangements committees, as section officers, etc.), and institutions to host future section meetings. If you'd like to volunteer to serve the section in any capacity, please contact our new NES/MAA Chair, Vince Ferlini, at VFerlini@keene.edu.

We're also seeking nominations for the 2016 NES/MAA Award for Distinguished College or University Teaching. Do you have a colleague in your department who has been an excellent teacher for years? Someone whom you strive to be like in the classroom? Is there a math professor in your department whose classes students talk warmly about for months or years afterward? Is there someone you know who has been doing great work for a long time, but is deserving of wider recognition for their success? That person would be an excellent nominee for this prestigious award. Please see the "Awards" section of our website

(http://sections.maa.org/northeastern/awards.html) for more details and a link to the nomination form. Nominations can be either e-mailed or postal mailed to me by January 15, 2016. My e-mail address is Eric.C.Johnson@uscga.edu and my postal mail address is as follows.

PROF Eric C. Johnson (dm) U.S. Coast Guard Academy 27 Mohegan Avenue New London, CT 06320

In closing I want to say that it's been an honor and a privilege to have been able to serve as Chair of the NES/MAA these past two years, especially considering my term included the MAA Centennial and our own Section's 60th Anniversary celebrations. I certainly couldn't have done it on my own, so I publicly want to thank all the other NES/MAA Officers for their help and support, especially our outgoing Past Chair, Karen Stanish, and our out-going Webmaster (and past-Past Chair, and Centennial/Sexagennial t-shirt ombudsman) Rob Poodiack. The NES/MAA is in good hands with our new Chair, Vince Ferlini, and I promise to help him as Past Chair these next two years as Karen did for me. I can't make it to Seattle for the JMM in January but I hope you can all join me in Biddeford, ME next June.

Message from the Governor.....Jason Molitierno

In my first message from the governor, I would like to begin by thanking my predecessor, Tommy Ratliff, for three years of service representing our section as governor. Tommy's term expired on June 30, 2015, and I thank him for a job well done. My term as governor began on July 1, 2015. I attended my first Board of Governor's meeting at MathFest in Washington DC in August 2015. Some highlights from that meeting:

- Prior to my term as governor, there have been discussions as revising the governance structure of the National MAA so that it more effectively engages members. The special task force designed to revise the governance structure presented the three governance models that are being put forward by the Executive Committee. It should be noted that there is not an Executive Committee in any of the three models; currently the EC serves as a filter of what comes to the Board of Governors. It was recommended a board of 5 and said that it is not possible to have more than 10 in a room and make decisions. Most organization boards are between 8 and 15. In brief discussion prior to forming groups to focus on each model, it was noted that the terminology question is open; should we use council or senate rather than assembly that is given in two of the models? It was pointed out that one option is to use parts of two or three of the models. At the meeting, the Board was divided into eight groups with each group assigned a model on which to focus, giving the strengths and weaknesses. Each group reported to the entire Board with written comments. It was commented that it seems fine to have a small board for operational aspects of MAA but that some decisions should be delegated to an assembly, such as the establishment of a new prize. The larger body should be deciding whether a prize should be established. A model of a board plus an assembly or council seemed to resonate the best. A motion was made that every model brought to the Board of Governors in January 2016 for consideration.
- The current focus for MAA membership is to identify needs of members and recommend products that will fulfill these needs so first research and development and then implementation.

The director of membership asked each Board member to think about ways to get the message out about the new Departmental Membership; information is in each registration packet. The pricing of membership was questioned by noting that Harvard pays less for departmental membership than does Metropolitan State. It was noted that the pricing is based on full time equivalent faculty. It was suggested that Departmental Membership information be sent to undergraduate directors.

