Math News

A publication of the Mathematics Department at the University of Idaho
2014-2015

Inside this issue

Letter from the chair

Greetings!

There is a lot of exciting news to share with you about things happening in Mathematics at the University of Idaho. From the Polya Mathematics Center, to the undergraduate and graduate programs, to faculty and staff news, there is much going on!

The first event to report is that the long-time Chair of the Department, Dr. Monte Boisen, retired in January 2015. Monte brought the Polya Center to Idaho in 2001, based on his pioneering work at Virginia Tech. The Polya Center has made an important impact on the university in helping students succeed in their Mathematics courses. Monte also shepherded the department through many difficult budget years, while further refining and supporting the research programs in the department. Although Monte has retired, he stays active in Math Department activities and visits us often.

Next, I suppose I should introduce myself! I am a Professor of Statistics and have been at UI since 1992. I was hired when the Mathematics and Statistics groups were in one department, and I fondly remember being recruited by Clancy Potratz (former Mathematics Department Chair) and him being my first Department Chair here. I have been serving as Interim Chair of the Department since Monte's retirement. I am also the Chair of the Statistics department, and I look forward to finding ways for the two departments to work together.

Several members of the department have key roles in a new $10.6 million NIH grant with Dr. Holly Wichman of the Biological Sciences department as Principal Investigator. Dr.'s Steve Krone, Craig Miller, and Chris Remien, all play important roles in this project. This award has created a new center, the Center for Modeling Complex Interactions (CMCI), which will facilitate interdisciplinary research across the UI campus.

This year we graduated 39 students with a Bachelor's degree, 4 with an M.A.T. degree, 3 with an M.S. degree, and 2 with Ph.D degrees.

One last thing I want to bring to your attention is our department LinkedIn group. We already have about 60 members in the group, which includes alumni, faculty, staff, and friends. If you are not already a LinkedIn member, it is free to join. Once you are a LinkedIn member, you can click the LinkedIn icon on our department homepage to request to join the group. We have long-time alumni and friends as well as recent graduates in the group. It is a great way to reconnect with old friends and to network. I hope to see you on the group!

- Chris Williams

Department Events

The Math Department holds several fun events each academic year. Events for 2015-2016 include:

Math Department Picnic,
Thursday, September 10, 2015

Pi Day Celebration
Thursday, March 10, 2016

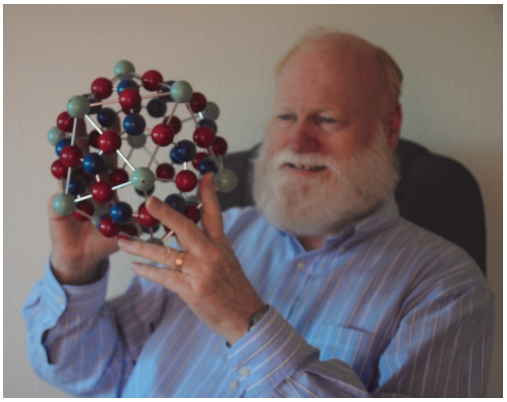
Math Graduation Reception and Awards Banquet
Friday, May 13, 2016

For more details about these events, please contact the Math Department:

math@uidaho.edu

Faculty Retirement: Monte Boisen

Article prepared by Steve Krone



On January 31, 2015 Monte Boisen retired, marking the end of an era for the Mathematics Department at the University of Idaho. Monte, chair of the Department of Mathematics from 2001 to 2015, began his retirement with a long, well-earned trip through California with his wife, Helen.

Monte came to the University of Idaho in 2001 after a distinguished career at Virginia Tech, to assume the role as chair. He was the first member of the Mathematics Department to be hired as chair through a nationwide search. At Virginia Tech, Monte was one of the founders of the Math Emporium, a novel approach for student learning in remedial math courses that uses technology to provide a mathematics learning environment that adapts to various learning styles. Our own Polya Center, begun when Jim Calvert was chair, was modeled after the Math Emporium and thrived under Monte's guidance.

During Monte's tenure the Mathematics Department broadened its focus, became a model for interdisciplinary research and education, extensively increased extramural funding and became a leader in developing mathematics education policy throughout the State of Idaho. He led by example. As an award winning teacher with a passion for student success, he inspired his faculty to improve teaching performance; he fostered research opportunities for undergraduates and was a distinguished leader whose counsel was sought throughout the university. Among his many initiatives, Monte launched the Idaho Alpha Chapter of Pi Mu Epsilon, the National Mathematics Honor Society.

Monte's leadership style involved large doses of encouragement and praise, usually accompanied by a smile (or a wry grin). His students loved his positive and accessible nature, and small children often thought they were seeing Santa Claus in person. Among the faculty and students, he embraced the beauty of pure mathematics and the relevance and power of applications of mathematics to areas of science and engineering.

Now that he has retired, Monte is free to pursue other passions such as photography, traveling with his wife, and cheering on the athletic teams of the University of Idaho, University of Nebraska, and Virginia Tech.

