



March 2015



**Matters Mathematical**  
The Newsletter of the Pacific Northwest Section of the Mathematical Association of America

## University of Washington- Tacoma Meeting April 10-11, 2015

**NUMS Will Be Held Concurrently**

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The 7th annual Northwest Undergraduate Mathematics Symposium (NUMS) will be held in conjunction with the 2015 Spring meeting of the PNW MAA Section at the University of Washington Tacoma on April 10-11. NUMS is a regional mathematics conference providing a venue for undergraduate and high school students to present mathematical research. Registration, lunch, and presenting for students is free; plus, they will have the opportunity to participate in the MAA meeting. Limited travel support for student speakers is available.



The invited speakers for this meeting are the current incoming MAA president Francis Su of Harvey Mudd College, 2014 PNW MAA Distinguished Teaching Award Winner Tevian Dray of Oregon State University, and mathematical artist Gwen Fisher of beAd Infinitum.

This year's minicourses are a leadership workshop, run by Shannon Overbay and Thomas McKenzie of Gonzaga University, and Using Mathematics to Design Beadwork, run by Gwen Fisher of beAd Infinitum.

Registration is now open at <http://www.tacoma.uw.edu/maa-nums>, and abstracts can be submitted there as well. The website also has all of the logistical details you need in order to plan your meeting!

# Notes from the Governor

By Jenny McNulty, University of Montana

2015 marks the centennial of the MAA. There are many activities planned for the year, beginning with our section meeting in Tacoma on April 10-11 and continuing with a big celebration at Mathfest in Washington DC starting on August 4. Check out the MAA Centennial web page: [MAACentennial](#) or our own PNW history web page: [PNWMAAHistory](#). In reading our section history, I learned that our section was founded in 1945 by a petition of 18 signatures and that “One of the first issues faced by the section concerned the geographical extent of the section.” I thought it was interesting that while many things have changed in our section, the challenges of our section’s size remain a concern.

As of February 1, 2015, Francis Su took on the role as the new President of the MAA. He brings a great deal of enthusiasm to this position. He describes the MAA as “a professional society that values all kinds of mathematics and all kinds of mathematical people, at every educational level.” He has written many popular articles about mathematics. One I particularly enjoyed was “The Lesson of Grace in Teaching” - available on [mathyawp](#). Francis Su will be an invited speaker at our section meeting, I encourage you to attend!

## **Some notes from the Board of Governors meeting. (For more details visit [maa.org](#).)**

The 2015 *CUPM Curriculum Guide to Majors in the Mathematical Sciences* will be coming from the MAA this summer. The guide talks about content recommendations as well as goals for the major, for courses and for departments. Over 200 mathematicians worked on this project; I urge you to read this very detailed report.

*A Common Vision for the Undergraduate Mathematics Program 2025* is an NSF-sponsored project that the MAA is working on. The primary goal of this initiative is “to develop a shared vision in the mathematical sciences community of the need to modernize the undergraduate mathematics program, especially the first two years. “ Specifically the project focuses on courses that function as gateways to many majors – not just mathematics! The program, spearheaded by the MAA will “highlight existing efforts, identify common themes in these efforts, and draw on the collective wisdom of a diverse group of stakeholders to frame a shared vision for modernizing the undergraduate mathematics program!”

Future National MAA meetings:

August 4, 2015 Washington D.C.  
January 5, 2016 Seattle, WA  
August 2, 2016 Columbus, OH  
January 3, 2017 Atlanta, GA  
July 25, 2017 Chicago, IL  
January 9, 2018 San Diego, CA  
July 31, 2018 Denver, CO  
January 15, 2019 Baltimore, MD  
July 30, 2019 Cincinnati, OH

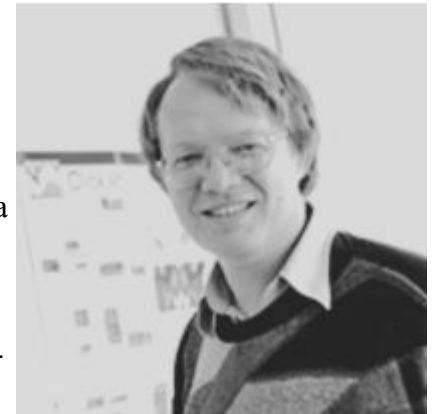
A new Departmental MAA Membership was approved at the BoG meeting. The goal of this membership is to better engage our students, be it potential math majors or graduate students. The Departmental Membership will include memberships for all students as well as reduced fees for WeBWork hosting and one full membership.

