November 2011

Matters Mathematical

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

PORTLAND MEETING
April 20-21, 2012

April 2011 PNW MAA Meeting at University of Portland

By Hans Nordstrom

The annual PNW MAA meeting will be held on April 20th and 21st, 2012. The University of Portland, located in north Portland (the city's ``fifth quadrant'') is proud to host this meeting. The invited speakers are Frank Morgan of Williams College, Bob Bosch of Oberlin College, and Stan Yoshinobu of Cal-Poly SLO.

Frank Morgan is the Atwell Professor of Mathematics at Williams College. His primary interests are in minimal surfaces and he recently finished a trip though Asia including 41 talks. Bob Bosch is the Robert and Eleanor Biggs Professor of Natural Science at Oberlin College. He is well known in the field of Operations Research and his current work in the relationship between linear programming, game theory, and art has been widely acclaimed and recently featured in *Math Horizons*. Stan Yoshinobu is currently the Director of The Academy of Inquiry-Based Learning; his interests include improving instruction in K-12 and college-level math courses, training in-service and pre-service teachers, and developing inquiry-based curricula.

Expect to see announcements for session proposals for the contributed paper sessions in your inbox soon. If you already have an idea for a session you'd like to organize, contact the contributed program chair, Chad Giusti (cgiusti@willamette.edu).

Information pertaining to the meeting including mini-courses, the invited, program, *online* registration, paper submission, travel and hotel accommodations will soon be available on the official meeting website: http://college.up.edu/math/PNWMAA

Contents

Project NExT at the Juneau Meeting

By Mark Fitch

If one wishes to find a cloud to the silver lining of the Project NExT sessions at the 2011 PNW MAA section meeting, it would be the need to stay inside during the exceptional weather in yet another beautiful location. Sessions this year included computational courses, mathematics in the curriculum, inquiry based learning (IBL), and recruitment of mathematics majors.

Participants enjoyed discussing how best to teach math majors the programming skills used in mathematics classes. Many departments require math majors to take a programming course from the computer science department. Discussion centered on the need to refocus the programming training to serve mathematics needs and methods for implementation.

The next presentation covered the use of applications from other departments in mathematics classes. This solves the problem of unrealistic applications like finding the optimal shape for farmer Bob's Komodo dragon pen. Experiences shared provided anecdotal evidence that the departments served can be very grateful. However, difficulties exist such as obtaining the problems and finding a sufficient set to cover all topics in a course.

The panel-led discussion of IBL techniques demonstrated the depth of experience the section has with these methods. Participants shared tips on selecting the courses best fitted to the method, adjusting techniques for various audiences, and developing a first IBL course.

The final session on recruiting math majors centered on the techniques of the Alaska Native Science and Engineering Program (ANSEP) at the University of Alaska Anchorage. A graduate of the program and current recruiter for it described their outreach to high school students, which encourages students to prepare for college degrees in STEM programs.

As always there were more questions and ideas than could be squeezed into the time slots, so discussions continued during the meals. For Thursday's dinner this allowed discussion of mathematics to be combined with enjoying an open pit fire and wonderful views.

To learn more about Project NExT, visit http://www.math.umt.edu/pnwnext/.

NUMS Conference March 10

Call for Undergraduate Presentations

Announcing the 4th annual Northwest Undergraduate Mathematics Symposium at Lewis & Clark College in Portland to be held on Saturday, March 10, 2012.