Monte is leaving the Department of Mathematics in the capable hands of Dr. Christopher Williams. Dr. Williams has been at the University of Idaho since 1992 when he accepted a position as an Assistant Professor of Statistics. He has served as the chair of the Department of Statistics since 2011. Chris shares Monte's passion for student success and will continue to support and forward the goals that Monte established for the Department of Mathematics.

Thank you, Monte, for your tremendous service to the University of Idaho!

Idaho Alpha Chapter of Pi Mu Epsilon

The University of Idaho now has the first chapter of the Pi Mu Epsilon Mathematical Honor Society in the state of Idaho. The President Elect of Pi Mu Epsilon, Professor Paul Fishback from Grand Valley State University, came to Moscow to install the Idaho Alpha Chapter on April 21, 2015. Nineteen charter members were inducted into the chapter during the installation banquet.

The Spring 2015 officers for the Idaho Alpha chapter of Pi Mu Epsilon:

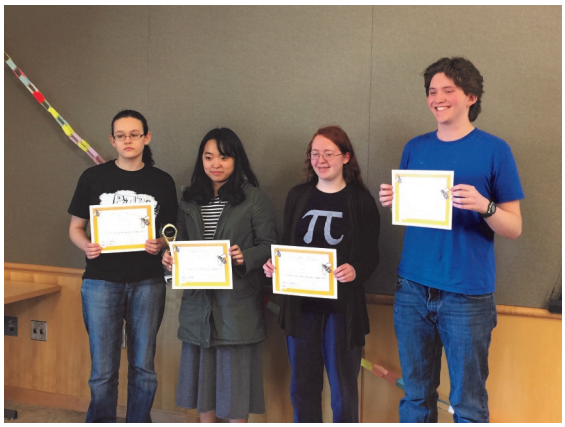
Andrew Schwartzmeyer, *President*
Shannon Foss, *Vice President*
Alex Wezensky, *Secretary/Treasurer*

Alex Woo is the Chapter Advisor and Mark Nielsen is the Faculty Correspondent.

Charter members of the Idaho Alpha Chapter of Pi Mu Epsilon

(left to right)
Alex Wezensky, Shannon Foss, Andrew Schwartzmeyer

Integration Bee 2015



(left to right)
Emma Bateman, Jieun Lee, Alison LaDuke, Ben Anzis

The 13th Annual Integration Bee took place during the 2015 Pi Day Celebration in March. An integration bee is like a spelling bee, but you solve integrals instead of spelling words.

The winners of this year's bee were:
1st place (tie): Jieun Lee, Ben Anzis
3rd place: Emma Bateman
4th place: Alison LaDuke

The deciding integral was $\int \frac{\sqrt{x+1}dx}{x}$

Can you solve it?

Pi Mu Epsilon

Interested in joining Pi Mu Epsilon?

The Idaho Alpha chapter will induct new members to the chapter each spring. Students must meet certain minimum requirements to qualify for membership.

Contact the Math Department for more information (email us at math@uidaho.edu or stop by Brink Hall room 300).

Remembering John Cobb

Article prepared by Ralph Neuhaus

John Cobb passed away on February 17, 2015 in Tallahassee, Florida from complications to Parkinson's Disease.

In 1960 John graduated from Florida State University with a B.A. in Physics. He received his Ph.D. in Mathematics from the University of Wisconsin in 1966. His thesis was in topology, with major professor R.H. Bing. After three years at Rutgers University he came to the University of Idaho in 1969. Each morning he would come to the office, take off his shoes, put on flip-flops, then push back a mound of papers and books on his desk so that he had space to work. Teaching topology and calculus always excited him. Many students learned how to do proofs in his Seminar in the Topology of the Plane. He advised many Math majors. John would talk to any mathematician about their mathematics. Many mathematicians will listen if you want to talk mathematics, but John would engage you. John was an active participant in the Topology Seminar, publishing several research articles in topology. John's last months were spent in a nursing home, where he would pose mathematical questions to the staff and assign homework. John was totally engaged in all aspects of being a professor of Mathematics.

John had a great love for the outdoors. He hiked, sailed, canoed, and watched birds. John loved books and trees. He could spend hours in a used book store. He would walk out with an arm-load of obscure books, spending a few dollars. His yard was overgrown with trees. At Halloween the neighborhood kids thought that his house was too scary to approach. John had no TV. He had no time for TV. An avid reader of history, he was an ace at crossword puzzles. He was a big fan of Florida State Football, but seldom did he watch a game. If FSU won he was sure to let you know.

John regularly attended the Friday Math Seminar in Moscow and founded one in Tallahassee. After retiring in 2006 he split his time between Moscow and Tallahassee.

He is survived by sisters Lee Arnold and Kathy Cobb, and brother Zach Cobb in Tallahassee.

Recent Graduates

In May 2015, five students earned graduate degrees in mathematics.

Aditya Baskota, M.A.T.

Brittani Bailey, M.S.

Sean Haler, Ph.D.

Michael Love, M.S.

Sherry LeAnn Shaefer, M.A.T.

Congratulations, graduates!