(Continued on page 9)

# 2015 PNW MAA Distinguished Teaching Award Winner Glen Van Brummelen

By Ryan Derby-Talbot

This year's winner of the PNWMAA Teaching Award is Glen Van Brummelen from Quest University. Throughout a teaching career that has spanned more than twenty years, Glen's contributions to mathematics education have been plentiful, diverse, and filled with vision and inspiration.



Quest University is a teaching-oriented liberal arts institution, ranked #1 in Canada every year it has participated in the National Survey of Student Engagement. Surrounded by excellent teachers, Glen has been the top-ranked professor each year: not only in the mathematics division, but across the entire university. Students speak of Glen's infectious enthusiasm, his availability and approachability, and his belief in their ability to succeed. Glen's students, including several with whom he has co-authored peer-reviewed publications, have achieved much after their undergraduate careers, both in graduate school and in the work force. Many have been inspired to devote their careers to improving and transforming mathematics education.

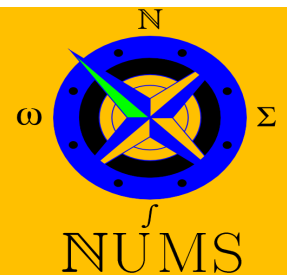
In addition to Glen's impact at Quest University, where he is one of the founding faculty, Glen has made a significant contribution in mathematics education in North America. Glen has been a plenary lecturer in mathematics and its history since the inception of Mathpath, the leading mathematics camp for elite 11-14 year old mathematics students in the United States. He has delivered mini-courses at MAA meetings, serves as the MAA governor-at-large for Canadian members, is on the Education Committee for the Canadian Mathematical Society, and is the past President of the Canadian Society for the History and Philosophy of Mathematics. He is also the author of two books, "Heavenly Mathematics: The Forgotten Art of Spherical Trigonometry" and "The Mathematics of the Heavens and the Earth: The Early History of Trigonometry".

We congratulate Glen Van Brummelen on winning this year's PNWMAA Teaching Award.

## NUMS Conference April 11

### Call for Undergraduate Presentations

The registration page is now open for the Seventh Annual Northwest Undergraduate Mathematics Symposium (NUMS) to be held at the University of Washington Tacoma on Friday (evening) and Saturday, April 10-11, 2015. This year the symposium will be embedded in the Pacific Northwest MAA Section Meeting as a Special Session!



We invite all students in the Pacific Northwest region to present their mathematics work at NUMS this spring. First-year graduate students are welcome to present research completed while still undergraduates. We hope you will consider speaking. There is no registration fee for speakers, poster presenters or participants. All participants get free registration in the MAA Section Meeting. Note that all participants must register for the MAA conference at <http://www.tacoma.uw.edu/maa-nums>

This year the conference will feature a plenary address by Prof. Tevian Dray from OSU, winner of the 2014 PNW MAA Distinguished Teaching Award. For more information, and to submit an abstract online, visit <http://nums.math.oregonstate.edu>. Questions can be sent to [nums@math.oregonstate.edu](mailto:nums@math.oregonstate.edu) or [MAAnNUMS@uw.edu](mailto:MAAnNUMS@uw.edu). Registration deadline for speakers and poster presenters is **March 15th**.

We hope to see you there!

# Central's Celebration of Mind

CWU students join world-wide party

By Brandy Wiegiers  
[wiegiersb@cwu.edu](mailto:wiegiersb@cwu.edu)

On Wednesday, October 29<sup>th</sup>, 2014, more than 50 students, faculty, and community members gathered at Central Washington University to join with math lovers from Amsterdam to Istanbul in the "Celebration of the Mind" event. These events, held all over the world, bring mathematicians, community members, and students together to play mathematical games and solve problems in honor of the 100<sup>th</sup> birthday of mathematician and problem solver Martin Gardner. Martin Gardner made mathematical problem solving a popular pastime, with regular articles in the NY Times and many best-selling problem solving books. This event marks the 4<sup>th</sup> annual celebration of his life and influence.

