The Mathematical Association of America
Joint Meeting of the
New Jersey and Metro New York Sections

Saint Peter's University
MacMahon Student Center
Jersey City, NJ

Saturday, November 1, 2014

Abstracts and Biographies of Speakers

The Mathematics that George Washington Studied

V. Frederick Rickey
Bowling Green State University
United States Military Academy at West Point

As a teenager, George Washington compiled two notebooks (179 pages) about the mathematics he studied: decimal arithmetic, geometry, logarithms and trigonometry, and surveying. We will examine an example of each of these, pointing out (when we can) where the explanations and problems came from, as well as a few errors in the manuscript.

These notebooks have had a hard life. For half of the nineteenth century they were on loan to biographers who treated them casually and dispersed some pages. We shall describe some of our success in locating these missing pages. Once they were sold to the government they were disbound and the pages reordered. This troublesome issue will also be described.

V. Frederick Rickey, a logician turned historian, retired because he could not get any work done while working. Now he is so busy with historical research that he still can't get everything done. Rickey earned three degrees from the University of Notre Dame (Ph.D. 1968) and rose through the ranks at Bowling Green State University to become a Distinguished Teaching Professor Emeritus. In 1993 he received one of the first MAA Haimo Awards for Distinguished College or University Teaching of Mathematics. He "retired" in 1998 and joined the faculty at West Point (where the cadets called him "Sir" far too often).

He has been on leave six times, including as Visiting Mathematician at the MAA Headquarters. While there he was involved in the founding of Math Horizons, built its first gopher and web pages, and wrote a successful NSF grant for an Institute for the History of Mathematics and Its Use in Teaching (IHMT).

He has broad interests in the history of mathematics and is especially interested in the development of the calculus. He loves teaching and enjoys giving lectures to mathematicians about the history of their field.

Continued Fractions:
What happens when we change the numerator?

Steven H. Weintraub
Lehigh University

What happens when we change the numerator of a continued fraction from 1 to an arbitrary positive integer N? Good question! We'll discuss both what we do know and what we don't know about the answer to this question.

Steven H. Weintraub is Professor of Mathematics at Lehigh University. He has done research in a wide variety of areas of mathematics, concentrated in algebra and topology. He has written ten books, and an 11^{th} is in press. He often flies his airplane to mathematics meetings (and elsewhere), but since the nearest airport to Jersey City is Newark, and it is not practical to fly there, he will be driving to this meeting.

A Mathematical Adventure through the Census, Reapportionment, and Redistricting

Karen Saxe
Macalester College

We vote, but how are our votes tallied to give the winner? In 1787, the Constitutional Convention established our rather unusual electoral college which necessitates an assignment of representatives to the states; how is this allocation done? After giving an introduction to congressional reapportionment and redistricting, I will explain how mathematics is currently used by the states to prevent and detect gerrymandering. We'll finish with a quick overview of some other ways in which mathematics and democracy interact.

Karen Saxe is Professor of Mathematics at Macalester College, where she teaches calculus, analysis courses, introductory statistics, and math & politics courses. Her teaching skill has been recognized with the Mathematical Association of America (MAA) North Central Section's Distinguished Teaching Award. She is Vice President of the MAA and is an Editor of MAA's Anneli Lax New Mathematical Library. Karen

has been a resource on redistricting, consulting with city governments, and recently served on the Minnesota Citizens Redistricting Commission, created to draw congressional districts following the 2010 census. She just returned from a year-long sabbatical, during which she served as the AAAS/AMS Congressional Science and Technology Policy Fellow, in Senator Franken's office.

Panel: Writing, Publishing, and Editing for the MAA

Ever thought about writing for the MAA? Want to get involved on an editorial board? Panelists, each of whom has experience in writing, publishing, or editing for the MAA, will discuss various aspects of their relevant experience. The panelist presentations will be followed by a question and answer period. Panelists are:

- **Karen Saxe** (moderator), Macalester College
- **Robert Bradley**, Adelphi University
- **Brian Hopkins**, Saint Peter's University
- **Michael Jones**, *Mathematical Reviews*
- **Susan Marshall**, Monmouth University

Abstracts of MAA-NJ General Contributed Paper Sessions

Session 1: General Session A (North Room A, 6th floor)
Presider: Chengwen Wang, Essex County Community College, wang@essex.edu

1:30-1:44: **On a system of rational difference equations in the plane with nonnegative periodic coefficients**. Zachary Kudlak, Monmouth University, zkudlak@monmouth.edu

ABSTRACT: In this preliminary report, we investigate the global stability, periodic character, and the boundedness nature of the solutions of several special cases which are contained in the following system of difference equations: $x_{n+1} = \frac{a_n}{B_n x_n + y_n}, y_{n+1} = \frac{a\prime_n + b\prime_n x_n + c\prime_n y_n}{A\prime_n + B\prime_n x_n + y_n}$, for $n \geq 0$ where initial conditions x_0 and y_0 are nonnegative and not both zero, and where the coefficients form nonnegative, periodic sequences such that the denominators are always positive. This is joint work with Dr. Yevgeniy Kostrov of Xavier University, New Orleans.

