

Allegheny Mountain Section of the Mathematical Association of America

Allegheny Mountain Newsletter

Spring Section Meeting!

This year's Section Meeting is being held **April 13-14** on the campus of **West Virginia University**. As usual, we have an exciting array of invited speakers as well as faculty and student talks. There will also be a student problem competition, a book exhibit and a pizza party. Look inside for more details.

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The deadline for registering is **April 6**, which is also the deadline for submitting a talk. Special lodging rates require an early hotel reservation so act soon! Further hotel information is on page 11.



From the Governor: Tamara Lakins, Allegheny College

It hardly seems possible that the Joint Meetings were over a month ago, and that we are rapidly approaching our spring section meeting in April! I have been busy these last few weeks discussing with the Executive Committee and the Section NExT Co-Coordinator our plans for the spring section meeting and spring Section NExT workshop, to be held at West Virginia University. We have an exciting program planned, as you will read in this newsletter!



Tamara Lakins of Allegheny College, Section Governor

I attended the Board of Governors meeting in Boston, just prior to the start of the Joint Meetings. As you may recall, Tina Straley retired at the end of 2011, and our new MAA Executive Director is Michael Pearson. I was excited to learn that preregistration for the Boston Joint Meetings had exceeded the total registration for any previous Joint Meetings and later learned that nearly 7200 had ultimately registered.

Treasurer Jim Daniel reported that the MAA remains on financially solid ground, although its cumulative reserve fund has dropped to about \$0.5 million, significantly below half a full year's operating budget (about \$5 million), which is the minimum amount typically recommended for organizations such as the MAA. Jim noted that the MAA needs to work toward increasing the value of the cumulative reserve fund by "developing annual operating surpluses and obtaining unrestricted gifts." On a related note, the Board approved modest increases in the 2013 "hard copy journal" dues (about 2-3 percent) and student dues (by \$2). However, the 2013 e-membership dues will not increase, as a means to encourage more e-memberships, which provide electronic access to all three MAA journals. A motion to keep the student dues flat was defeated.

Other items of interest at the Board of Governors meeting include the report of the AWIS-MAA Joint Task Force on Prizes and Awards given by Francis Su and Betty Mayfield, David Bressoud's report on a draft of the MAA/NCTM Joint Position on Calculus, and a report of the Strategic Planning Working Group on SIGMAAs.

The AWIS-MAA Joint Task Force on Prizes and Awards was charged with considering ways to address the underrepresentation of women in winning recognition and awards (such as the MAA writing awards). They have compiled a

list of guidelines for avoiding implicit bias, which are now distributed to all MAA selection committees. Another recommendation, which later appeared as a joint motion from the Council on the Profession, the Council on Prizes and Awards, and the Joint Committee on Women, was to adopt a policy of double-masked review in MAA journals. This motion was tabled, pending further discussion.

The draft of the MAA/NCTM Joint Position on Calculus seeks to reaffirm the previous 1986 MAA/NCTM position that (1) students who take calculus in high school should have demonstrated mastery of algebra, geometry, trigonometry, and coordinate geometry (i.e., that students shouldn't short-change their pre-calculus preparation in order to take calculus in high school) and (2) if calculus is taught in high school, then it needs to be a college-level course. Bressoud solicited discussion and suggestions regarding the draft of the joint position, and he suggested that there should be an additional recommendation, namely, that college calculus courses should take into consideration the fact that many students have already seen some calculus in high school. The final version of the MAA/NCTM Joint Position on Calculus will come to the Board for approval at a later date.

Finally, the Board approved a mission statement for the SIGMAA program, as well as recommendations that each SIGMAA be reviewed by the MAA Committee on SIGMAAs every four years, and that the appropriate MAA Director work with SIGMAA officers to set the SIGMAA budgets each year. A result of this vote is that budgets for each SIGMAA will be determined by a set minimum per-member funding rate, and that unused monies remaining in any SIGMAA budget may not be rolled over to the next year.