The titles of the games – including Nim, Brussel Sprouts, Hexaflexagons, and Sheep & Wolves – may sound like a Halloween shopping list, but this didn't stop participants as young as 4 and as old as 65 from exploring the mathematics together. Problems like these, unrelated to the standard mathematical curriculum, and focused on discovery and "math play," provided a great start to mathematical conversations between the students and mathematicians that were present. The room was full of mathematics in action, embodying the mathematical standards of practice recommended by the Common Core Mathematical Curriculum to empower our students to think of themselves as mathematicians.

Dr. Brandy Wiegiers, a new assistant professor in mathematics at CWU, explained her motivation for organizing this event: "Math is fun! Too often we get buried in exercises to develop mathematical skills and it's important to stop every once in a while and enjoy math with other people." Dr. Wiegiers should know; she is the founding director of the National Association of Math Circles, and has spent the last seven years creating national math outreach and putting together similar events across the country. CWU hopes to start its own Math Circle program in the next year, bringing these types of mathematical problems to K-12 students and their teachers on a regular basis.

The event was a huge success; the room was filled with more than 50 people who sat down and played with math for two hours. Given the enthusiasm of everyone who attended, Dr. Wiegiers is planning to make the Central Celebration of Mind an annual event, along with a spring event for K-12 students.

The event was hosted by Central Washington's Department of Mathematics (<http://www.cwu.edu/math/>) and Center for Excellence in Science and Mathematics Education (<http://www.cwu.edu/cesme/>).

## Ron Graham Conference at Simon Fraser

Simon Fraser University will host the conference "Connections in Discrete Mathematics: A Celebration of the Work of Ron Graham" June 15th-19th, 2015. Details are available at <https://sites.google.com/site/connectionsindiscretemath/>.

## Equivariant and Motivic Homotopy Theory at Reed College

Kyle Ormsby and Angélica Osorno are organizing a conference on equivariant and motivic homotopy theory at Reed College. The conference will take place on May 30-31, 2015. For more information, visit <http://people.reed.edu/~ormsbyk/eqmotconf2015/>

# KRYPTOS<sup>4</sup>: A Series of Cryptanalysis Challenges

April 16-20

KRYPTOS<sup>4</sup> is a contest open to undergraduate students. The theme of the contest is centered around the breaking, or cryptanalysis, of ciphers (secret writing). Each challenge presents contestants with a brief scenario together with some ciphertext (encoded message). The goal is to discover the original English plaintext message!

Clues to help break the cipher may be contained in the actual ciphertext or in the details of the accompanying scenario.

While it is not the intent of this contest to test overly technical aspects of cryptanalysis or advanced mathematical algorithms, some familiarity with basic codemaking and codebreaking is certainly helpful. Some useful sources include:

Challenges from [previous contests](#).

The [American Cryptogram Association](#).

Wikipedia entries for [Cryptography](#) and [Cryptanalysis](#)

- *The Code Book* by Simon Singh.
- *Secret History: The Story of Cryptology* by Craig Bauer
- *Codes and Ciphers* by R.F. Churchhouse
- *Codes, Ciphers and Secret Writing* by Martin Gardner

We have had over hundreds of students from around the Pacific Northwest participate, and many have been clamoring for more! Please announce this contest to your students.

Visit: <http://www.cwu.edu/math/kryptos/> for more information -- including instructions on registering students for the contest and a one-page flyer that you can post around your department or campus. Registration opens in mid-March.

Thank you,

Stuart Boersma , Central Washington University  
Cheryl Beaver, Western Oregon University

KRYPTOS is sponsored by the Pacific Northwest Section of the Mathematical Association of America together with Central Washington University and Western Oregon University.