1:47-2:01: **Properties of a graph whose vertices are graphs** . Sung-Hyuk Cha, Edgar G. DuCasse, Louis V. Quintas, and Joshua P. Shor (presenter), Pace University; scha@pace.edu, educasse@pace.edu, lvquintas@gmail.com, jpshor@gmail.com

ABSTRACT: A graph *G* is said to be an *f*-graph if *G* has no vertex of degree greater than *f.* Define *F*(*n, f*) to be the graph with vertices the set of unlabeled *f*-forests of order *n* with vertex *v* adjacent to vertex *u* if and only if *v* and *u* differ by exactly one edge. Note that if *v* is adjacent to *u,* then either *v* is a one-edge deleted subforest of *u* or *v* is a one-edge extended super *f*-forest of *u*. The planarity properties of *F*(*n*, *f*) are completely determined. The current knowledge on the order, size, traceability, and diameter of *F*(*n*, *f*) is presented. Although much is known about *F*(*n, f*), a number of interesting open problems remain.

2:04-2:18: **A graph with a chemistry interpretation**. Sung-Hyuk Cha, Edgar G. DuCasse, Louis V. Quintas, Kyle Kravette (presenter), and David M. Mendoza, Pace University; scha@pace.edu, educasse@pace.edu, lvquintas@gmail.com, kkravette@gmail.com, dm65355n@pace.edu

ABSTRACT: A graph *G* is said to be a 4-graph if *G* has no vertex of degree greater than 4*.* Define *F*(*n,* 4) to be the graph with vertices the set of unlabeled 4-forests of order *n* with vertex *v* adjacent to vertex *u* if and only if *v* and *u* differ by exactly one edge. 4-tree of order *k* can be interpreted as representing the carbon skeleton of the alkane molecule with *k* carbons and 2*k* + 2 hydrogens. A forest of such 4-trees whose orders add up to *n* make up a representative of a mixture of alkanes. A model for this is visualized using the graph *F*(*n,* 4) and the graph theory research done correlates current chemistry research with *F*(*n,* 4).

2:21-2:35: **A sequence defined by M-sequence.** Tom Enkosky (presenter), U.S. Coast Guard Academy, and Branden Stone, Adelphi University; Thomas.A.Enkosky@uscga.edu

ABSTRACT: A multicomplex is a set M of monomials closed under division. The degree sequence is an integer sequence where the i^{th} term counts the number of monomials of degree i. We counted the number of possible degree sequences of multicomplexes of each size and show that it is bounded above bye the Fibonacci sequence and bounded below by the number of integer partitions of n into distinct parts.

2:38-2:52: **Decomposing Betti tables in co-dimension four.** Branden Stone (presenter), Adelphi University, and Fanny Wyrick-Flax (former undergraduate student at Bard College); bstone@adelphi.edu

ABSTRACT: The Betti numbers of an ideal are a well studied numerical invariant in both Algebra and Combinatorics. The new insight arising from Boij-Soederberg theory is that focusing on these numerical invariants *up to rational multiple* can also yield information about the ideals. Thinking of Betti diagrams as integral points on rays in a rational vector space produces a convex polytope with a simplicial structure (as first conjectured in 2008 by Boij and Soederberg), and this structure leads to an algorithm for decomposing Betti diagrams into nonnegative rational combinations of pure diagrams that are linearly independent. In this talk, we will focus on the following question: Given an ideal in a polynomial ring, is it possible to give a closed formula of the decomposition of the Betti diagram of the ideal, depending solely on the degrees of the generators of the ideal?

2:55-3:09: **One-point compactification of convergence spaces.** Shing S. So, Pace University, sso@pace.edu

ABSTRACT: A convergence space is a set together with a notion of convergence of nets. It is well-known that a one-point compactification can be constructed on a non-compact, locally compact topological space. In this paper, we discuss the construction of the one-point compactification of convergence spaces defined by nets and a few of its properties.

