



Mathematical Matters

The Newsletter of the Pacific Northwest Section of the MAA
Fall 2018

2019 PNW Sectional MAA Meeting University of Portland April 12–13, 2019

The University of Portland is proud to be hosting the upcoming spring meeting of the section. Friday's events will begin in the morning with the section's Project NExT Program. For the afternoon there are several minicourses as well as student activities being planned by our Math Club. The evening will be capped with a public lecture by Carlos Castillo-Chavez and reception. Saturday is a full day of contributed talks, three plenary talks by Carlos and our other invited speakers, Su Doree and Brian Katz. We look forward to hosting faculty and students and keeping up the run of great meetings.

We are happy to have last-year's Polya Awardee, Carlos Castillo-Chavez slated for two talks, and our MAA Visitor, Su Doree will also be giving an address. She and our other invited speaker, Brian Katz, will be providing two of the minicourses on Friday afternoon, and we are still open to having a third. If you have an idea for one, please contact the local arrangements chair, Hans Nordstrom (nordstro@up.edu).

We welcome proposals for special sessions as part of the contributed program; if you're interested in organizing one of these, contact Hans or the contributed program chair, Jakob Kotas, (kotas@up.edu). We've had strong student attendance and participation at past spring meetings and hope to keep up the tradition.



Portland, Oregon

Inside:		PNW Section NExT	3	Kryptos9	5	PiMUC	6
Selden Prize	2	DMEG	4	CURM	5	NUMS	7
Section NExT	2	DTA Nominations	4	Data Sci Conference	6	News and Notes	7

Hotel rate agreements are in place and the meeting website will go live with this and other useful information in November. Online registration should be up and running early in the new year. We hope to see you and your students next April!

The University of Portland is a thriving community of more than 4,000 students, who come from around the nation and the world, as well as over 1,000 faculty and staff. The University is located up on a bluff overlooking the Willamette River and the city of Portland. Since its inception in 1901, the University has been guided by the Congregation of Holy Cross, a Catholic order of priests and brothers. The founder of the order, Blessed Basil Moreau, CSC, said, "The mind will not be cultivated at the expense of the heart." The University of Portland is Oregon's only comprehensive university with schools of business, education, engineering, nursing, a College of Arts and Sciences, and a graduate school.

Future PNW MAA Section Meetings

2019 University of Portland
2020 University of Alaska Anchorage
2021 Western Washington University
(tentative)

Lockwood Wins Selden Prize

Congratulations to Dr. Elise Lockwood, who is the 2018 recipient of the Mathematical Association of America's Annie and John Selden Prize for Research in Undergraduate Mathematics Education. This prize is awarded biennially to honor a researcher who has established a significant record of published research in undergraduate mathematics education. The public announcement was made at the MAA MathFest in Denver, CO.

New PNW MAA Section NExT Director

Hello everybody :-) My name is Megan Buzby. I am the new Section NExT Director, taking over for Jenny McNulty after her many years of service. Thank you so much, Jenny!! I am an Associate Professor of Mathematics at the University of Alaska Southeast in Juneau, Alaska. I came to UAS in 2009 after I received my PhD from Colorado State University in Fort Collins. What I like about my job is that I get to teach a variety of topics in math and statistics, including beginning algebra through pre-Calculus and the Calculus sequence, elementary statistics, and upper division courses in mathematical modeling, probability, differential equations, linear algebra, and R. I also get the opportunity to present special topics in our junior/senior capstone course and mentor math majors in a research topic of their choice. We have a small math program, but I really appreciate my colleagues and the variety of teaching and research interests we all have. I recently served as the Faculty Senate President, which was a really good learning

experience while supporting faculty across campus and throughout the University of Alaska system. This position was a nice change of pace, it was challenging, eye-opening, and rewarding. I also love living in Juneau for all the outdoor opportunities we have and our small community - although it's always nice to "get outside" as well :-)

I'm really looking forward to supporting all of you currently in Section NExT and new faculty looking to be a part of this group. Please feel free to e-mail me if you have any questions or program ideas for our next NExT meeting. As a reminder, please use the NExT listserve as another great resource for "polling the audience" on a particular topic or question. Thank you and have a great year!!



PNW Section NExT

By Tien Chih

In 2014, I graduated from the University of Montana with my Ph.D., and at the time I was prepared to bid farewell to the mountains and the snow and the fall foliage of the Northwest as I prepared to take a tenure-track job in South Carolina. After 3 years of living in the Southeast, we decided the mountains and the Northwest was where we belonged. I accepted a tenure-track position at Montana State University-Billings where I applied to be a new PNW Section NExT fellow for 2018.