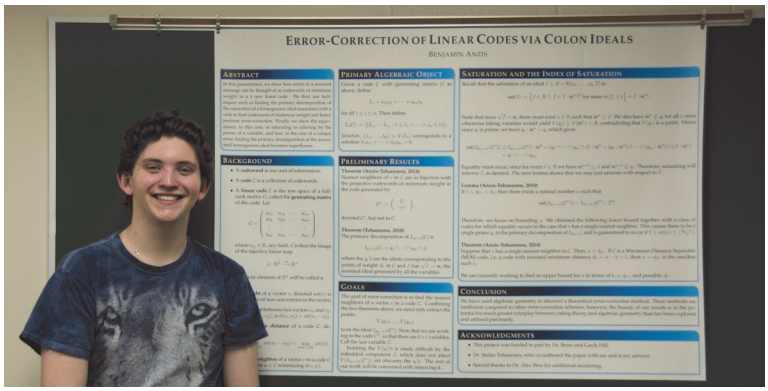
Excellence in Teaching

Awarded to graduate students who demonstrate excellence in teaching.

At the Spring 2015 Mathematics Graduation Reception, four math graduate students were awarded the Excellence in Teaching Award. Shown below, left to right are: Department Chair Chris Williams, Aditya Baskota, Daniel Reiss, Masaki Ikeda, and Shannon Foss.

Congratulations!

Ben Anzis wins JMM Presentation Award



Undergraduate Ben Anzis is a double-major in Mathematics and Computer Science. Ben won an Outstanding Presentation Award for his poster and presentation at the 2015 Joint Mathematics Meeting, held January 10-13 in San Antonio, Texas. The Joint Mathematics Meeting (JMM) is known as the "Largest Mathematics Meeting in the World."

Ben's presentation was based off of "Error-correction of Linear Codes Via Colon Ideals," a joint paper with Dr. Stefan Tohaneanu that was funded by the Hill Fellowship. When asked about his experience at JMM, Ben responded, "Attending JMM was a great experience. I got to connect with other mathematicians from across the country and learn a bunch of math, all at once."

Congratulations, Ben, on this well-earned recognition!

John B. George Award

Peter Brown with College of Science Dean Paul Joyce

Congratulations to Peter Brown on receiving the John B. George Award during the College of Science Graduation Reception in May.

This award is given to the outstanding graduating senior in the college based on academic achievement and service.

Congratulations, Peter!

Goldwater Scholarship

Undergraduate student Ben Anzis was awarded a Goldwater Scholarship for 2015-2016. This national scholarship is being awarded to 260 students throughout the United States. Since 2005, 12 University of Idaho students have received a Goldwater Scholarship.

Congratulations, Ben!

Undergraduate Award Winners

Several of our outstanding students received recognition for their achievements during the May 2015 commencement celebrations.

Outstanding Seniors

Awarded to seniors who have shown exceptional mathematical talent.

Peter Brown is from Moscow, Idaho. After graduation he will begin graduate studies at the University of Michigan.

Natalie Goddard is from Hailey, Idaho. After graduation she will study for the Actuarial Exams and relocate to Seattle.

Chair's Award for Excellence

Awarded to graduating seniors in recognition of excellent academic performance.

Lance Churchill is from Boise, Idaho. After graduation he will begin work as a data analyst in Boise.

Kileen Sutherland is from Meridian, Idaho. After graduation she will begin graduate studies in Math at the University of Idaho.

Justin Stoddard is from Coeur d'Alene, Idaho. After graduation he will begin working at Clearwater Analytics in Boise.

Some of the Math graduates jumping for joy at the Spring 2015 commencement.

Congratulations to all of our Math graduates!

Mark Nielsen wins University Excellence in Advising Award

Mark Nielsen was recognized for his advising during the 2015 Excellence Awards at the University of Idaho.

Mark excels at advising and this award is a small way of celebrating his accomplishments as an advisor.

The Math Department is lucky to have Mark as one of our advisors for undergraduate students.

Congratulations, Mark!

Jeanne Stevenson (Vice Provost for Academic Affairs) with Mark Nielsen

Putnam Competition

Article prepared by Linh Nguyen

The William Lowell Putnam Mathematical competition began in 1938 and is designed to stimulate a healthy rivalry in mathematical studies at colleges and universities in the United States and Canada. It is administered by the Mathematical Association of America.

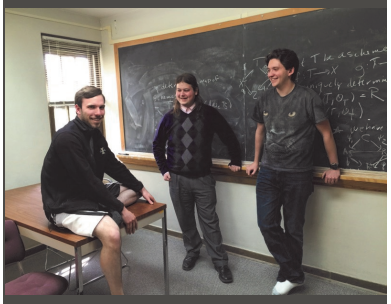
The examination is designed to test creativity in problem solving as well as technical competence. It is expected that the contestants are familiar with the formal theories taught in undergraduate mathematics courses. Questions may cut across the bounds of various disciplines. Self-contained questions involving elementary concepts from group theory, set theory, graph theory, lattice theory, number theory, and cardinal arithmetic may also appear.

The competition is organized in two sections (morning and afternoon) on the first Saturday of December. Each section has 6 problems and the total score for both sections is 120. Each problem is graded on a basis of 0 to 10 points, with partial credit given when a contestant has shown progress toward a solution. The questions are so hard that about half of all contestants fail to earn any points.