3:12-3:26: **Local irreducible generic representations of the linear group distinguished by orthogonal subgroups**. Cesar Valverde Medgar, Evers College of CUNY, cvalverde@mec.cuny.edu

ABSTRACT: Let F be a p-adic field. Let G be a reductive group over F and let H be a closed subgroup of G. A representation of G is called H-distinguished if there exists a nonzero, H-invariant linear form on the space of the representation. In this talk we will present a classification of the irreducible, generic representations of GL(n,F) which are distinguished by an orthogonal subgroup in terms of quasi-square-integrable representations distinguished by corresponding orthogonal subgroups.

Session 2: General Session B (Loughran Dining Room Alcove, 3rd floor)
Presider: Yi Ding, New Jersey City University, yding@njcu.edu

1:30-1:44: **Extensions of holomorphic functions in line bundles**. Malgorzata Marciniak, LaGuardia Community College of CUNY, mmarciniak@lagcc.cuny.edu

ABSTRACT: Hartogs type extension phenomena of holomorphic functions for C^n and in more general case for complex manifolds have been drawing researchers' attentions for over 100 years. First result obtained by Hartogs in 1906 claims that an arbitrary holomorphic function defined on the complement of a ball in C^n for n > 1 can be extended to the entire C^n. A variety of results were obtained for complex manifolds with the question reformulated as follows: let f be a holomorphic function defined on a non-separating complement of a compact set K in a complex manifold X. Under which assumption on X the function f can be holomorphically extended to the entire X? In an elementary way I will present recent affirmative and negative results for the cases when X is a line bundle.

1:47-2:01: **Stability – a new way to compare statistical measures**. David DiMarco and Ryan Savitz, Neumann University; dimarcod@neumann.edu and savitzr@neumann.edu

ABSTRACT: We wish to introduce a new concept that gives an indication of to what degree the value of a measure can be changed by altering one, or more, of the data values, whether or not they ultimately become outliers. This concept will be called "stability." It is known that some measures are vulnerable to excessive changes when data values around the center are altered, but the concept of stability quantifies this vulnerability, so the stability of different measures can be compared. Also it will be shown that stability deals with more than just this vulnerability, it also measures vulnerability to changes away from the center.

2:04-2:18: **The equivariant multiplicities for spiral Schubert varieties**. William Graham and Wenjing Li (presenter), LaGuardia Community College of CUNY; wli@lagcc.cuny.edu

ABSTRACT: Spiral Schubert varieties are conjecturally the only Schubert varieties in type $\tilde{A}_2$ for which rational smoothness at a torus-fixed point is not detected by the number of torus-invariant curves passing through that point. We determine the locus of smooth points of a spiral Schubert variety of type $\tilde{A}_2$. We

make key use of the results relating the Bruhat order to the action of the Weyl group on R^2 to calculate the equivariant multiplicities of spiral Schubert varieties.

2:21-2:35: **Existence and input to state stability property for periodic solutions of distributed parameters biochemical system.** Abdou Drame, LaGuardia Community College of CUNY, adrame@lagcc.cuny.edu

ABSTRACT: This paper studies the existence and stability of periodic solutions of distributed parameters biochemical system with periodic input $S_{in}(t)$. We prove that if $S_{in}(t)$ is periodic then the system has a periodic solution that is input to state stable for small perturbations acting in the input concentration $S_{in}(t)$.

2:38-2:52: **Interesting numbers**. Jay Schiffman, Rowan University, schiffman@rowan.edu

ABSTRACT: This paper will embark on a study of abundant numbers in both the Fibonacci and Lucas sequences. We will prove the existence of infinitely many abundant Fibonacci numbers of both odd and even parity as well as establishing the infinitude of even abundant Lucas numbers. Finally, a conjecture concerning the existence of odd abundant Lucas numbers will be discussed.

Session 3: Teaching Session A (West Room, 6th Floor)
Presider: Elizabeth Uptegrove, Felician College, uptegrovee@felician.edu

1:30-1:44: **Using an online video database in a math class for preservice teachers.** Elizabeth Uptegrove, Felician College, uptegrovee@felician.edu

ABSTRACT: I discuss how I used videos, from a publicly available online database showing students working on mathematical problems, in a math class for preservice math teachers. The preservice teachers worked on combinatorics problems themselves and then analyzed videos of students working on the same problems. Because preservice teachers have limited opportunities to observe how students construct solutions to problems, access to online videos provided them with an opportunity to study how younger students think about and do math.