Discussion continued with many comments from a variety of folks: We need to communicate what MAA does to advance mathematics and we joint not for what we get but to support services MAA provides to students and younger mathematicians. MAA no longer has a life membership but does have the option for auto renewing. It was noted that several sections had held joint meetings with AMATYC and attracted a group of mathematicians who were interested in MAA so perhaps we should engage the two-year college faculty. It was noted that Departmental Membership was probably too expensive for two-year college departments. Discussion to the five principles listed in the president's report and comments were solicited with regard to strategies for moving forward. A straw poll indicated a majority favored a junior faculty membership. The question of a member-only benefit was discussed and the president shared his idea of an exam question repository; pros and cons were discussed with general agreement with the idea. Several expressed interest in figuring out how to capitalize on our strengths and member benefits rather than a tiered membership.

Secretary & Treasurer's Report Ann Kizanis

In the spring newsletter, I reported a balance of \$17,040.49. Since that time, the expenses from the successful spring meeting at Keene State College were \$2,313.72. The reimbursement for travel was \$603.75. The total expenses for the spring meeting were \$2,917.47, while the revenue from meeting registrations was \$2,834.29. The expenses for the printing and postage of the spring newsletter totaled \$616.21. A check for \$37.50 from the Fall 2014 Problem Solving Competition also cleared. We gave two grants totaling \$500 to Sacred Heart University and spent \$772.00 on NES/MAA Anniversary

T-shirts. Moreover, we received \$55.38 from the spring MAA Book sale and made

\$473.94 from selling our NES/MAA Anniversary T-shirts. We also received our subvention check in the amount of \$2,475.00 from the national office this fall. Our present balance is \$18,035.92.

The expenses from our spring 2015 meeting were \$3,438.84 less than the total fall 2014 meeting expenses, and the revenue from spring meeting registrations was \$3,860.00 less than the revenue from fall meeting registrations. The expenses for the postage and printing of our newsletter last spring were comparable to those expenses from last fall. We spent \$608.54 for the printing and postage of the fall 2014 newsletter and \$616.21 for the printing and postage of the spring 2015 newsletter.

At the beginning of the summer, I wrote and submitted our Section's Annual Report and our Spring Meeting Report.

That is my update for now! We are all looking forward to the Fall MAA meeting at Gordon College on November 20 - 21, where I will update you further on our finances. I wish you all a very enjoyable fall semester!

Two-Year College Representative.....Phil Mahler

I was very sorry that I missed the fall meeting - I haven't missed many since my first, at Worcester State College (now University) I think, in the early 80's. I was at AMATYC 's national meeting in New Orleans. It was a great meeting with over 1,500 attendees. This writer was one of two who received the "Herb Gross Lifetime Achievement Award" at the meeting.

NEMATYC's spring meeting will be on the Cape, as it was a few years ago, in late April. Details are at www.NEMATYC.org<http://www.NEMATYC.org> of course. Developmental/remedial curriculae continue to change as it becomes more and more accepted that college mathematics is not the same as precalculus mathematics, that most students should take statistics, and that this is not an algebra-intense course. The stress is to prepare the student for the math they will take, not to fill in every missing skill from the K-12 curriculum.

From the Newsletter Editor.....Frank Ford

As I prepare to go to Seattle for the Joint meetings, I look back on a wonderful Fall meeting at Gordon College. I had never been there before and was surprised at the beauty of the campus and the buildings. The talks were wonderful. Donna Beers received her Distinguished Teaching Award and Jim Tattersall gave his second Christie Lecture. He and prepared an eulogy for frank Battles which was given by Eric Johnson at the Business Meeting. It was Eric's last turn as Chair and, at the end of the meeting, Vince Ferlini took over. In last year's Fall newsletter, we remembered our recently deceased member Tom Moore. In this newsletter, we remember another deceased member Frank Battles. As we remember the people who have made this Section a delight and as many of us age (gracefully?), the importance of getting new people involved in the Section becomes more apparent. Fortunately, some newer members have volunteered to be coordinators. I thank them in advance for the work they will do for the Section.