The 75th Putnam contest was held December 6, 2014 with 4320 contestants from 577 institutions. The University of Idaho had four participants. Three students were designated as our official team: Peter Brown, Ben Anzis, and Matthew Sonnen, and one student, Jordan Hardy, participated as an individual. All of the team members did an excellent job, earning 10 or more points. With a total score of 41, our team was ranked 90 out of 431 teams.

Congratulations to our 2014 Putnam participants!

2014 Putnam Team



(left to right) Peter Brown, Jordan Hardy, Ben Anzis

Showcase of Student Research

Day One Photos

Ben Anzis

Jesse Oldroyd

Cameron Crandall
Anna Rodriguez

In March, the Mathematics Department hosted the Showcase of Student Research in Mathematics. Taking place over two days, eight participating undergraduate and graduate students gave 20-30 minute presentations on their research projects.

Day One: Tuesday, March 31

Speaker:
Ben Anzis (Math undergraduate student)

Title:
The Lvov-Kaplansky Conjecture for Lie algebras

Abstract:
The Lvov-Kaplansky Conjecture is an incredibly important unproven conjecture regarding the interplay between a specific class of polynomials and matrices. In this talk, we present work done at the Kent State REU in which we prove a low-degree analog of the Lvov-Kaplansky Conjecture for certain classical Lie algebras using linear algebra.

Speaker:
Jesse Oldroyd (Math graduate student)

Title:
A Brief Overview of Finite Frame Theory

Abstract:
Frames have become an important tool in applied harmonic analysis, finding applications in fields ranging from quantum physics to signal processing. This talk will present several fundamental concepts relating to the theory of frames in a finite dimensional Hilbert space and give a short discussion of current problems in the field.

Speakers:
Cameron Crandall (Biology undergraduate student) and Anna Rodriguez (Animal and Veterinary Science undergraduate student)

Title:
Bacteriophage and lysins: exploring their potential as antibacterial agents using spatial modeling

Abstract:
As the levels of antibiotic resistant bacteria continue to grow, new methods of combating bacterial infections need to be developed. Bacteriophages and their lysins provide promising avenues for development of a new antibacterial agent. Using NetLogo, we developed spatial models to simulate the interactions between bacteria, phage, and lysin. Our current research focuses on exploring how phage and their lysins can become effective antibacterial agents for clinical use.

Day Two: Thursday, April 2

Speaker:
Masaki Ikeda (Math graduate student)

Title:
Introduction to permutation patterns

Abstract:
In enumerative combinatorics, the study of permutation patterns blossomed in the 1980s with the Stanley-Wilf conjecture. In this talk, I will introduce the basic concept of permutation patterns, and some approachable examples as well as a brief overview of my doctoral research.

Showcase of Student Research

Speaker:
Malcolm Rupert (Math graduate student)

Title:
An Explicit Theta Lift from Hilbert Modular Forms to Siegel Paramodular Forms

Abstract:
Recently N. Freitas, B. V. Le Hung, S. Siksek proved that every elliptic curve defined over a real quadratic number field corresponds uniquely to a Hilbert modular form. Furthermore it was conjectured by A. Brumer and K. Kramer that abelian surfaces defined over the rational numbers correspond to certain Siegel modular forms called paramodular forms. These are both examples of problems in the Langlands program. J. Johnson-Leung and B. Roberts proved the existence of a theta lift which for every Hilbert modular form returns a paramodular form. This talk will discus the strategy for making this theta lift more explicit with the goal of being able to calculate coefficients of paramodular forms. This theta lift provides a way to prove the paramodular conjecture in the specific case of when the abelian surface is the restriction of scalars of an elliptic curve over a real quadratic number field which is not isogenous to its Galois conjugate.

Speaker:
Ailene MacPherson (Bioinformatics and Computational Biology graduate student)

Title:
Why am I sick?: The mathematics of identifying the genes of disease susceptibility

Abstract:
Understanding the genetics of disease susceptibility is one of the fastest growing fields in medical biology. These advances have ushered in the era of personalized medicine, where treatment can now be administered specifically for you and your genome. Discovering the genes that make you susceptible to disease relies heavily on mathematics. In this talk I will introduce you to the underlying mathematics of identifying genes of disease susceptibility, the experimental challenges the field faces, and ultimately why this problem may be much more difficult than we currently realize.Ultimately, I hope to leave you with an appreciation for why a rigorous mathematical understanding of biological experimental methods is essential for their success.

Speaker:
Bob Week (Math undergraduate student)

Title:
The Mathematics of Coevolution

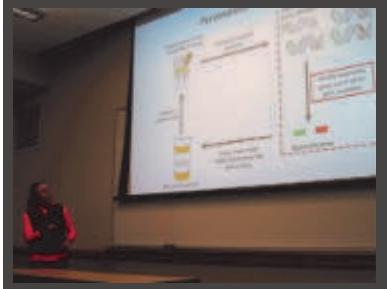
Abstract:
The topic of coevolution is essential to evolutionary theory. However, there is no current method to quantify the strength of coevolution for a given pair of species. Solving this problem would provide key insights to the history of life. This talk will introduce the basics of difference equations, how they have been applied to modeling coevolution, and how such models may provide a path towards finding a solution to the aforementioned problem.