As usual, please feel free to contact me (at tlakins@allegheny.edu) if you have any questions, or if you want to talk with me about the ways in which you might want to contribute to the success of our section. Please also consider nominating your colleagues for our Section Mentor, Teaching and Service Awards. I'm looking forward to seeing you and your students at our spring section meeting at WVU, and hopefully also at this summer's MathFest in Madison.

From the Chair: Kim Roth, Juniata College

Greetings from Juniata. While at the Joint Mathematics Meetings in Boston, I saw many section members doing many interesting things. The meetings had record breaking attendance this year with close to 7200 registered.

The annual section meeting is April 13th and 14th at West Virginia University in Morgantown, WV. We have a great line up of invited speakers. There will be faculty and student talks and the student problem competition.



Kim Roth of Juniata College,
Section Chair

While the deadline for the Teaching award has passed, the deadline for the Mentor and Service awards are March 18th. Please consider nominating your colleagues for these awards. You can find details on how to nominate someone on the section website.

Hope your spring is going well. See you all at WVU!

Attention students!

Can you solve this problem?

Let $P(x) = 2x^3 + Ax^2 + Bx + 14$. Suppose that P is evenly divisible by $x+1$ and there is a remainder of 12 when P is divided by $x+2$. Find A and B .

This was one of the 9 problems featured on the 2011 Allegheny Mountain Section Problem-Solving Competition. Each student who solved it was eligible to win a prize!

If you enjoy solving mathematical problems and puzzles, come to the Spring Section Meeting for the
**2012 Allegheny Mountain Section
 Problem-Solving Competition**

Join us on Friday at 6:30 for fun, candy, and 9 new problems to solve. For each problem you solve correctly, your name will be entered in a drawing for fantastic prizes!

Questions? Contact Dr. Pamela Richardson, Coordinator of Student Programs (richarpa@westminster.edu) or Dr. Jeffrey Boerner, Puzzle Czar (boernej@westminst.edu)

Section NExT News: Tamara Lakins, Allegheny College

The **Spring 2012 Section NExT workshop "Extreme Calculus"** will be presented by MAA President Paul Zorn and will precede the Spring section meeting at West Virginia University on April 13, 2012, with lunch at 12:30 and the NExT program beginning at 1:30pm.

Allegheny Mountain Section NExT welcomes all current and previous national and section NExT fellows, as well as any new faculty members in the Section, to participate in Section NExT activities. Faculty interested in participating should contact Section NExT Co-Coordinator Tamara Lakins at tlakins@allegheny.edu. If you have been with your department for more than six years, a small donation to the Allegheny Mountain Section NExT is appreciated.

Abstract: There is more to elementary calculus than may first meet the eye, especially to those of us who teach it again and again. With appropriate help from graphical, numerical, and algebraic computing, well-worn calculus techniques and topics---polynomials, optimization, root-finding, methods of integration, and more---often point to deeper, more general, more interesting, and sometimes surprising mathematical ideas and techniques. I'll illustrate my thesis with figures, examples, and a lot of e-calculation, aiming to take elementary calculus to its interesting extremes.

Bio: **Paul Zorn** is a professor of mathematics at St. Olaf College. Zorn's professional interests include complex analysis, mathematical exposition, textbook writing, and the role of mathematics among the liberal arts. He is also interested in using computer graphics and computer algebra systems to help students learn and explore mathematical ideas. His 1986 paper "[The Bieberbach Conjecture](#)" was awarded the 1987 Carl B. Allendoerfer Award for mathematical exposition.

He has co-authored several textbooks with his St. Olaf colleague, Arnold Ostebee, including [Calculus From Numerical, Graphical, and Symbolic Points of View, 2nd edition](#) (two volumes, 2001) and [Multi-variable Calculus From Numerical, Graphical, and Symbolic Points of View](#) (2002). His most recent book is [Understanding Real Analysis](#) (AK Peters, 2010).