Tribute to Frank P. Battles (1941-2015)

Jim Tattersall and Laura Kelleher

Frank Battles, for whom the Battles Lecture is named, was well-known by his colleagues and friends for his affableness and razor sharp wit. Born in Medford, he was raised in Nahant and graduated from St. Mary's High School in Lynn. He received a B.S. degree in Physics from Merrimack College and a Ph.D. degree in Theoretical Physics from Tufts University. Before accepting a position at the Massachusetts Maritime Academy, he taught for a year in the College of Engineering at Tufts. At the Academy, he taught mathematics and physics and served on numerous committees including the Faculty Promotion and Tenure Committee and the Academic Policies Committee. When he retired in 2010, he was the Faculty Marshall and had served the longest tenure as professor of the Massachusetts Maritime Academy. On several occasions, he taught continuing education courses in mathematics at Bridgewater State College and Cape Cod Community College. As a physicist he had a deep appreciation for the beauty of mathematics. He brought his expertise, enthusiasm and passion for the subject to his classroom. Besides authoring several physical science articles, he was also an avid solver of problems from various mathematical journals.

Frank held several consulting and research positions in the Boston area. He was associated with the laser physics division at AVCO-Everett Research Laboratory, the materials research division of MUA Industries, served as a senior research mathematics analyst at Bedford Research and held several Air Force Research grants in atmospheric physics. In addition to the Mathematical Association of America he was a member of the American Mathematical Association of Two Year Colleges, the American Association of

Physics Teachers, the Northeast Section of the American Physical Society and the Woods Hole Chapter of Sigma Xi.

Frank was an active member of the Northeastern Section of the MAA. He attended a record number of section events including spring and fall meetings, dinner meetings, minicourses, and summer short courses at the University of Maine. He was a regular participant at the joint winter meetings and at MathFests where he attended lectures looking for apropos section speakers. He was without a doubt the person to go to for recommendations for speakers. He also nominated several section Teaching Award recipients. We suspect he nominated more Teaching Award recipients than anyone else in the MAA!

He served as program chair of the spring meeting at Norwich University in 1985 and Co-chair of the local arrangements for the fall 1985 meeting at the Maritime Academy. He served on the Howard Eves Award nomination committee and sat on the Section's Executive committee for 14 years. In 1997, he received the Certificate of Meritorious Service from the MAA. His knowledge of section activities and participants served him well during his tenure as section newsletter editor from 1987 to 1998. Officers and those arranging section functions at the time can attest to Frank's diligence in gleaning information from them for the newsletter. He was unassuming and always well in tuned to what people were doing in and for the section. He played the roles in the Section that are crucial in the success of any organization. In honor of Frank's many contributions, the Section inaugurated the Battles lecture in 1998.

From the Colleges.....ed. Frank Ford

Amherst College (reporter: Nicholas Horton)

Cox, Little, and O'Shea to Receive 2016 AMS Steele Prize for Exposition Thursday November 12th 2015 Providence, RI The AMS Leroy P. Steele Prize for Exposition will be awarded to three mathematicians (pictured left to right): David Cox (Amherst College), John Little (College of the Holy Cross), and Donal O'Shea (New College of Florida) "for their book Ideals, Varieties, and Algorithms, which has made algebraic geometry and computational commutative algebra accessible not just to mathematicians but to students and researchers in many fields." Algebraic geometry has a reputation for being impenetrably technical and abstract. By requiring only linear algebra as