Congratulations to all of the participants on a job well done!

Day Two Photos

Masaki Ikeda

Malcolm Rupert



Ailene MacPherson

Bob Week

Scholarships

Several scholarships are available to math majors. Scholarship amounts range from $500 up to $6500.

All mathematics majors are automatically considered for a scholarship.

Non-mathematics majors are eligible for scholarship consideration if they change their major to mathematics or add mathematics as a second major.

Scholarship selection is made by the faculty of the department in March.

The generosity of our donors makes it possible to award scholarships to some of our best students.

J. Lawrence Botsford Scholarship

This scholarship was established by the family of J. Lawrence Botsford who was a member of the department from 1949 until his retirement in 1970. He also served as head of the department from 1950 to 1954. This scholarship is based on merit and is awarded to mathematics majors entering their junior or senior year. ***Paul Jamboretz was the 2014-2015 recipient.***

Eugene and Osa Taylor Mathematics Scholarship

This scholarship was established in 1979 by the family and friends of the first head of the department, Eugene Taylor, and his wife, Osa. He directed the department from the time he came to the department in 1920 until he retired in 1950. In 1981, his family donated many of his personal mathematics books to the University of Idaho library. This scholarship is based on merit and is awarded to mathematics majors entering their junior or senior year. ***The 2014-2015 recipients were: Natalie Goddard, Krista Stanley, Shanshan Zhang, Bradley Walker, Justin Stoddard, Elizabeth Harman, Mariah Eckwright, Kelly Christensen, Justin Brown, and Michael Allen.***

Ya Yen Wang Memorial Scholarship

A long-time member of the Mathematics faculty, Ya Yen Wang died in January of 1995. Acting on her wishes, her family established the Ya Yen Wang Memorial Scholarship. This scholarship is intended for a junior or senior in Mathematics, preferably to be awarded to a woman. It is based on merit. ***Jieun Lee was the 2014-2015 recipient.***

Elna Grahn Math Scholarship

Established in honor of Elna Grahn and awarded to full-time students pursuing a degree in mathematics at the University of Idaho. ***The 2014-2015 recipient was Deandra Banie.***

Math Department Scholarship

This scholarship is supported by annual contributions of friends of the department and is awarded primarily to freshman and sophomore mathematics majors. It is based on merit. ***The 2014-2015 recipients were: Paul Perry, Lezanney Velasquez, and Rafael Watanabe.***

Clancy and Barbara Potratz Math Education Scholarship

This scholarship was established by Clancy and Barbara Potratz. Clancy was on the Mathematics Department faculty from 1966 to 1994. He served as head of the department from 1990 to 1994. The scholarship is available to full time sophomore, junior, or senior students majoring in mathematics. Preference is given to students preparing for a career teaching mathematics at the middle through high school levels. This scholarship is based on merit. ***Jessica Smart was the 2014-2015 recipients.***

Linn Hower Honor Scholarship

This scholarship was established in 1991 by Mildred and Loyal L. Hower, parents of Linn Hower, who graduated from the University of Idaho in 1979 with a B.S. in Mathematics. This scholarship is awarded to junior and senior applied mathematics majors, preferably from rural Idaho, with a high potential for success in a mathematics or scientific field. It is based on merit. ***Jacob Behm was the 2014-2015 recipient.***

Pyrah Family Scholarship

The Pyrah Scholarship was established in 2012 in memory of J. Karen Pyrah, her parents, Walter Glen Pyrah and Georgia Anderson Pyrah, and her brother, David Anderson Pyrah. The scholarship is for undergraduate mathematics majors, with preference to students from Idaho. ***The 2014-2015 recipient was Kileen Sutherland.***

Scholarships

Perry Math Scholarship

The William J. Perry Mathematics Scholarship was established in honor of William Perry and his connection to the University of Idaho. Dr. Perry was the nineteenth Secretary of Defense for the United States. He previously served as Deputy Secretary of Defense and as Undersecretary of Defense for Research and Engineering. He taught in the University of Idaho Mathematics Department during the 1950-1951 academic year. The scholarship is awarded to mathematics graduate students. ***The 2014-2015 recipient was Daniel Reiss.***

Mathematics Graduate Student Scholarship

This scholarship is supported by annual contributions of friends of the department and is awarded to mathematics graduate students at the discretion of the Math Department. ***The 2014-2015 recipients were: Aditya Baskota, Mahalingam Dhamodharan, Masaki Ikeda, Shannon Foss, John Pawlina, Daniel Reiss, Jaclyn Simmons, and Michael Love.***

Arnold Misterek Family Scholarship

The Misterek Scholarship was established by Arnold R. and V. Kay Misterek in 2007. Mr. Misterek earned a master's degree from the University of Idaho in 1965. He was a high school math teacher for 25 years. Two of the Mistereks' children graduated from the University of Idaho with math degrees. Mr. Misterek passed away in 2009. The Misterek Scholarship is awarded to graduate students majoring in mathematics, with preference to United States citizens. Selection is based on merit. ***Brittani Bailey and Jesse Oldroyd were the 2014-2015 recipients.***

New Scholarship

Boisen Mathematics Graduate Scholarship

The Boisen Mathematics Graduate Scholarship was established in 2014 by Helen and Monte Boisen to enhance the support the department can give to teaching assistants. Monte served as the Chair of the Mathematics Department from 2001-2015. The scholarship is awarded to full-time mathematics graduate students. It is based on merit.