I attended a PNW Sectional meeting as a grad student, but it's a far different experience as a faculty member. The strongest initial impression I had was how small and intimate the gathering was. This was especially true for the NExT events held prior to the main meeting. We had the opportunity to gather in groups and discuss the teaching/research balance and different pedagogical classroom techniques. As a very junior faculty member, it was illuminating to hear more experienced academics speak about how they are able to conduct research with full teaching loads.

The section meeting provided further opportunities to draw on the expertise of my colleagues and other NExT fellows. I met with and got advice from Dr. Brandy Wiegiers of CWU. Dr. Wiegiers organizes a network of Pacific Northwest math outreach programs (POW!) and has advised me on how to run a successful Math Circle. I also had a long conversation with new NExT fellow Dr. Ramadha Piyadi Gamage about using statistical software in the classroom and the challenges of teaching Stats in the modern era.

My experience at the PNW sectional meeting and the interactions I've had with the other NExT fellows give me comfort that I will have a network of like-minded and sympathetic individuals to rely upon as I juggle all of the responsibilities of my position.

By Ramadha Piyadi Gamage

I am an Assistant Professor in Statistics at the Mathematics Department at Western Washington University. Last year, one of my colleagues (Dr. David Hartenstine) forwarded me a link about Projec NExT Fellow program suggesting it would be a good one to attend if I'm interested. It was my first year, so I wanted to use all the resources I could to learn the opportunities and challenges in my job. I had no clue what it was about other than the fact that it's a professional development and networking platform for faculty in the Northwest area. When I attended the meetings, I found it to be much more than what I assumed. I learnt and observed a lot from it since it was my first meeting/workshop as a faculty member.

There was a discussion about how the departments (in general) hire new faculty. It was highlighted that having a good cover letter was as important as the other documents. The session about the active learning was useful which gave insight about a few interactive learning strategies to be used in class. I actually used a few of them and found them to be very effective. Even the students liked those methods so I will be using it again in my teaching. I also participated in a mini course about group collaboration. It had good ideas for me as a teacher to be used in class and also for me as a collaborator.

In summary, I would say that it was helpful for me as a new faculty where there were discussions about all the roles of faculty; teacher, mentor, educator, researcher and collaborator. I thought it was a good starting point for me to get a glimpse of what it is a faculty does and what are the expectations in general. I look forward to attend the meeting next year and hopefully organize a session that is going to be useful to other new faculty as well.

Are you a new faculty member? Do you have a colleague who is new to the profession?

If you are a new mathematics faculty member with an interest in teaching, please consider applying to be a PNW Section NExT Fellow. NExT workshops are held in conjunction with the MAA sectional meeting each year. Fellows are provided funding for lodging and registration for the first meeting with the expectation that they contribute to the program the following year. In addition, PNW Fellows and Consultants will be linked together by an

electronic network to continue discussions.

For more information and application details, please visit the PNW NExT website at <http://sections.maa.org/pnw/next/apply.html> or contact Megan Buzby at mbuzby1@alaska.edu.

The deadline for applications is February 15, 2019

News from the MAA Section Rep

By Christopher Hallstrom

Greetings from your friendly neighborhood MAA Section Representative! This past summer, I had the pleasure of seeing many of you at MathFest in Denver. And while it was great fun to catch up with colleagues, sit in on many fascinating talks, and peruse the exhibit hall, the biggest highlight for me was representing the Pacific Northwest Section at the MAA Congress. As you may know, the Congress meets yearly at MathFest to facilitate communication between the Board of Directors, the various Sections, and other constituencies. Among other activities, we heard updates on the wide range of programs in which the MAA is involved; we shared questions and concerns with President Deanna

Haunsperger; we brainstormed ideas on ways to increase diversity and foster inclusion. For more details of this year's Congress, please check out the fantastic summary in the most recent FOCUS penned by Melissa Erdmann and the Pacific Northwest's very own Jenny Quinn.

As we often say, the MAA is member-driven: the passion and energy that make the organization's programs and meetings successful comes from you. As your Congress Representative, I look forward to hearing your questions, concerns, and ideas for strengthening the MAA. Please contact me via email (hallstro@up.edu) or look for me at the Section meeting next Spring at the University of Portland!

Distinguished Teaching Award Nominations

Nominations are now open for The Distinguished Teaching Award for the Pacific Northwest Section of the MAA. Preliminary nominations are due by Nov. 1. Please note that seven years of teaching a mathematical science is required for eligibility. Submissions should be sent to mafitch@alaska.edu.

For the first round of selection for the PNW Section Distinguished Teaching Award, we require only that you complete the first page of the nomination form and provide a narrative. No recommendation letters are required for the

first level of selection.