a prerequisite, the book by Cox, Little, and O'Shea invites a broad audience of readers into this central branch of mathematics. Using geometry to introduce core topics and appealing to computational theory to prove fundamental results, they complement the development of theoretical results with applications to such topics as automated theorem proving and robotics. All of this is delivered with crystal-clear exposition and top-quality writing. "Even more impressive than [the book's] clarity of exposition is the impact it has had on mathematics," the prize citation states. "CLO, as it is fondly known, has not only introduced many to algebraic geometry, it has actually broadened how the subject could be taught and who could use it." The book helped bring the topic of computational algebra into the mathematical mainstream. In particular, the book's presentation of the theory of Gröbner bases "has done more than any other book to popularize this topic." Gröbner bases provide a way to efficiently automate certain calculations in algebraic geometry (see "What is a Gröbner Basis?", by Bernd Sturmfels, in the November 2005 issue of the Notices of the AMS). The subject of Gröbner bases has boomed in recent years, in part because of significant applications to such diverse problems as oil exploration, software design, genetics, and robot kinematics. Originally published by Springer Verlag in 1992, the fourth edition of CLO appeared just this year. The book has truly become a classic. It not only has provided many of today's mathematicians with their first grounding in algebraic geometry, but also has brought this area of mathematics to the service of scientists and engineers. All three authors are top-flight mathematicians at small colleges; O'Shea was at Mount Holyoke College for more than 30 years before becoming the president of New College of Florida in 2012. Their book shows how small colleges make signal contributions to the advancement of mathematics, the training of future mathematicians, and the applications of mathematics to other disciplines. Cox received the Lester R. Ford Prize from the Mathematical Association of America (2012) and was elected as a Fellow of AMS (2013). Little has received distinctions for his outstanding service to the College of the Holy Cross, including its Distinguished Teaching Award (2003) and the Anthony and Renee Marlon Professorship in the Sciences (2012-2015). In 2008, O'Shea received the Peano Prize for his book The Poincaré Conjecture: In Search of the Shape of the Universe (Walker & Company, 2006). Presented annually, the AMS Steele Prize is one of the highest distinctions in mathematics. The prize will be awarded on Thursday, January 7, 2016, at the Joint Mathematics Meetings in Seattle. - See more at: http://www.ams.org/news?news_id=2853#sthash.7mhX5MKJ.dpuf

Emmanuel College (Reporter: Yulia Dementieva) The Department of Mathematics welcomed a new Lecturer, Mrs. Heather Price. Heather Pierce holds M.S. in Mathematics from the University of Texas at Taylor (2010) and M.S. in Mathematics from Tufts University (2015). Her research interests are in the Knot

Theory and Geometric Group Theory. She is interested in using geometric group theory to study different classes of knot surfaces and knot complements. Dr. Ben Allen published two research articles and a book review:

Szabó, G., K. S. Bodó, B. Allen, and M. A. Nowak. (2015) Four classes of interactions for evolutionary games. *Physical Review* E 92:022820.

Vukov, J., L. Varga, B. Allen, M. A. Nowak, and G. Szabó. (2015) Payoff components and their effects in a spatial three-strategy evolutionary social dilemma. *Physical Review* E 92: 012813.

Inclusive Fitness Theory Becomes and End In Itself, BioScience (2015)

Dr. Brendan Sullivan and two Emmanuel students, Niko Townsend (2017) and Mikayla Werzanski (2017) presented their summer research project in the Young Mathematicians Conference at the Ohio State University, Columbus, OH in August 2015.

Dr. Brendan Sullivan is running a "Puzzle of the Week" contest. Students of all disciplines can follow along *and submit their answers* via the

blog: www.mathpotw.blogspot.com

St. Michael's College (reporter: Jo Ellis-Monaghan. Editor-

The annual Hudson River Undergraduate Mathematics Conference will be held at Saint Michael's College in Colchester VT on Saturday, April 2, 2016. The featured speaker will be Scott Aaronson of MIT. Contact: Jim Hefferon jhefferon@smcvt.edu On sabbatical in 2015-2016, George Ashline is working with the Vermont Mathematics Initiative, a three-year Master's degree program at the University of Vermont, to enhance courses for K-12 teachers with a wide range of mathematics history components. He is also involved in developing more VMI materials for secondary level teachers.