The first Boisen Mathematics Graduate Scholarship will be awarded in 2015-2016.

Helen and Monte Boisen

New Graduate Students

In the Fall of 2015 the Math Department welcomed seven new graduate students:

Joseph DeAguero
(BCB Ph.D. student)

Doug Decock
(Ph.D. student)

Joshua Duran
(Ph.D. student)

Mark McDonald
(Ph.D. student)

Kevin Meek
(Ph.D. student)

Kileen Sutherland
(M.S. student)

Brad Wiest
(M.S. student)

Faculty Grant Activity

Chris Remien: Clinical Translational Research Infrastructure Network IDeA-CTR sub award for Mathematical Modeling - Acetaminophen-Induced Liver Injury to Assess Eventual Outcome, $61,957, 2015-2016.

Alex Woo (PI): Simons Foundation - Collaborations around Schubert Geometry, $35,000, 2015-2020.

Steve Krone: NIH/ COBRE - Center for Modeling Complex Interactions, $10M, 2015-2020 (with Holly Wichman as PI, et al.).

Scott Nuismer (PI), **Paul Joyce** (Co-PI): NSF - A Bayesian Approach to Inferring the Strength of Coevolution, $251K, 2015-2018.

Somantika Datta (PI): NSF CIF - Stochastic Frames in Signal Processing, $257K, 2014-2017.

Lyudmyla Barannyk (Co-PI): Murdock Charitable Trust - Acquisition of an Adaptive Computation Server for Support of STEM Research, $240K, 2014-2015 (with Jim Alves-Foss as PI, et al.).

Alex Woo (PI): NSA - Combinatorics and Geometry on Generalized Flag Varieties, $39K, 2013-2015.

David Yopp (PI): NSF - Learning Algebra and Methods for Proof (LAMP), $371K, 2013-2016.

Frank Gao (PI): Simons Foundation - Persistence of Random Processes, $35K, 2012-2017.

Linh Nguyen (PI): NSF - Mathematics of Thermoacoustic and Photoacoustic Tomography, $104K, 2012-2016.

Lyudmyla Barannyk (Co-PI): NSF - Acquisition of an Adaptive Computation Server for Support of STEM Research at the University of Idaho, $300K, 2012-2015 (with Jim Alves-Foss as PI, et al.).

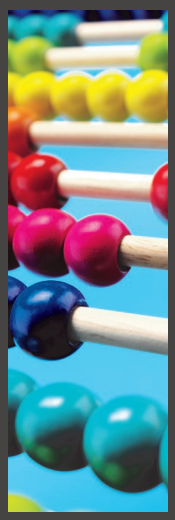
Rob Ely (Co-PI), **Jennifer Johnson-Leung** (Co-PI): NSF - Making Mathematical Reasoning Explicit, $5M, 2011-2016 (with Libby Knott as PI).

Paul Joyce (PI): NIH - Patterns of Adaptive Evolution, $1.1M, 2011-2016 (with Holly Wichman as Co-PI and Craig Miller as Co-PI).

Steve Krone (Co-PI), **Paul Joyce**: NSF - Collaborative Research: UBM – Institutional: UI-WSU Program in Undergraduate Mathematics and Biology, $500K, 2010-2015 (with B. Robison as PI, et al.).

You can learn more about the UI Math Department and see a full color version of the newsletter by visiting our website:

www.uidaho.edu/sci/math



UI Math Club

The UI Math Club Leadership Committee for 2014-2015 was:

Natalie Goddard, Ben Anzis, Mason Fabel, Kileen Sutherland (Committee Chair), and Kelly Christensen

The UI Math Club had an exciting year, with several fun activities, including: a scavenger hunt, a Scary Math Paradoxes party on Halloween, Jeopardy, games night, Math Tricks, and, of course, the annual Pi Day celebration in March.

For more information about the UI Math Club, contact the Math Department, math@uidaho.edu.

Starting at the left:

Natalie Goddard, Ben Anzis, Mason Fabel, Kileen Sutherland, Kelly Christensen

CNR Bridge Builder Award

Congratulations to Chris Williams on receiving the CNR Bridge Builder Award in the spring of 2015!

This award is presented to an individual or group external to the College of Natural Resources (CNR) who has made substantial contributions and connections to the people and programs within CNR.

Congratulations, Chris!

CNR Dean Kurt Pregitzer, Chris Williams

Actuarial Science Club

The Actuarial Science Club was re-established in 2014, with three purposes:

1) To bring actuaries to UI to speak on their chosen occupation and provide guidance to those considering the field.
2) To get practice materials to students looking to take qualifying exams.
3) To establish a supportive network for those considering a career in Actuary Science.

If these sound like they would be useful to you, consider joining the club! This is a low-commitment student organization that exists to serve and help prepare students for the future.