1:47-2:01: **To be, or not to be: A professional way to presenting mathematics in all browsers**. Vera Hu-Hyneman, SCCC Ammerman Campus, huhynev@sunysuffolk.edu

ABSTRACT: Are you tired of saving your mathematical equations as JPG and then embedded on your website? Would you like to know a free open source JavaScript display engine for mathematics, MathJax, which works for all browsers? This talk will show you how to incorporate the use of this engine to enable you to make your website look professional!

2:04-2:18: **Deducing the age of an ancient natural nuclear reactor in a pre-calculus class**. Alexander Atwood, SUNY Suffolk County Community College**,** atwooda@sunysuffolk.edu

ABSTRACT: Approximately 2 billion years ago, a natural nuclear fission reactor was operational in what is now Gabon, Africa. By modeling the radioactive decay of Uranium-235 (Half-Life of 0.7 billion years) and of Uranium-238 (Half-Life of 4.5 billion years) and of other radioactive elements created in the reactor, students in a pre-calculus class can calculate the age and operational characteristics of this ancient nuclear reactor.

2:21-2:35: **Group- and problem-based learning implementation in a college algebra course**. Abdramane Serme, BMCC/CUNY, The City University of New York, aserme@bmcc.cuny.edu

ABSTRACT: This experience started with a grant for improving passing rate in developmental college algebra courses. Eight Control classes were taught using traditional regular lecture, examples/problems solving format whereas eight pilot classes were taught in small groups format using project-based approach. In each carefully formed small group of five or six, students rotate the role of Prover, Explainer and Checker. We were able to improve the passing rate in the pilot classes and it was also fascinating to see how the students in the pilot sections exhibited leadership quality at the end of the academic year. The main focus of this presentation is to show how developing a right project-based teaching approach can help students learn and create tomorrow's leaders.

… List of talks continues on page 11.

Mathematical Association of America
New Jersey and New York Metro Sections, Fall 2014 Meeting Program

8:30 – 9:30	**Registration and Breakfast**; Duncan Family Sky Room
9:00 – 1:30	**Book Exhibits**; Duncan Family Sky Room
9:30 – 9:40	**Welcome;** Dr. Eugene J. Cornacchia, President of Saint Peter's University; Center Room
9:40 – 10:00	**Business Meeting** of the NJ Section; Center Room
10:00 – 10:50	**The Mathematics that George Washington Studied**, V. Frederick Rickey, emeritus, United States Military Academy at West Point. Presider: Jerry Ianni, LaGuardia Community College; Center Room
10:50 – 11:30	**Intermission and Book Exhibits**; Duncan Family Sky Room
11:30 – 12:20	**Continued Fractions: What happens when we change the numerator?** Steven H. Weintraub, Lehigh University. Presider: Jana Gevertz, The College of New Jersey; Center Room
12:20 – 1:30	**Lunch**; Loughran Dining Room (3rd floor)
1:30 – 2:45	**Panel: Writing/Publishing/Editing for the MAA**; Center Room. Panelists: • Karen Saxe (moderator), Macalester College • Robert Bradley, Adelphi University • Brian Hopkins, Saint Peter's University • Michael Jones, *Mathematical Reviews* • Susan Marshall, Monmouth University
1:30 – 2:45	**NJ-NExT**; Faculty Dining Room (3rd floor)
1:30 – 3:30	**Contributed Paper Sessions**; North A, North B, West Room (all 6th Floor), Loughran Dining Room Alcove (3rd Floor)
3:00 – 3:30	**Intermission and Refreshments**; Duncan Family Sky Room (Silent auction bidding ends at 3:35.)
3:35 – 4:25	**A Mathematical Adventure through the Census, Reapportionment, and Redistricting**, Karen Saxe**,** Macalester College. Presider: Amanda Beecher, Ramapo College; Center Room
4:30 – 5:00	**Prizes and Awards**; Door prizes and silent auction winners (must be present to win); Center Room
5:00 – 5:30	**Reception**; Center Room
6:00	**Dinner Honoring Speakers,** Fiesta Grill

2:38-2:52: **Summative and formative assessment by using clickers in statistics classroom**. Myungchul Kim, Suffolk County Community College, kimm@sunysuffolk.edu

ABSTRACT: The use of classroom response system can help student learning, engagement and perception during the class. Also, it can enlighten the instructor to sources of student difficulties. In this talk, the effective use of clickers when teaching statistics will be presented.

2:55-3:09: **Hedging with short term futures contracts**. Chunhui Yu, Farmingdale State College, SUNY, yuc@farmingdale.edu

ABSTRACT: Under the constraint of terminal risk, we search for an optimal deterministic strategy to reduce the running risk in hedging a long-term commitment with short-term futures contracts. An explicit solution is given if the underlying stock follows a simple stochastic differential equation. Our work generalizes the results of several previous researchers. A possible undergraduate project will also be given.