The DTA committee will select two or three semifinalists. The nominators of the semifinalists will then be asked to complete a full nomination packet, including letters of recommendation, by Jan. 1, 2019.

Winners of the section award are automatically nominated for the national MAA Deborah & Franklin Tepper Haimo award. Any questions about the process? Contact Mark Fitch, Section Secretary.

ΚΡΥΠΤΟΣ

A Series of Cryptanalysis

W J D P P V O I V F
C H A L L E N G E S

KRYPTOS: A Series of Cryptanalysis Challenges

April 4 - 8, 2019

KRYPTOS 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 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 last year's contest.
- 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 had over 140 students participate last year and many have been clamoring for more! Please announce this contest to your students! Cool prizes are sent out to first and second place winners!

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

Apply for a CURM grant

You are invited to apply for CURM minigrants for AY 19-20 to fund academic year undergraduate research groups in mathematics. Applicants should apply in pairs, with two research groups from two separate institutions, each led by a faculty member. Successful applicants will receive funding and training for mentoring undergraduates in mathematical research. We encourage faculty at community colleges to apply.

Contact Kathryn Leonard,
kleonardci@gmail.com, with any questions.

The deadline is November 15th this year. Please see the website at curm.urmath.org for more information.

Data Science and Image Analysis Conference of the Pacific Northwest

April 27–28 2019: Eastern Washington University, Cheney, WA
[Conference Website](#)

Eastern Washington University, Washington State University, and Gonzaga University, in cooperation with SIAM, AWM, and IEEE, will co-host the Data Science and Image Analysis Conference of the Pacific Northwest April 27–28, 2019, at EWU.

The first day will have professionals from industry, government, and academia in the fields of data science and image analysis come together, along with students and post-doctoral researchers, to collaborate on open problems through short talks, in-depth group discussions, and breakout sessions. The second day will consist of professional development activities for students and junior researchers, and will feature presentations from members of this group, with direct feedback provided from professionals.

Workshops will be offered as a practical and theoretical introduction to these disciplines, and panel discussions will provide timely career advice. Organizations from across the Pacific Northwest will be on-site to speak with students interested in pursuing careers in data science and image analysis. There will be a plenary talk shared with an IEEE event and approximately 30 invited talks on open problems, with a breakout session for each. Possible topics include topological data analysis, bioinformatics, learning from remote sensing data, financial & economic prediction, image segmentation and filtering in biomedical imaging, hyperspectral imaging, pattern recognition, shape analysis, image reconstruction, and more.

Registration will be \$50; free for all students.

Contact Laramie Paxton,
laramie.paxton@wsu.edu
for more information.



Pacific Inland Mathematics Undergraduate Conference

[Looking for a Spring Term opportunity to present your research?](#)

Undergraduates at Universities and College throughout the Pacific Inland Northwest are invited to participate in the second year of the annual Pacific Inland Mathematics Undergraduate Conference (PIMUC). Talks and posters accepted. Registration is FREE.

[Save the date: Saturday – March 30, 2019](#)

Location: Gonzaga University

Website: <https://sites.google.com/view/pimuc>

Dolciani Mathematics Enrichment Grant Accepting Proposals!

Dolciani Mathematics Enrichment Grants provide funding for projects designed to develop mathematical enrichment programs for talented students in middle school or high school. The goal of the program is to interest students who are ready for more challenge in the study of mathematics and encourage them to further their mathematical studies.

Projects should provide enrichment and extension activities for students which lead to heightened interest in and appreciation of mathematics. The projects should encourage students to continue studies of mathematics in high school and college and should better prepare them for those studies. Projects are

designed to provide active enrichment activities, beyond classroom coursework, for students who show promise or interest in mathematics and are not intended for remedial help for students who need assistance in order to succeed in their coursework in mathematics. Projects must be open to all talented students in the applicant pool. Undergraduate and graduate students may provide role models and work directly with students under the tutelage of faculty from both the college or university and middle or high school.

Full announcement can be found at this [MAA link](#).

NUMS

Please join us for the Northwest Undergraduate Mathematics Symposium (NUMS) at Willamette University on Saturday, November 3. Our keynote speaker is Dr. Jenny Quinn, who will talk about "Solving Mathematical Mysteries," followed by undergraduate talks throughout the day. As always, lunch will be provided, and lunch and registration are both free. Also, there will be games at the end of the day for anyone who cares to play!

Although the deadline for registering to give a

talk has passed, there is still time to register to attend. On-site registrants are welcome, too, but online registrations help us get lunch right!

See the NUMS website for registration and other information:

<http://www.willamette.edu/cla/math/nums/index.html>

See you there!