## Interested in Project NExT?

Project NExT (New Experiences in Teaching) is a professional development program for new or recent graduates in the mathematical sciences (including pure and applied mathematics, statistics, operations research, and mathematics education). It addresses all aspects of an academic career: improving the teaching and learning of mathematics, engaging in research and scholarship, and participating in professional activities. It also provides the participants with a network of peers and mentors as they assume their new responsibilities.

*1. What are the requirements for the national program?*

Applicants for the national program must have a Ph.D. in the mathematical sciences and be in the first two years of a full-time college/university teaching position. For more information, visit <http://archives.math.utk.edu/projnext>

*2. What are the requirements for the PNW Project NExT section?*

Applicants for the PNW section must have a Ph.D. or a master's degree in the mathematical sciences and be within the first four years of full-time teaching at a college, university, or community college in the PNW. For more information, visit <http://www.math.umt.edu/pnwnext/> or contact Jenny McNulty at [McNulty@mso.umt.edu](mailto:McNulty@mso.umt.edu).

*3. How often do we meet?*

Participants in the national program meet at two consecutive MathFests and at the intervening Joint Meetings of the AMS and MAA. Participants in the section NExT meet at two consecutive PNW MAA meetings.

*4. When can I apply?*

This year's deadline for the national program is April 15. (The section deadline was March 1.) For more information, please visit the websites listed above.



## Upcoming Events and Conferences

### Upcoming Meetings and Events:

2015 KRYPTOS (see p. 5)  
2015 NUMS (see p. 2)  
2015 PNWMAA in Tacoma, Washington  
2016 PNW MAA in Corvallis, OR  
2017 PNW MAA at Gonzaga  
2018 PNW MAA at Seattle University  
<http://sections.maa.org/pnw/events/>(section)  
[http://www.maa.org/subpage\\_4.html](http://www.maa.org/subpage_4.html) (national)

### Tacoma meeting website:

<http://www.tacoma.uw.edu/maa-nums>

## Events at Tacoma PNW MAA meeting at University of Washington, Tacoma

### Friday, April 10

- Section NExT activities
- Minicourses
- Student activity (with pizza!)
- Francis Su: My Favorite Math Fun Facts, 8-9 PM

### Saturday, April 11

- Invited and contributed talks
- MAA Birthday Celebration!
- Banquet
- Gwen Fisher: Mathematical Bead Weaving

See the Meeting website for more details: <http://www.tacoma.uw.edu/maa-nums>.

## Editor's Greetings/Sign-Off

After eight years as the PNW MAA newsletter editor, I am sending out my last issue. It has been both interesting and rewarding to learn about my colleagues around the section, many of whom I would likely never have met if not for this position. I encourage anyone interested in taking over to contact our current chair, Brian Blitz [brian.blitz@uas.alaska.edu](mailto:brian.blitz@uas.alaska.edu), and let him know.

Many thanks for all of the news and articles you have submitted in the last eight years!

Colin Starr, [cstarr@willamette.edu](mailto:cstarr@willamette.edu)

## SECTION NEWS

### British Columbia

**Leo Neufeld**, a mathematics instructor-department head, retired from **Camosun College** in Victoria, BC in 1998. He continued his work in the mathematics/mathematics education community and is still involved in the local mathematics competitions scene. He has been a member of the MAA for over 40 years. In celebration of its 25<sup>th</sup> Anniversary, the BC Council on Admissions and Transfer (BCCAT) launched a recognition program, and Leo was the first recipient of the “The Franklin Gelen Lifetime Achievement Award.” Dr.

**Frank Gelin** was the first Co-Chair and Executive Director of BCCAT and guided it tirelessly through its challenging first years.



**Ben Adcock** joined **Simon Fraser University's** Department of Mathematics in August 2014. Born in England, he studied mathematics at the University of Cambridge, receiving his BA in 2005, his

MMath in 2006, and his PhD in 2011. He held NSERC and PIMS postdoctoral fellowships at Simon Fraser University from 2010-12, and was an assistant professor in the Department of Mathematics at Purdue University from 2012-14. His research interests include applied and computational harmonic analysis, numerical analysis, sampling theory, compressed sensing and approximation theory.