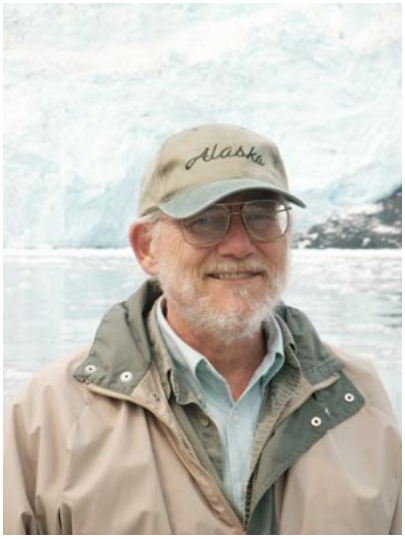
The LC Math Club and the Pi Mu Epsilon Oregon Eta Chapter invite all mathematics students in the Pacific Northwest to present their work at NUMS this spring. First-year graduate students are welcome to present research completed while still undergraduates. Talks may be 15 or 20 minutes. Prizes in various categories will be awarded (including longest distance traveled to attend!).

This year we are pleased to announce that a keynote address will be given by Professor Jessica Sklar of Pacific Lutheran University. Free lunch will be provided and there is no registration fee.

Registration for participants and speakers begins February 1 and continues until March 2.

For more information and to register online, please visit http://go.lclark.edu/nums

Congratulations to Dale Hoffman - winner of the Pacific Northwest MAA 2011 Award for Distinguished College or University Teaching of Mathematics.



Dale Hoffman

The 2011 PNW MAA Distinguished Teaching Award goes to **Dale Hoffman**, who has taught at Bellevue Community College (BCC) since 1983 and has an outstanding resumé as a mathematician, educator and professional.

Dale's students commented on his ability to teach with enthusiasm, clarity and compassion. They also commented on his willingness and ability to go the extra mile – from using computer graphics to building physical models to providing hours of extra help outside the classroom. Perhaps most telling, several of Dale's student have become mathematics teachers and they noted how much Dale's teaching and personality influenced their own teaching and professional lives.

Dale's colleagues commented that he expects deep engagement from his students and gets it! Because of his commitment and talent as a teacher, Dale's students perform at a high level in mathematics classes at BCC and in mathematics classes after BCC as well. This, coupled with Dale's phenomenal success teaching advanced mathematics courses for the College in the High School program in the Bellevue school district, is strong testament to Dale's teaching skills. A long-time veteran in Dale's department summed it up quite well by commenting, "Dale is simply the best mathematics teacher I know."

On the professional side Dale has succeeded as a writer, speaker, organizer and reviewer. Highlights of his professional activities include

- Author of *Contemporary Calculus*. This text, with its emphasis on the concepts and insights of calculus, is now available as part of the Gates-funded Open Course Library.
- Author of articles in *The Physics Teacher*, *The Mathematics Teacher* and the *SIAM Journal of Applied Mathematics*
- Author of *The Use of Random Digits to Simulate Experiments* (UMAP module #69)
- Author or co-author of several commercial software packages
- Editor for the *College Math Journal*
- Speaker at numerous regional and national conferences.
- National Science Foundation reviewer for calculus reform project grants
- Reviewer and workshop leader for the *For All Practical Purposes* project
- Co-founder and organizer of the popular Western Washington Community College Student Math Conference
- Co-founder and benefactor of two prestigious student mathematics awards at BCC
- Winner of the University of Washington College of Computer Science and Engineering Inspirational Teacher Award
- Winner of the 2010 Margin of Excellence Award – BCC's highest faculty award.

Those who know Dale recognize that this list is just a small part of his contribution to mathematics and mathematics teaching.

Congratulations, Dale, on winning the 2011 Distinguished Teaching Award. The award is well deserved!

Nominations Sought for PNW MAA Distinguished Teaching Award

By Chris Black, PNW MAA Secretary/Treasurer

Each year, every section of the MAA is invited to select a college or university teacher to be honored with a Section Award for Distinguished College or University Teaching of Mathematics. Recipients of the section awards then become nominees for the Mathematical Association of America's Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics. To be eligible, nominees must be current MAA members who teach mathematical science courses at least half-time during the academic year and have at least seven years experience teaching at the college or university level.