3:12-3:26: **On Quinn's "Mathematics is not science": Questions prompted.** Danielle Mihram (presenter), University of Southern California, and G. Arthur Mihram, Princeton, NJ; dmihram@usc.edu

ABSTRACT: Mathematician Quinn [*AMS Notices*, 59(1): 31, 2012] concluded that mathematics is not science, since their respective validity criteria differ. Still, mathematics is not necessary for Science, as noted by Nobel Laureate Konrad Lorenz in *Naturwissenschaften,* 1973 and demonstrated by Charles Darwin. Furthermore, mathematics is not sufficient for Science, as noted by Cincinnati University's Dean, LT More, in his *Limitations of Science* (1915: p. 151). Even Applied Mathematics fails to qualify as Science, since its mimicry of our four-step mathematical theorem-proving is insufficiently in accord with the six-stage Scientific Method [*Theorema,* 2009], and only provides, at best, further 'confirmation' for an already well-established scientific result, yet not itself a new scientific explanation.

Session 4: Teaching Session B (North Room B, 6th floor)
Presider: Kathy Turrisi, Centenary College, turrisik@centenarycollege.edu

1:30-1:44: **Is the Common Core Mathematics Curriculum the solution to remediation?** Barbara Ann Lawrence, Borough of Manhattan Community College of CUNY, blawrence@bmcc.cuny.edu

ABSTRACT: The Common Core Curriculum has been implemented in school mathematics. Students who have taken elementary algebra will have been exposed to standards which are more robust and relevant to the real world. Another goal is to give students the knowledge and skills needed to be successful in college and their careers. The purpose of this paper is to determine if the Common Core Standards will decrease the number of students ending up in developmental mathematics.

1:47-2:01: **Teaching math with string figures**. James R. Murphy, LaGuardia High School (retired), inoli.murphy@gmail.com

ABSTRACT: For 20 years, James Murphy used string figures to teach math to resistant and math-phobic students with great success. String figures are the weaving of string figures on your hands, a la Cat's Cradle, but done individually and more varied and complex. This paper discusses mathematics as algorithmic learning and the commonality of math and string figures as abstract languages that codify reality.

2:04-2:18: **Peer to peer: Academic support through a summer mathematics bridge program.** Janet Liou-Mark, A. E. Dreyfuss, Rezwon Islam, and Ricky Santana, New York City College of Technology, CUNY; jliou-mark@citytech.cuny.edu, ADreyfuss@citytech.cuny.edu

ABSTRACT: Most often graduating high school students from the New York City Metropolitan area are not prepared for the rigorousness of college, especially in a mathematics course. First-year students are often misplaced in their mathematics classes because they did not take the placement exams seriously. A three-day summer mathematics bridge program was designed to prepare incoming students for either their first mathematics course or the placement exam. Upperclassmen who are majoring in either a mathematics or engineering degree were recruited to teach in the program. By having upperclassmen review mathematics concepts or

teach new concepts, a vibrant academic support system was formed. The program design and its results will be presented. This program is supported by NSF MSP Grant 1102729.

2:21-2:35: **Peer To peer: Academic support through the peer-led team learning instructional model.** Janet Liou-Mark, A. E. Dreyfuss, Sandie Han, Joe Nathan Abellard, Mursheda Ahmed, Francois Mertil, and Jeffrey Michel, New York City College of Technology, CUNY; jliou-mark@citytech.cuny.edu, ADreyfuss@citytech.cuny.edu

ABSTRACT: The Peer-Led Team Learning (PLTL) Instructional Model has been successfully implemented in several foundational mathematics courses at New York City College of Technology. Peer leaders are the main facilitators of these workshops. They work collaboratively with 8-10 students once a week for one hour. A supportive community is developed resulting in high pass rates and lower withdrawal rates compared with the institution as a whole. The PLTL model will be shared, and a summary of the results will be presented.

2:38-2:52: **Calculus sequence projects with Maple applications**. Marina Dedlovskaya and Vladimir Przhebelskiy, LaGuardia Community College of CUNY; mdedlovskaya@lagcc.cuny.edu and vprzhebelskiy@lagcc.cuny.edu

ABSTRACT: The course “Aerodynamics” is typically taught to students who major in aero-engineering; this course has the calculus sequence as prerequisites. However, this field contains problems which require less advanced mathematical skills and are accessible for students at various levels. For example, finding the power required for a helicopter to hover or finding the lifting and the drag force of an aircraft with elliptic wing can be solved in pre-calculus class. The target of this presentation is to demonstrate a series of projects for calculus sequence that could make studying math topics more interesting. A computer algebra system such as Maple is useful for this type of research, and we will demonstrate its use.