Zorn has served on many MAA committees and programs over the years. From 1996 to 2000, he was Editor of MAA's expository journal [Mathematics Magazine](#). In 2008 and 2009 he served as chair of MAA's Council on Publications. He currently serves as President of the MAA.



Paul Zorn

Section Mentoring Award: Call for Nominations



2010 Mentoring Award winner Roman Wong of Washington & Jefferson College

The Allegheny Mountain Section of the MAA seeks nominations for the annual Distinguished Faculty Mentor of Undergraduate Mathematics Students Award (or, Mentor Award). Awardees have made significant contributions to the development of undergraduate students in mathematics as scholars. This includes, but is not limited to, encouraging student participation in MAA activities and advising students who make presentations at the Section meetings.

Recent recipients of this award include:

2010: **Roman Wong**, Washington & Jefferson College

2009: **James Sellers**, Penn State University

2008: **Rich Marchand**, Slippery Rock University

2007: **Mike Berry**, West Virginia Wesleyan College

2006: **Eric Rawdon**, Duquesne University

2005: **Robert Vallin**, Slippery Rock University

2004: **Lyn Miller**, Slippery Rock University

To nominate a colleague for the 2011 award, please send a note by email to:

John Tolle, Chair
Mentor Award Committee
jut14@psu.edu.

We are soliciting nominations for this award from now through **March 16, 2012**.

Section Service Award: Call for Nominations



2010 Service Award winner John Bukowski of Juniata College

The criterion for the Annual Allegheny Mountain Section Service Award is a consistent record of excellence in service to the section over a period of time. In this context "service" is interpreted in a broad sense to include holding office, coordinating contests, organizing sessions, acting as a panelist, speaking at sessions, acting as the coordinating host for a meeting, or participating in any other activity that contributes to the well-being of the organization.

The Section announces the winner of this award each

year at its annual meeting in the spring. Recent recipients of this award include

2010: **John Bukowski**, Juniata College

2009: **Tamara Lakins**, Allegheny College

2008: **Don Platte**, Mercyhurst College

2007: **Ben Freed**, Clarion University

2006: **Ron Harrell**, Allegheny College

The service award committee consists of Tim Flowers

(IUP), Tami Lakins (Allegheny), and Kim Roth (Juniata). Please send your nomination, with a description of how the nominee meets the criterion, by **March 16, 2012** to:

Kim Roth
Department of Mathematics
Brumbaugh Academic Center
1700 Moore Street
Huntingdon, PA 16652
roth@juniata.edu

Tentative Schedule for the Spring 2012 Meeting

Friday, April 13, 2012

11:30-12:30	Section Officers Meeting
12:30-1:30	Section NExT Lunch
1:30-3:30	Section NExT Workshop
2:00-5:00	Registration
2:00-3:45	Book Exhibits
3:55	Welcome from WVU
4:00-5:00	Invited Address: Erica Flapan, Pomona College
5:15-6:30	Dinner and Awards
6:30-8:25	Student Problem Competition
6:45-7:15	Hawkes Learning presentation
6:30-9:30	Book Exhibits
8:35-9:30	Student Talks
9:30-11:00	Pizza party

Saturday, April 14, 2012

7:30-8:45	Breakfast
8:00-8:45	Business meeting
8:00-9:00	Registration
9:00-10:00	Invited Address: Paul Zorn, St. Olaf College
10:00-11:45	Book Exhibits
10:15-11:30	Faculty Talks
11:45-12:45	Invited Address: James Tanton, St. Mark's Institute of Mathematics
12:45	Closing Remarks

Invited Speakers for the Spring Section Meeting

Erica Flapan, Pomona College

Talk Title: "Topological Symmetry Groups"

Abstract: Chemists have defined the *point group* of a molecule as the group of rigid symmetries of its molecular graph in \mathbb{R}^3 . While this group is useful for analyzing the symmetries of rigid molecules, it does not include all of the symmetries of molecules which are flexible or can rotate around one or more bonds. To study the symmetries of such molecules, we define the *topological symmetry group* of a graph embedded in \mathbb{R}^3 to be the subgroup of the automorphism group of the abstract graph that is induced by homeomorphisms of \mathbb{R}^3 . This group gives us a way to understand not only the symmetries of non-rigid molecular graphs, but the symmetries of any graph embedded in \mathbb{R}^3 . The study of such symmetries is a natural extension of the study of symmetries of knots. In this talk we will present results about the topological symmetry group and how it can play a role in analyzing the symmetries of non-rigid molecules.