Recent recipients of the Pacific Northwest Section Award for Distinguished College or University Teaching of Mathematics are

2011: Dale Hoffman, Bellevue College
2010: Nancy Neudauer, Pacific University
2009: Tom Dick, University of Oregon
2007: Duane DeTemple, Washington State University
2006: Jim Morrow, University of Washington (won the Haimo award in 2008)

A more complete list of award winners is available at http://sections.maa.org/pnw/history/awards/index.php.

Here's what you need to do to nominate a colleague for the Distinguished Teaching Award for the Pacific Northwest Section:

(0) Check the section website at http://sections.maa.org/pnw/ for the nomination form, check with your department's MAA liaison, or check your email for an upcoming message from the PNW Section of the MAA with the nomination form attached.

(1) Nominate your colleague by completing the nomination form and including a brief (1-2 page) description of why this colleague deserves recognition. Initial nominations are due December 9th.

(2) The DTA committee will select up to three semifinalists. The nominators of the semifinalists will then be asked to complete a full nomination packet by January 27th, 2012.

Any questions about the process? Contact Chris Black, section secretary, at blackc@cwu.edu.

Editor's Greetings

Many thanks to all contributors; the newsletter would be empty without those who submit news and the ongoing assistance of our section officers.

A hearty welcome to all of the new faculty in our region! I look forward to meeting you at UP.

Colin Starr, Editor
cstarr@willamette.edu

Upcoming Events and Conferences

Upcoming Meetings:

2012 PNW MAA at UP (Portland)
2012 NUMS at Lewis & Clark (see p. 2)

http://sections.maa.org/pnw/events/ (section)
http://www.maa.org/subpage_4.html (national)

SECTION NEWS

Alaska


Bilal Gonen

Dr. **Bilal Gonen** at **University of Alaska Anchorage** began working as an Assistant Professor of Computer Science in the Mathematical Sciences Department at UAA in August 2011. He received a B.Sc. in Turkey. He moved to Atlanta in 2002, and received his masters degree from the University of Georgia in 2006. He obtained his PhD in Computer Science at the University of Nevada, Reno in 2011. His research areas are computer networks, complex networks, and bioinformatics.

Dr. **Sam Cook** joined the faculty of the Mathematical Sciences Department in the fall of 2010 as a Visiting Assistant Professor of Mathematics. In August 2011, he was hired as an Assistant Professor of Mathematics. Sam Cook received his PhD in 2009 from Oregon State University. His research is in differential geometry and mathematical physics. He grew up in Anchorage, and is thrilled to be back.


Kenrick Mock

The National Science Foundation awarded a Major Research Instrumentation grant to two University of Alaska Anchorage (UAA) professors. Dr. **Kenrick Mock**, Department of Mathematical Sciences, and Dr. **Bogdan Hoanca**, Department of Computer Information Systems, were awarded $126,000 to purchase eye tracking equipment to further support their research that has led to a patent on a new method allowing users to authenticate on computers utilizing an eye tracker that uses gaze and iris data to identify a user.

British Columbia

Brenda Fine became a permanent faculty member at **BCIT** in 2011. She has a Masters in pure math from UBC, and teaches math and statistics for computer graphics, electronics, mechanical engineering and robotics.

Mark Jackson has a 50% leave to do work on developing a modular approach to teaching basic technical mathematics in an on-line format. His goal is creating a flexible structure to tailor the course to the different technologies as required.

David Holloway presented papers at the International Conference on Noise and Fluctuations, Toronto, June 2011 and Evolutionary Computation Theory and Applications, Paris, October 2011, and contributed to and completed *The Shaping of Life* by L.G. Harrison, Cambridge University Press, 2011.


David Holloway

Programs: The Building Better Math (http://www.bcit.ca/bettermath/) database of real-world applications tied to high school math now has about 65 problems coded. The database uses MapleTA to generate and grade individual assignments based on a range of applications from health, engineering and technology. We plan to begin piloting use of the database in several high schools in 2012 (by which time we hope to have 200 problems coded). Our goal is to engage more high school students in math so that they take the pre-calculus stream needed for most post-secondary technical programs. Any feedback or suggestions for new problems (at the high school level) are very welcome (bettermath@bcit.ca).