2:55-3:09: **Emphasis on conceptual knowledge and its impact on mathematics anxiety for community college students.** Alioune Khoule, LaGuardia Community College, CUNY, akhoule@lagcc.cuny.edu

ABSTRACT: The study investigated the relationship between conceptual knowledge and mathematics anxiety of remedial mathematics students in an

urban community college. The study sample consisted of 105 remedial mathematics students from four elementary algebra courses. The study found that the conceptual treatment had more positive impact on students' mathematics anxiety as compared to the procedural treatment. The conceptual group also performed better on both quizzes, despite the fact that the procedural group practiced more procedural problems than the conceptual group and was exposed to a procedural treatment.

3:12-3:26: **Some subtleties in the inverse function theorems in one variable.**
Andrew Markoe, Rider University, markoe@rider.edu

ABSTRACT: We discuss and resolve some subtleties in the theorems on continuity and differentiability of inverse functions of one real variable. We identify and correct a common flaw in the proof of differentiability of inverse functions. And we show the importance of stating these theorems on intervals by giving an example of a one-to-one function defined on an interval which is differentiable, and hence continuous, at a point c but such that f^{-1} is discontinuous, and hence not differentiable at f(c).

Lunch Discussion Tables

Organized by Theresa C. Michnowicz, New Jersey City University.
There will be five discussion tables at lunch:

1. **Talking About Calculus**, led by Karen Saxe, Macalester College
2. **Directing Student Research**, led by Steven Weintraub, Lehigh University
3. **Using Original Sources in Teaching (and your Research)**, led by V. Frederick Rickey, emeritus, United States Military Academy at West Point
4. **Introducing Your Students to Proofs**, led by Carol Avelsgaard, Middlesex County Community College
5. **NJ-NExT Table**, led by Kaaren Finberg, Ocean County College and Jana Gevertz, The College of New Jersey

Those who pre-registered have priority at these discussion tables. We look forward to a set of lively and interesting discussions!

Report of the Board of Governors meeting at MathFest 2014

Bonnie Gold, MAA-NJ governor

There were relatively few action items on the agenda for the BoG meeting at MathFest 2014. The most important was to reaffirm support for the principles of the 2004 CUPM Curriculum Report, and to support the cognitive and content recommendations of the upcoming *2015 CUPM Curriculum Guide to Majors in the Mathematical Sciences*, which is expected to be released in January. These are:

Cognitive recommendations:

1. *Students should develop effective thinking skills.*
2. *Students should learn to link applications and theory.*
3. *Students should learn to use technological tools.*
4. *Students should develop mathematical independence and experience open-ended inquiry.*

Content recommendations:

1. *All mathematical sciences major programs should include concepts and methods from calculus and linear algebra.*
2. *All students majoring in the mathematical sciences should learn to read, understand, analyze, and produce proofs, at increasing depth as they progress through a major.*
3. *All mathematical sciences major programs should include concepts and methods from data analysis, computing, and mathematical modeling.*
4. *All mathematical sciences major programs should present key ideas and concepts from a variety of perspectives to demonstrate the breadth of mathematics.*
5. *All students majoring in the mathematical sciences should experience mathematics from the perspective of another discipline.*
6. *All mathematical sciences major programs should present key ideas from complementary points of view: continuous and discrete; algebraic and geometric; deterministic and stochastic; exact and approximate.*
7. *All mathematical sciences major programs should require the study of at least one mathematical area in depth, with a sequence of upper-level courses.*
8. *All students majoring in the mathematical sciences should work, independently or in a small group, on a substantial mathematical project that involves techniques and concepts beyond the typical content of a single course*.

9. *All mathematical sciences major programs should offer their students an orientation to careers in mathematics.*

We also approved bylaws revisions for five sections: the Golden section, the Oklahoma-Arkansas section, the Pacific Northwest section, the Southeastern section, and the Southern California-Nevada section. It's the New Jersey section's turn to start its bylaws revision. Other board items included the approval of citation for the departing members of the NExT organizational team, approval of various prizes and committee chairs, and approval of the proposed editorial board for *Mathematics Magazine* (Michael Jones, formerly of MAA-NJ, is editor elect).

The MAA Treasurer reported that our budget deficit should be smaller than originally expected this year, and hopes to get it down to about $100K (rather than the more-than-$1 million it has been) in 2015, and a small surplus thereafter, enabling the MAA to build up its free reserves. The treasurer hopes to gradually build up the free reserves over time to 40% to 70% of the annual operating budget (of approximately $7,500,000).