**Nathan Ilten** completed his PhD at the Freie Universität, Berlin. He worked as a postdoctoral fellow at the Max Planck Institute in Bonn and the



Nathan Ilten

University of California, Berkeley before joining the faculty of Simon Fraser University. His research field is algebraic geometry, with a particular focus on computational aspects and connections to combinatorics. Favorite topics include toric geometry, Fano varieties, and deformation theory.

The **University of Lethbridge** has created a new major in applied statistics. The program has three areas of concentration: economics, geography, and psychology. For more information, visit <http://www.uleth.ca/artsci/math-computer-science>.

The University of Lethbridge has also established a new family of math scholarships funded by part of an estate. It will fund five \$1,000 scholarships (four for undergraduate students and one for a graduate student). 2015 marks the first year they will be offering these scholarships.

The University of Lethbridge also has an ongoing weekly event for Junior and High school students called “Fun With Math.”

### Idaho

The Mathematics Department at the **University of Idaho** is excited to announce a new undergraduate degree option in Mathematical Biology. More information about this new degree option is available at <http://www.uidaho.edu/sci/math/academics/undergraduate/math-degrees>. The Department also has a new Department Chair, Dr. **Chris Williams**, following the retirement of long-time Chair, Dr. **Monte Boisen**. In hiring news, Dr. **Chris Remien** has joined the department in the area of Math Biol-

ogy, working with The Institute for Bioinformatics and Evolutionary Studies (IBEST) and our mathematical biology team. You can read more about Dr. Remien’s work on his university website <http://www.uidaho.edu/sci/math/faculty/chris-remien>.

### Oregon

**Sherry Ettlich** of **Southern Oregon University** was recently appointed to direct the SOU STEM division, which includes the natural sciences, math, and computer science. **Jim Hatton** is currently serving as department chair.

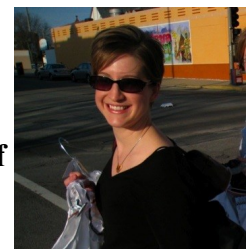
**Albert Kim** of **Reed College** accepted a job at Middlebury College. Reed hired a statistician, **Andrew Bray**, who will join the department in the fall of 2015.

Mathematics majors at Reed can now have a concentration in Computer Science or a concentration in Statistics.

In addition to the regular Thursday colloquia, the students **Maddie Brandt** and **Joseph Rennie** are now organizing a student colloquium that will meet on Tuesdays. The first speaker is **Riley Thornton '16**.

**Kyle Ormsby** and **Angélica Osorno** are organizing a conference on equivariant and motivic homotopy theory at Reed College. The conference will take place on May 30-31, 2015. For more information, visit <http://people.reed.edu/~ormsbyk/eqmotconf2015/>

**Hannah Callender** and **Valerie Peterson** of **University of Portland** earned Tenure and Promotion to Associate Professor. We’re



Valerie Peterson

thrilled that they'll be with us forever!



## Washington

CWU senior lecturer **Dale Width** is retiring at the end of this year after 28 years of service to the department. Dale began teaching part-time in 1987 and then he moved to full-time teaching in 1994. Mr. Width has a Bachelor's degree from WSU and a Master's degree from CWU. Dale plans, at least for the short term, to remain in Ellensburg, do some traveling, visit children and grandchildren. The CWU Math Department would like to thank Dale for his many years of excellent teaching and wishes him well in retirement.



Dale Width



Hannah Callender

ty will receive a 2015 Alder Award from the MAA at MathFest this summer. Congratulations, Allison! Read more at the Seattle University website [here](#).

**Mohammed K A Kaabar** is a **Washington State University** Ph.D. student in Applied Mathematics, originally from the Gaza Strip, who graduated with a B.S. in Mathematics from WSU in December, 2014. He has recently published two books in mathematics: *A First Course in Linear Algebra: Study Guide for the Undergraduate Linear Algebra Course* and *A Friendly Introduction to Differential Equations*.

**Thomas Gazzola** was on the winning 40-member team of solvers who successfully deciphered the 2015 MIT Mystery Hunt, an annual puzzle competition held in Boston during the Martin Luther King Junior weekend.