Montana

Kelly Cline and **Holly Zullo** at **Carroll College** are excited to announce the availability of an MAA Notes volume they edited, Teaching Mathematics with Classroom Voting: With and Without Clickers. The book contains papers from faculty who share their experiences using classroom voting in a wide variety of mathematics courses. It's available in electronic and print versions from the MAA ebook store here: http://www.maa.org/ebooks/notes/NTE79.html


Holly Zullo


Kelly Cline


Tim Melvin

Mark Parker is now serving as Associate Dean while maintaining minimal teaching duties. We are very pleased to have hired **Tim Melvin** as Mark's replacement in the department. Tim comes to Carroll from Washington State University, where he has been working on his PhD.

Oregon

On March 1, 2011, **Lewis & Clark College** held its first annual induction ceremony for the national mathematics honor society Pi Mu

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Epsilon. The ceremony, held in the Pamplin Room of Watzek Library, honored 18 students and 5 faculty members as newly inducted and charter members of Pi Mu Epsilon.

Lewis & Clark College's petition for a chapter of Pi Mu Epsilon was approved in November 2010 when it became the 345th Chapter of Pi Mu Epsilon, the Oregon Eta Chapter.

Jens Mache

Dr. **Jens Mache**, Professor of Computer Science, has been awarded a grant by the National Science Foundation's TUES program (Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics) in support of his project on parallel programming. Dr. Mache will collaborate with Knox College in Illinois on this 3-year project, "Collaborative Research: Responding to Manycore: Teaching parallel computing with higher-level languages and activity-based laboratories." The grant will support development, assessment, and dissemination of curricular materials that introduce parallel programming using higher level programming languages at the undergraduate level. The project, which will involve undergraduates each summer, addresses the need to transform undergraduate education in computer science in response to a major shift in computer hardware to focus on the multicore processor and parallel programming.

In spring 2011, math/physics double major **Analise Rodenberg** '12 won a Goldwater fellowship, a prestigious grant toward tuition given to 275 sophomores and juniors in math, science and engineering nationwide. **Benjamin Hoffman** '13, a physics/philosophy double major, won an honorable mention for the 2011 Goldwater competition.

Lea F. Murphy, **Donald C. Solmon**, **Harold R. Parks**, and **Barbara S. Edwards** have all retired from **Oregon State University** in the last year or two.

Lea Murphy (OSU 1980-2010) received her Ph.D. from Carnegie Mellon University in 1980 and her B.A. from Temple University in 1976. Her research areas included biomathematics and population dynamics. She served as the department's head advisor for 16 years.

Don Solmon (OSU 1977-2011) received his Ph.D. degree from Oregon State University in 1974 and his B.S. degree from University of Massachusetts-Dartmouth in 1967. His research areas included image reconstruction and transform theory. He held visiting positions at Universita Degli Studi de Trieste and Universitat Munster.

Hal Parks (OSU 1977-2011) received his Ph.D. from Princeton University in 1974 and his A.B. degree from Dartmouth in 1971. His research areas included geometric measure theory and minimal hypersurfaces. He served as chair of the department from 2001-2004.

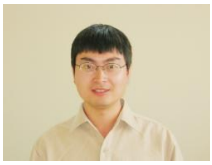
Barbara Edwards (OSU 1997-2011) received her Ph.D. degree from Penn State University in 1997 and her B.A. degree from University of Oregon in 1965. Her research area included advanced mathematical thinking in mathematics education. She served as the president of the MAA special interest group on research in undergraduate mathematics education from 2004-2006.

OSU also welcomes four new faculty members.