The MAA has stopped participating in the Combined Membership List, which has regularly been highly inaccurate and is about to go out of existence anyway. However, any member of the MAA can now log into the MAA webpage and find out updated information about all MAA members.

2015 MathFest will be the centennial celebration of the MAA, in Washington, DC, and it will be four days long instead of the usual three. It will also be a joint meeting with the Canadian Society for the History and Philosophy of Mathematics. Centennial lecturers: Manjul Bhargava, Princeton University; Carlos Castillo-Chavez, Arizona State University; Jennifer Chayes, Microsoft Research; Ingrid Daubechies, Duke University; Erik Demaine, MIT; Karen Parshall, University of Virginia.

Book Sales at the Meeting

The discounted meeting price for MAA books (35%) also applies to books *not* currently on display. When you order books at the meeting, there are no shipping costs. We will again offer "buy one, get one free."

Future Meetings

MAA-NJ. The Spring 2015 MAA-NJ Section meeting will be held at Monmouth University, Saturday, April 11, 2015. Speakers will include David Kung, St. Mary's College of Maryland; Susan Marshall, Monmouth University; and David Richeson, Dickinson College. The Fall 2015 MAA-NJ meeting will be held at Kean University, Saturday, November 14, 2015.

GSUMC. The Garden State Undergraduate Mathematics Conference (GSUMC) will be held in conjunction with the Spring Meeting of the NJ Section at Monmouth University. The conference will include poster and oral presentations sessions for undergraduate students, as well as a team mathematics-problem competition. There are many opportunities for faculty to participate in co-organizing the conference. Contact david.trubatch@montclair.edu to volunteer. For additional details see the GSUMC web site: http://sections.maa.org/newjersey/GSUMC.html**.**

MAA-Metro NY. The Spring 2015 MAA-NY Section meeting will be held on Sunday, May 3, 2015, location to be determined. For more information, please check http://sections.maa.org/metrony.

National MAA Meeting. The 2015 Joint Mathematics Meeting will be in San Antonio, TX on January 10 – 13.

MathFest. The MAA will hold its annual MathFest in Washington, DC, August 5 to August 8, 2015. For further information, go to http://www.maa.org/mathfest/.

Call for Contributed Papers and Lunch Table Discussion Topics for the Spring 2015 MAA-NJ Meeting

There will be three special contributed paper sessions. All papers will be reviewed by the organizers. Please submit a title, three- to four-sentence abstract, and one-page description in MS Word format by February 2, 2015 to the session organizer.

1. **Pathways to Mathematical Reasoning**. Organizer: Revathi Narasimhan, Kean University, RNARASIM@kean.edu.
2. **Math Drives Careers** (2015 Math Awareness theme). Organizer: Paul von Dohlen, William Paterson University, vondohlenp@wpunj.edu.

3. **Statistics: Practice and Pedagogy**. Organizer: Dexter Whittinghill III, Rowan University, whittinghill@rowan.edu.

MAA members interested in leading a Lunch Table Discussion at the Spring 2015 meeting are asked to submit their proposals to Theresa C. Michnowicz, New Jersey City University, tmichnowicz@njcu.edu, by **February 2, 2015.**

Call for Nominations for the MAA-NJ Award for Distinguished College or University Teaching

The MAA-NJ Section Distinguished Teaching Award Selection Committee is seeking nominations for the 2015 award. Please consider nominating an inspiring, respected, or influential deserving colleague for this prestigious award. Nomination information is posted at http://www.maa.org/newjersey. For additional information you may contact Zhixiong Chen (Secretary, MAA-NJ) at zchen@njcu.edu. Nominations are due by November 7, 2014.

MAA-NJ Committees

Awards Committee: Thomas Hagedorn (chair), The College of New Jersey; Bonnie Gold, Monmouth University; John Saccoman, Seton Hall University; Elizabeth Uptegrove, Felician College; Dexter Whittinghill, Rowan University.

Nominating Committee: Mark Korlie (chair), Montclair State University; Thomas Hagedorn, TCNJ; David Marshall, Monmouth University; Sarita Nemani, Georgian Court College; Tatyana Stepanova, Raritan Valley Community College.

Teaching Award Committee: Bruce Bukiet (chair), New Jersey Institute of Technology; Thomas Hagedorn, The College of New Jersey; Brian Hopkins, Saint Peter's University; Sarita Nemani, Georgian Court University; Tom Osler, Rowan University; Robert Wilson, Rutgers University.