The Mystery Hunt, created by an MIT graduate student in 1981, is widely regarded as one of the world's oldest and most complex "puzzlehunts." The event draws about 1,000 people each year and has inspired similar competitions at universities, companies and in cities around the globe.

"There were about 180 puzzles in this year's hunt," said Gazzola, director of the WSU Vancouver math resource lab. "My crew managed to get through them all in just under 41 hours."

The puzzles range from cross-words, anagrams, cryptograms, number puzzles, multimedia puzzles, physical challenges, mystery trails, scavenger hunts, inter-team games to anything else organizers can come up with.

"One standard feature of the puzzles is that they almost never come with instructions," said Gazzola. "The first challenge is to figure out what to do with what you are given."

Gazzola, who writes and solves puzzles for the wider puzzling world, said everything he does is also tied into his teaching.

"I tend to treat everything as a puzzle. Looking at different ways to approach tasks is an extremely useful tool for a teacher to have."

**Mindy Morgan** of **Washington State University** has spent the last two summers working as a mathematics instructor for the Center for Talented Youth (CTY) of Johns Hopkins University at the program's site at Lafayette College in Pennsylvania. For six weeks she works with sixth through eighth graders who have been admitted to the program by achieving a high score on the math portion of the SAT or ACT. She puts together material for the students to work on, and much is drawn from college-level textbooks. She meets with them at least five hours per day, and is amazed at their energy. CTY programs are available in a variety of disciplines and areas. This gives Morgan a chance to meet young people who will shape the future: past attendees of CTY programs include Sergiy Brin (co-founder of Google), Mark Zuckerberg (founder of Facebook) and Lady Gaga.

Professor **Judi McDonald** joined with David Lay and Steven Lay as a co-author on the fifth edition of David Lay's text *Linear Algebra and its Applications*. This newest edition provides the opportunity and support for using technology throughout the course. McDonald is an active researcher in linear algebra and has won several awards for her teaching.

Visiting Assistant Professor **Noelle Conforti Preszler** of **Pacific Lutheran University** has accepted a tenure track position at James Madison University. Professor **Jeffrey Stuart** has just returned from a half year sabbatical, while Assistant Professor **Ksenija Simic-Muller** is still away on a full year sabbatical.

Assistant Professor **Thomas Edgar** has just recently learned that he has earned both tenure and promotion to Associate Professor, beginning in September.

CWU fielded three student teams in the Mathematical Contest in Modeling this year. Last but not least, our department also has three babies on the way!

**Allison Henrich** of **Seattle Universi-**



The Science and Mathematics division of the University of Washington, Tacoma has proposed a Bachelor of Science in Mathematics. Currently the proposal is under review but the math folks are very excited about the possibility of offering a mathematics major on campus!

The math club has been busy on campus publishing monthly problems, organizing mathematical outings, and had a booth at the student activities fair that won an award. Dr. **Ryan Card** ([mycard@uw.edu](mailto:mycard@uw.edu)) is a good contact if you are interested in more details about the math club.

UW Tacoma is also hosting this year's PNW MAA section meeting, of course!

*(Continued from page 2)*

At the last two Board of Governors meetings we discussed the issue of governance. The impetus for this discussion came from the idea that the BoG has become too large to function effectively. Should we continue to have Governors that are elected from a geographic area? In breakout sections the governors talked about such things as checks and balances, the role of the executive committee, and communication between the national MAA and the sections. This discussion will be ongoing; stay tuned for details.

Combined with the Centennial Celebration the MAA is running a Second Century Campaign. MAA seeks to support every area of faculty professional lives and provides unrivaled professional development opportunities, especially for new faculty. Particular target areas include Project NExT and the outreach programs under the American Mathematics Competitions. I encourage you to consider contributing to this campaign: [maa.org/donate](http://maa.org/donate).

My term as section Governor ends on June 30, 2015, so this is my last report. Serving as Governor has allowed me to get a more in-depth look at our mathematics organization and to appreciate the numerous important services that the MAA provides. I encourage you to become more involved with the MAA, whether it is at the section or national level, be it serving on committees or running for office; the MAA will be a better organization with the strong involvement of its members. Thank you for the opportunity to represent the Pacific Northwest.

Jenny McNulty  
University of Montana