Contact the Math Department for more information (email us at math@uidaho.edu or stop by Brink Hall room 300).

Alumni News Request

We would like to hear from you!

If you have some news/information about yourself that you would like printed in the next Math News, please send your information to math@uidaho.edu or to:

Department of Mathematics,
University of Idaho,
875 Perimeter Drive MS 1103,
Moscow, ID
83844-1103

Please include as much of the following as possible:

- Name
- Year you graduated from UI
- Degree and Major at UI
- Current Occupation
- News about yourself
- Comments, corrections, additions for the newsletter

Math Graduate Updates

Aditya Baskota (M.A.T. 2015), is an Early College Experience Math Instructor at Kauai Community College in Kauai, Hawaii.

John Bailly (M.S. 2007) lives in Boise, Idaho with his wife and two sons, where he tries to enjoy the outdoors as much as possible and keep up with his little boys. He works for Nalco doing consultative sales around industrial water chemicals (boiler, cooling, and waste water efficiency). Prior to this job, John taught part time for Boise State University and the College of Western Idaho.

Michael Love (M.S. 2015) is an adjunct instructor at Lewis-Clark State College in Lewiston, Idaho. He is teaching an accelerated Precalc course that covers both the algebra and trig material in a single semester; Math as a Liberal Art; and, Ordinary Differential Equations. Michael still lives in Moscow, and makes the slightly-too-long commute far too early every morning.

Sean Haler (Ph.D. 2015) is working for the Department of Defense in Maryland.

Cory (Druffel) Hines (M.S. 2014) is a high school math teacher at Joel E. Ferris High School, in Spokane, Washington. She is teaching Geometry and Pre-Calculus.

Jeffrey Winter (M.S. 2014) is an instructor at Black Hills State University in Spearfish, South Dakota. He teaches Pre-College Algebra, College Algebra, and Intro to Statistics. This is his second year working at BHSU and he really enjoys working there!

Jaclyn (Simmons) Trammel (M.S. 2014) and **Timothy Trammel** (M.S. 2014) were married in July 2015. They are currently living in Lynnwood, Washington. Timothy teaches at Bellevue College and Jaclyn is an actuary at Premera Blue Cross.

Veronica Blackham (M.S. 2014) is working on a Ph.D. in Education at the University of Idaho, and remains involved with the MMRE grant with Rob Ely and Anne Adams.

Brittani Bailey (M.S. 2015) is an adjunct instructor at Lewis-Clark State College in Lewiston, Idaho.

After graduating from UI, **Esther Klosterman** (M.S. 2014) was an instructor at WSU. She now spends her days taking care of her sweet 8 month old daughter.

Faculty Updates

A note from **Rob Ely**:

I feel like a gelukzak (Dutch for "lucky sack") because this fall I get to be on sabbatical in Utrecht, Netherlands. I've been sitting down by the canal putting together materials for a teaching experiment at Oregon State University in the spring: calculus using infinitesimals. Utrecht is a perfect spot for this, since it gives me a chance to consult with top math education researchers at the Freudenthal Institute. Every person here, young or old, rides a bike: one gear, zero helmets. Tot ziens!

Hirotachi Abo spent the Fall of 2014 at the Simons Institute for the Theory of Computing in attending the semester-long program ''Algorithms and Complexity in Algebraic Geometry" (the Simons Institute of the Theory of Computing is a newly established research institute for collaborative research in theoretical computer science at UC Berkeley). He also presented his research at several scientific meetings, which include the School on Algebraic Geometry and Applications at the Mediterranean University of Reggio Calabria, Italy, and the 2014 Canadian Mathematical society Winter Meeting, Hamilton, Canada.

Steve Krone worked with UBM student, and math major, Kelly Christensen this summer on mathematical models of cell escape from viruses. UBM is an NSF-funded program in undergraduate biology and math that gives students the opportunity to do research at the interface of math and biology.

Another of our math majors, Dorothy Catey, worked with Professor Bert Baumgartner in the Center for Modeling Complex Interactions (CMCI). Math professors **Chris Remien** and **Steve Krone** are also part of CMCI, as is Math Research Assistant Professor **Craig Miller**. For more information about CMCI, visit their website: http://www.cmciuidaho.org/ .

The NSF funded "Learning Algebra and Methods of Proof" project, principal investigator **Dr. David Yopp**, continues to implement materials and teaching practices in Palouse area schools. The project helps classrooms teach and learn through constructing and critiquing mathematics arguments. We have noted large gains in students' ability to construct arguments (including indirect arguments such as contradiction proofs!) and gains in students' overall mathematics achievement.