Selection Committee for Contributed Papers: Yi Ding (chair), New Jersey City University; Theresa Michnowicz (ex-officio), New Jersey City University; Kathy Turrisi, Centenary College; Chengwen Wang, Essex County College.

Organizing Committee: MAA-NJ: Carol Avelsgaard, Middlesex County College; Zhixiong Chen, New Jersey City University; Karen Clark, The College of New Jersey; Larry D'Antonio, Ramapo College; Srabasti Dutta, Ashford University; Kaaren

Finberg, Ocean County College; Jana Gevertz, The College of New Jersey; Bonnie Gold, Monmouth University; Thomas Hagedorn, The College of New Jersey; Olcay Ilicasu, Rowan University; Aihua Li, Montclair State University; David Marshall, Monmouth University; Theresa C. Michnowicz, New Jersey City University; Sarita Nemani, Georgian Court University; Dirck Uptegrove, Alcatel-Lucent; Elizabeth Uptegrove, Felician College; Paul von Dohlen, William Paterson University; Chengwen Wang, Essex County College. **MAA-Metro-NY**: Ken Gittelson, Benjamin Cardozo High School; Jerry Ianni, LaGuardia Community College; Chia-Ling Lin, Nassau Community College; Janet Liou-Mark, New York City College of Technology.

Hosting Committee: Brian Hopkins and Eileen Poiani, Saint Peter's University.

Notices

Dinner Honoring the Invited Speakers. The Sections will honor the invited speakers at dinner following the meeting, at the Fiesta Grill, 819 West Side Ave**,** (201-433-9600) at the southeast corner of campus. Everyone is cordially invited.

Congratulations. The New Jersey Section congratulates Susan Marshall of Monmouth University for her two national MAA writing awards at MathFest 2014. Susan was awarded both the Carl B. Allendoerfer Award for her article (with Donald R. Smith), "Feedback, Control and the Distribution of Prime Numbers," in *Mathematics Magazine;* and the Paul Halmos-Lester Ford award for her article (with Alexander Perlis), "Heronian Tetrahedra are Lattice Tetrahedra," in the *American Mathematical Monthly*.

NJAMTE Call for Papers. The New Jersey Association of Mathematics Teacher Educators invites contributed papers (15 minute talk plus 10 minute discussion) at its 2015 meeting on Friday, May 29 at The College of New Jersey. The theme will be "Assessment: It's not just tests! (Using formative assessment to improve instruction)," and talks on this topic are encouraged, but any talk about research results, professional development, or issues of concern to mathematics teacher educators will be considered. Deadline for proposals is February 25, 2015. For details, see http://bit.ly/njamte or contact Bonnie Gold at bgold@monmouth.edu.

MAA-NJ Section Officers

Chair	Thomas Hagedorn, The College of New Jersey
Past Chair	Carol Avelsgaard, Middlesex County College
Vice-Chair for Speakers	Lawrence D'Antonio, Ramapo College
Vice-Chair for Innovations	Theresa C. Michnowicz, New Jersey City Univ.
Vice-Chair for Two-Year Colleges	Chengwen Wang, Essex County College
Vice-Chair for Student Activities	Aihua Li, Montclair State University
Secretary	Zhixiong Chen, New Jersey City University
Treasurer	Karen Clark, The College of New Jersey
Governor	Bonnie Gold, Monmouth University
Program Editor	Elizabeth Uptegrove, Felician College
Advance Meeting Planner	Lawrence D'Antonio, Ramapo College
Liaison Coordinator	Srabasti Dutta, Ashford University
Workshop Organizer	David Marshall, Monmouth University
Contributed Paper Organizer	Theresa C. Michnowicz, New Jersey City University
Book Sale Coordinators	Dirck Uptegrove, Alcatel-Lucent; Elizabeth Uptegrove, Felician College; Paul von Dohlen, William Paterson University
Door Prize Coordinator	Sarita Nemani, Georgian Court University
GSUMC Director	A. David Trubatch, Montclair State University
Project NJ-NExT Co-Directors	Kaaren Finberg, Ocean County College; Jana Gevertz, The College of New Jersey
Webmaster	Paul von Dohlen, William Paterson University

Acknowledgments. The New Jersey Section and the New York Metro Section thank the Mathematics Department of Saint Peter's University for their kind hospitality in hosting the meeting. Special thanks go to the members of the Saint Peter's Pi Mu Epsilon chapter for their help on the day of the meeting.

The sections also thank Princeton University Press, Hawkes Learning Systems, Springer, and Random House for their generous donations for silent auction and door prizes.