Krisan Geary has led the implementation of a new model for peer tutoring at Saint Michael's. In this new model, tutors are embedded in a particular section of a course and attend class alongside students at least once a week. Each week these embedded tutors offer a couple of hours each of small group and drop-in tutoring sessions. Feedback from all constituents has been overwhelmingly positive and we look forward to expanding and improving the program in the spring. Phil Yates had his article, "Standard Error Estimation for Mixed Flood Distribution with Historic Maxima", published in *Environmetrics* in spring 2015. He wrote the entry "Margin of Error" for *The SAGE Encyclopedia of Communication Research Methods* that was accepted for publication in fall 2015. In January 2016, Phil will start serving as the treasurer for the ASA's Section on Statistics in Sports, and has also just been elected as the treasurer of the SIGMAA on Statistics Education. In October 2015, Craig Jensen gave the colloquium talk, "Battle of the Dice." Craig Jensen has newly joined the math department at Saint Michael's College this year. In November 2015, we inducted thirteen undergraduates into the Vermont Alpha chapter of Pi Mu Epsilon. Zsu Kadas continues as chapter advisor. George Ashline gave our annual PME lecture titled "Exploring the Famous Problems from Antiquity: Angle Trisection, Cube Duplication, and Squaring the Circle." Joanna Ellis-Monaghan has followed George Ashline as department as of July 2015, and continues as co-Editor-in Chief of the journal PRIMUS.

$\label{eq:umassed} UMASS-Lowell \mbox{ (Reporter: Kenneth Levasseur) Jim Propp} \mbox{ has been }$

named the 2016 class of the Fellows of the American Mathematical Society.

Williams College (Reproter: Frank Morgan

Frank Morgan (Williams College), as new Editor of the AMS Notices, welcomes ideas and submissions. When his first, January 2016 issue appears in mid December, there will be a new commentary feature on the Notices

webpage http://ams.org/notices, populated, he hopes, by lots of comments from the MAA Northeastern Section.



Northeastern Section Fall MAA Meeting, Project NExT MAA Northeastern Section Newsletter "Lite" Fall 2015 Full Newsletter accessible from www.maa.org/northeastern

GORDON COLLEGE, WENHAM, MA 60TH FALL MEETING OF NES/MAA

Meeting web site: http://sections.maa.org/northeastern/meetings.html

Friday, November 20, 2015

11:30	Registration
12:00 - 1:00	Section NExT lunch
1:00 - 2:00	Section NExT talk: Panel Discussion: "Preparing yourself for the first three years as
a professor"	
*	NES/MAA 60th Meeting
11:30 - 6:00	Registration, 1st floor Ken Olsen Science Center
2:00 - 3:40	Student Problem Solving Competition
2:00 - 3:00	Event for Faculty: Discussion on international opportunities in mathematics
3:00 - 3:50	Refreshments
3:20 - 4:20	Sanjay Mahajan, MIT and Olin College of Engineering
	"Two equals one: Street-fighting mathematics and science for better thinking and
teaching"	
3:50 - 4:20	Geogebra workshop for students (Christopher Yakes, Salem State University)
4:30 5:45	Undergraduate Student Presentations
6:30 - 8:00	Banquet, Danversport Yacht Club
8:00 - 9:00	Christie Lecture: James J. Tattersall, Providence College
	"Two Late Nineteenth Century Mathematical Enthusiasts"
	Saturday, November 21, 2015
8:30 - 11:00	Registration
8:30 - 9:00	Coffee and Breakfast Snacks
9:00 - 10:00	Jason Cordeira, Plymouth State University
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-10.00	Jason Coldena, Trymouth State Oniversity
	"Mathematics and Meteorology: The History of Numerical Weather Prediction and
	Modern Weather Forecasting"
10:00 - 10:30	Business Meeting
	Presentation of Howard Eves Award to C. Edward Sandifer
10:30 - 11:00	Break
11:00 - 12:00	Donna Beers, Simmons College, winner, 2015 Northeastern Section Award for
	Distinguished College or University Teaching
	"Connecting Linear Algebra and Forensics"
12:00 - 1:00	Lunch
1:00 - 1:15	New Colleagues/Grad Student Papers
1:20 - 2:20	Contributed Papers
2:20 - 2:30	Break
2:30 - 3:45	Open Textbooks workshop

Program Committee:

Karl-Dieter Crisman, Gordon College	
Kathi Crow, Salem State University	
Emma Wright, Plymouth State University	

Local Arrangements Committee: Mike Veatch, Gordon College Karl-Dieter Crisman, Gordon College Jonathan Senning, Gordon College Frank Ford Newsletter Editor Dept of Math/CS Providence College Providence, RI 02918