James Tanton, St. Mark's School

Talk Title: "A Dozen Fibonacci Surprises"

Abstract: The Fibonacci numbers 1,1,2,3,5,8,13,... have been studied and probed and generalized and analyzed in most every possible way for centuries (well, for 810 years to be precise; well, ... longer actually if you read Sanskrit) and one might think there is little more to say about them. Let me surprise you then, a dozen times over no less!

Paul Zorn, St. Olaf College

Talk Title: "Revisiting Familiar Places: What I Learned at the Magazine"

Abstract: Among the perks of editing Mathematics Magazine for me was to learn a lot of mathematics. Much of it was new to me, but could there possibly be anything new to learn about cubic polynomials? Countable sets? Equilateral triangles? Bijective functions? The short answer is yes. The Magazine and other MAA journals are rich sources of novel --- and often surprising --- views of supposedly familiar, thoroughly understood, topics from undergraduate mathematics. I'll give some examples that worked for me. That such examples exist derives not only from the speaker's ignorance but also from the depth and richness of our subject.

Guest Presentation

Brittany Dahn, Hawkes Learning Systems

Talk Title: "The Internet Ate My Homework"

Tired of hearing that online homework couldn't be completed because the internet was down? Hawkes Learning Systems eliminates these issues and excuses, as assignments can be completed with or without an internet connection. With Hawkes, students are not able to "cheat the system" to get through assignments either. Instead, they are held accountable for mastering the material without relying on learning aids. Join us to learn more about the additional benefits that Hawkes provides to help students succeed! We will end the presentation with a question and answer period, followed by a little fun: a raffle for a \$100 Amazon.com gift card!

Section Business

At the business meeting during Spring Section Meeting we will elect three officers: Chair-Elect, Secretary, and Second Vice Chair. The nominating committee has received the following nominations, and we remind all section members that nominations can be made from the floor at the business meeting as well. Members who are interested in serving as a section officer in the future should speak to a current section officer about how to get involved.

The committee would like to thank Bob Fliess of West Liberty University and John Tolle of Penn State University, Dubois for their service to the Section.

Chair-Elect: Pam Wovchko, West Virginia Wesleyan College

Dr. Pam (Miltenberger) Wovchko is currently an associate professor of mathematics at West Virginia Wesleyan College. She received her bachelors and masters degrees in mathematics from West Virginia Wesleyan College and West Virginia University respectively, and she earned her Ph.D. in educational mathematics from the University of Northern Colorado. Pam has recently served the Allegheny Mountain section in the roles of first and second vice-chair.

Secretary: Kimberly Burch, Indiana University of Pennsylvania

Kimberly Burch is an Associate Professor at Indiana University of Pennsylvania. She earned her Ph.D. in graph theory from the University of Pittsburgh in 2002. She has served as Second and First Vice-Chair of the section. She is interested in how technology such as clickers and online homework systems can improve student performance and enjoys mentoring undergraduate students.

Second Vice-Chair: Papiya Bhattacharjee, Penn State Erie

Papiya Bhattacharjee is an Assistant Professor of Mathematics at Penn State Erie, The Behrend College. She earned a M.S.(2005) in Pure Mathematics at University of Calcutta in India, and received a Ph.D.(2009) in Mathematics from Bowling Green State University. Her research area includes Ordered Algebraic Structures, Commutative Algebra, and Topology. Papiya is a 2010-2011 Project Next fellow. She is involved in the Penn State sustainability initiative and is starting the assessment committee for Math department. Papiya is engaged in using Inquiry-Based Learning in her upper-level mathematics courses.