Elaine Cozzi

Elaine Cozzi earned her BA degree in Mathematics and Economics from the University of Virginia, and she was awarded a PhD in Mathematics in 2007 from the University of Texas at Austin. She has held positions as a Postdoctoral Associate in the Center for Nonlinear Analysis at Carnegie Mellon University and a visiting professor position in the Department of Mathematics at Drexel University. Her research interests are in mathematical fluid mechanics, partial differential equations, and harmonic analysis. She was recently awarded an NSF research grant to study applications of harmonic analysis to incompressible flow.

Clayton Petsche was awarded a PhD in Mathematics in 2003 from the University of Texas at Austin. He has also held positions in the Graduate Center of the City University of New York and in the Department of Mathematics and Statistics at Hunter College. His research interests are in number theory, arithmetic geometry, and algebraic dynamical systems. He has an NSF grant to study algebraic dynamics over global fields.



Ren Guo

Ren Guo earned his PhD degree in Mathematics in 2008 from Rutgers University. He most recently held a position

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as a Dunham Jackson Assistant Professor in the Department of Mathematics at the University of Minnesota. His research interests include hyperbolic geometry, Teichmüller space, discrete geometry, differential geometry, quantum topology and their applications in computer graphics and topological data analysis.

Radu Dascaliuc received his BS degree in Mathematics from the A.I. Cuza University in Romania and his PhD in Mathematics from Texas A & M in 2005, where he held a NSF funded VIGRE graduate fellowship. Since then he has held positions as a Zorn Fellow in Mathematics at Indiana University and more recently as a Whyburn Instructor of Mathematics at the University of Virginia. His research interests include partial differential equations, fluid dynamics, turbulence, and dynamical systems with a focus on the long-time behavior of nonlinear PDEs. He also has interests in three-dimensional magnetohydrodynamic turbulence and fluid-structure interaction systems applied in biomedical and engineering sciences.

Matt McQuesten

Before joining the Mathematics Department at the **University of Portland**, **Matthew McQuesten** worked in a variety of research related fields at several different institutions. At Long Beach City College, Matt served as a Research Analyst, compiling quarterly college-wide statistics, developing and administering surveys to assist with program review, and assisting in various data-driven decision making projects. After finishing graduate school at California State University, Long Beach, McQuesten moved to Portland, Oregon and began working as a Research Coordinator at the Portland VA Medical Center. In addition to his position at UP, McQuesten has also maintained an adjunct faculty appointment at **Portland State University**, teaching statistics in the Speech and Hearing Sciences department since 2009.

Stephanie Salomone was granted tenure and promotion to Associate Professor. She joined the UP faculty in 2005. Stephanie earned her BA in mathematics at the University of Michigan, her MA in mathematics at Boston College, and her PhD in 2005 at UCLA. Stephanie's research interests are in harmonic analysis, and she is interested in using inquiry-based learning in the classroom. Stephanie received the Outstanding Teaching Award from UP in 2009.

Stephanie Salomone

Meike Niederhausen

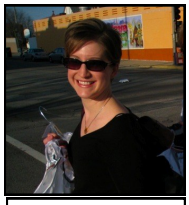
Meike Niederhausen received tenure and was promoted to Associate Professor. She did her undergraduate work at New College of Florida and her graduate work at Purdue University. She has been on the faculty at UP since Fall 2005.

Hans Erik Nordstrom is celebrating his recent tenure and promotion to Associate Professor at the University of Portland. Hans began his career at UP in the summer of 2005 and is happy to be tenured, thus solving one of the many two-body problems with his wife, **Jennifer Nordstrom** of Linfield College. While the commute is long, and has included hitchhiking over a snowbound Germantown Road, it has been greatly shortened by Hans's motorcycle on many, many occasions (weather permitting). In addition to teaching standing-ovation worthy sections of Vector Calculus which leave him covered in colored chalk dust and his students amused, and sometimes bemused, Hans directs the University's Math Resource Center. Having served as a Program Chair for the 2009 and 2010 meetings, He is currently Local Arrangements chair for the upcoming UP meeting in April. He looks forward to seeing you in the spring!