--Josh Laison and Colin Starr, organizers

News and Notes from the PNW MAA section

British Columbia

Simon Fraser University

SFU Mathematics is delighted to welcome Caroline Colijn and Amarpreet Rattan. Dr. Colijn, arriving from London's Imperial College, is a prestigious Canada 150 Research Chair in 2018 in Mathematics for Infection, Evolution and Public Health. The Canada 150 Research Chair program, created in celebration of the country's 150th anniversary, is providing Canadian institutions with a one-time investment to attract top-tier, internationally-based scholars and researchers to Canada. The SFU chair is so far one of about 25 such chairs awarded in Canada across all scientific disciplines. Dr. Colijn will receive funding support of \$350,000 per year over seven years. Dr. Colijn's research focuses on connections between mathematics, evolution and public health, using diverse data to understand how pathogens adapt and spread. She will build a team of postdoctoral researchers, and PhD and MSc students to pursue this broad research program.



Dr. Colijn

Dr. Rattan arrives from Birkbeck, University of London. His research specialty is in algebraic and combinatorial enumeration, and he enhances SFU's strong research group in discrete mathematics. Dr. Rattan's Ph.D. is from the University of Waterloo, and prior to arriving at Birkbeck he held postdoctoral positions at MIT and the Heilbronn Institute at



Dr. Rattan

the University of Bristol.

Montana

The University of Montana

The University of Montana has announced the establishment of the endowed Gloria M. Hewitt Graduate Scholarship in Mathematics. The scholarship will support students in master's and doctoral programs in mathematics with a preference for students from underrepresented groups. Dr. Hewitt taught at the University of Montana for 38 years and was one of the first African American women to earn a Ph.D. in mathematics. More information can be found at this [link](#).

Washington

Bonnie Dichone (Gonzaga) and David Wollkind (WSU) co-authored a book titled, Comprehensive Applied Mathematical Modeling in the Natural and Engineering Sciences. It was published by Springer earlier this year. Information about the textbook can be found at this springer.com [link](#).

Central Washington University

Emily and Brent Hancock have recently joined the Mathematics faculty at CWU. Emily and Brent both received their Ph.Ds from the University of Northern Colorado in Mathematics Education. Emily, also a new Project NExT Fellow, has research interests in the teaching and learning of mathematical problem-solving habits of mind, examining classroom interactions and norm development, and designing classroom communities utilizing student-centered pedagogical practices. Brent's research areas include collective argumentation and embodied cognition in K-16 mathematics education.

Jean Marie Linhart and Janet Shiver were both

awarded tenure last spring and began the academic year as Associate Professors. Congratulations!

University of Washington

Branko Grünbaum, emeritus faculty member, died in mid-September. More information can be found at this [link](#).

This past summer, Bobby Wilson joined the department as a tenure-track assistant professor. Bobby, who works in geometric measure theory, partial differential equations, and harmonic analysis, received his B.S. from Morehouse College in 2010 and his Ph.D. under Wilhelm Schlag and Marianna Csörnyei at the University of Chicago in 2015. He was a C.L.E. Moore Instructor at MIT from 2015 to 2018 as well as a postdoctoral fellow at the Mathematical Sciences Research Institute in Berkeley during semester-long programs in partial differential equations (2015) and harmonic analysis (2017).

Bobby's research interests are close to those of Professor Tatiana Toro, who looks forward to working with him. His arrival is all the more exciting because of the expertise he brings to the department in previously unrepresented areas of active research such as dispersive PDEs. This will benefit colleagues and students alike.

In addition to research and teaching, Bobby has been actively engaged in outreach activities. For example, he has given talks at MIT to high school students from underrepresented backgrounds and at West Point to undergraduates as part of the Minorities in Mathematics Speaker Series. He also regularly meets with Morehouse and Spelman College students to discuss research and graduate education.

Gonzaga

Eric Hogle joins the faculty of Gonzaga University in the fall term 2018. Eric completed his Ph.D. at the University of Oregon with a dissertation concerning equivariant topology, the study of topological spaces (in particular,

the Grassmannian manifold) equipped a group action. Eric is interested in Eilenberg MacLane spaces in the equivariant setting, rock climbing, and re-learning how to garden in the Eastern Washington climate.



Dr. Hogle

Joseph Stover received his BS in Mathematics from UT Austin in 2001 and PhD in Applied Mathematics in 2008 from UA Tucson. His research is primarily focused in theoretical ecology and involves the use of both stochastic and deterministic models to study how individual variability impacts population dynamics. His broader research interests lie in probability theory, stochastic processes, and exact sampling. He aims to help students see mathematics from a more intuitive and exploratory perspective and not just as a set of rules for solving equations. In his free time, he enjoys outdoor activities such as hiking.



Dr. Stover