Submitted by the Nominating Committee,
Pamela Richardson (chair), Westminster College
John Bukowski, Juniata College
Alfred Dahma, Indiana University of Pennsylvania

Annual Spring Meeting - Talk Information Form

(online at http://sections.maa.org/alleghey/annual_meeting_2012/meeting2012.htm)

Note: All contributed talks are 15 minutes in length.

Mark the appropriate blank: I am ____ a student ____ faculty.

If you are a student giving a talk, who is your faculty mentor? _____

Name: _____

Institution: _____

Email Address: _____

Mailing Address: _____

Title of Talk: _____

Abstract of Talk: (Please **attach** separately if needed.)

Equipment Needs — Please read carefully: Each room is equipped with a computer projection system, and a chalk board. Presenters should bring their own laptops. *If you request additional technology or software, please provide a clear and comprehensive list of your needs; attach separately if needed.*

Mail *student* Talk Information Forms to:
Pamela Richardson
Department of Mathematics and Computer Science
Westminster College
New Wilmington, PA 16172

Mail *faculty* Talk Information Forms to:
Ryan Higginbottom
Washington & Jefferson College
60 S. Lincoln Street
Washington, PA 15301

Talk Information Forms must be received by April 6, 2012.

Annual Spring Meeting – Registration Form

(online at http://sections.maa.org/allegheny/annual_meeting_2012/meeting2012.htm)

Name: _____

Institution: _____

Email Address: _____

Mailing Address:

Registration Category (check one): (Faculty members, please select based on the **highest mathematics degree** offered at your institution.)

Regular Registration (\$25.00)

- Faculty, Associate’s Offered
- Faculty, Bachelor’s Offered
- Faculty, Master’s Offered
- Faculty, Doctorate Offered
- Business, Industry, or Government
- High School Teacher

“New Person” Registration* (free)

- Faculty, Associate’s Offered
- Faculty, Bachelor’s Offered
- Faculty, Master’s Offered
- Faculty, Doctorate Offered
- Business, Industry, or Government
- High School Teacher

Special Registration (free)

- Undergraduate Student
- Graduate Student
- Retired

* - A "new person" is defined as someone who, as of this academic year, is either a new member of the MAA or is a member of the MAA who is new to the Allegheny Mountain Section.

- MAA member? yes no
- Optional Contribution supporting Section NExt? yes (\$10) yes (\$5) no
- Friday Evening Dinner? yes (\$20) no
- Saturday Breakfast? yes (\$10) no

Additional Information (such as food allergies, special diets, whether you are bringing a guest to meals):

Checks should be made payable to Allegheny Mountain Section, MAA, and sent with this form to:
Ben Freed, 208 Briar Hill Drive, Clarion, PA 16214

Deadline for receipt of registration forms: April 6, 2012

Local Arrangements for the Spring Section Meeting:*Driving Information:*

Directions to WVU can be found at <http://www.gvl.wvu.edu/directions.html>

Hotel Information:

There are seven hotels located near West Virginia University with special rates for conference attendees. Further information, including deadlines and amenities, can be found at http://sections.maa.org/alleggheny/annual_meeting_2012/hotel.htm Mention the Section Meeting to receive the prices below.

Clarion Hotel Morgan	(\$69)	(304) 292-8200
Euro-suites	(\$95)	1-800-6-SUITES (678-4837)
Residence Inn by Marriott	(\$105)	(304)-599-0237
Waterfront Hotel (WVU)	(\$109)	(304)-296-1700
Hampton Inn	(T.B.D.)	(304)-599-1200
Comfort Inn Morgantown	(\$64.99)	(304) 296-9364
Econo Lodge Coliseum	(\$55.99)	(304)-599-8181

Campus Map: A campus map of West Virginia University can be found at http://sections.maa.org/alleggheny/annual_meeting_2012/wvu.pdf