Hans Nordstrom

Hannah Callender

Hannah Callender and **Valerie Peterson** both received grants from the Academy for Inquiry-based Learning (AIBL) to develop IBL courses in Real Analysis and Topology. Both grants were funded by the Educational Advancement Foundation. Hannah was also awarded a travel grant from the Association of Women in Mathematics in the amount of $2000 to attend the Annual Meeting of the Society of Mathematical Biology, held jointly with the Annual Meeting of European Conference on Mathematical and Theoretical Biology.



Valerie Peterson

Kady Hossner '11 and Heather Johnston '12 of **Western Ore-**

gon University were WOU delegates to the Pi Mu Epsilon National Meeting at MathFest 2011. Kady won an "Outstanding Student Speaker" award for her talk "Cayley-Sudoku Tables and Loop Theory."

Breeann Flesch comes to WOU from Colorado as a new Assistant Professor. At the University of Colorado Denver she studied interval representations and symmetries of graphs, which she brought into local middle school classrooms under the NSF GK-12 project. Before studying at UCD, she was a K-12 math teacher and received a M.Ed. at Montana State University.

Matthew Nabity also comes to WOU from Colorado as a new Visiting Assistant Professor. While at the Center for Computational Mathematics at the University of Colorado Denver, he studied numerical linear algebra and worked on developing new algorithms for multicore architectures. His research interests also include numerical solutions to differential equations and mathematical modeling. From his early days teaching community college to his more recent participation in the NSF GK-12 project, Matthew has always had a passion for education and is excited to be a part of WOU.

Mathew Ciancetta comes to WOU from California State University, Chico as a new Assistant Professor. He obtained his graduate degrees at Portland State University, where he focused on Algebra and Topology for his MS in Mathematics. His research was related to the development of students' statistical reasoning for his PhD in Mathematics Education. He enjoys teaching both math education and mathematics courses and his current research interests are related to students' algebraic and statistical reasoning.

Washington

Jessica Sklar

At **Pacific Lutheran University**, **Jessica Sklar** was received the Carl B. Allendoerfer Award from the MAA. She received the honor, along with her co-author **Gene Abrams**, for the article "The Graph Menagerie: Abstract Algebra and the Mad Veterinarian," published in *Mathematics Magazine*.

Jeff Stuart gave a paper: "Special Families of Matrices -- A Talk in Honor of Miroslav Fiedler," an invited mini-symposium in honor of Miroslav Fiedler at the 17th International Linear Algebra Society Conference, Braunschweig, Germany.

Tom Edgar

Tom Edgar was awarded a Teaching and Learning with Technology grant from the PLU Provost's office to help implement the use of Sage in linear algebra by creating instructional videos and projects for students to do outside of class.

Ashlyn Munson

The Mathematics Department's **Mathlete Coaching Project**, which trains PLU students to coach 5-8 grade students for the Washington State Math Olympiad, organized a math day in September for approximately 80 5th grade students from a partner school. **Tom Edgar** and **Ashlyn Munson** held workshops for the students, and **Daniel Heath** and **Ksenija Simic-Muller** organized the event.

Daniel Heath

Ksenija Simic-Muller

Washington State University has several accomplishments and changes.

(a) Making Mathematical Reasoning Explicit: A $5 million research grant from the National Sciences Foundation will provide professional development for teachers in small school districts throughout eastern Washington and northern Idaho for the next five years. This is a joint effort with the University of Idaho, spearheaded by Mathematics Professor **Libby Knott**.

Libby Knott

(b) A new MS in Computational Finance is being established as a joint venture between Mathematics and the School of Business at WSU.
(c) The Department of Statistics will be merging into the Department of Mathematics during the 2011-12 academic year.

(d) Mathematics Professors **David Slavit** and **Libby Knott** are co-directing a STEM Education Partnership. This is a collaborative effort in STEM educational research and professional activity involving five different Colleges at four different WSU campuses.

David Slavit

(e) Our graduate program has grown to an all-time high of 48 students.