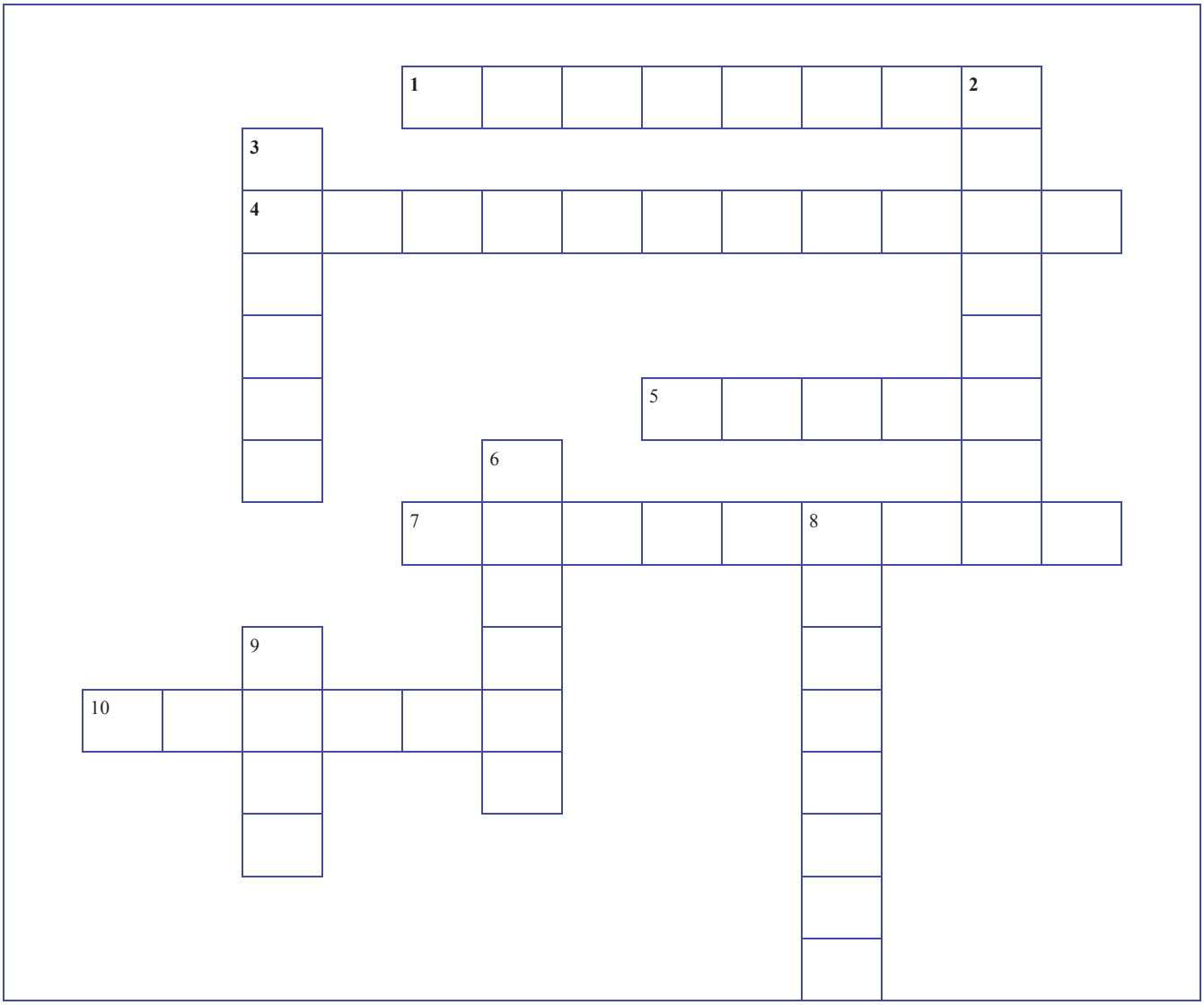
Chris Remien and his wife Diana Mitchell (Research Assistant Professor in Biology) welcomed their first child, a daughter, in August.

Welcome to the Math Department family, Adeline (Addie) Zoe Remien!

The Math Department now has a group on LinkedIn. We would love to have you join our group!

https://www.linkedin.com/grp/home?gid=6936949

Math News Crossword Puzzle



ACROSS

1. The Interim Chair of the Math Department is Chris _____ .
4. The Pi Day Celebration included an _____ Bee, which is like a spelling bee but instead of spelling words you solve integrals!
5. The University of Idaho Math Department is now home to the Idaho _____ Chapter of Pi Mu Epsilon.
7. Undergraduate student Ben Anzis was the recipient of a _____ Scholarship.
10. Peter Brown was honored with the John B. _____ Award.

DOWN

2. The _____ of Student Research featured 7 presentations over a two-day period.
3. The Math Department Fall _____ features free pizza and fun times.
6. Monte _____ retired in January after serving as department chair for 14 years.
8. Mark Nielsen received a Faculty Excellence in _____ Award.
9. The department mourns the passing of emeritus faculty member John _____ .

Prize Problems

Solve one of the two Prize Problems and you win a prize! Both problems have a clear solution if you approach them in the right way. Prizes will be awarded while supplies last.
Show or send your written solution to the Math Department: ***math@uidaho.edu.***

Rules for participating:

- *You must be an undergraduate, an alumnus, or an alumna.*
- *You must solve one of the problems, giving a full explanation.*
- *One prize per person.*

Problem 1: Let a, b, and c be positive. Prove that

$$\frac{a^3}{bc}+\frac{b^3}{ac}+\frac{c^3}{ab} \geq a+b+c.$$

Problem 2: A Math class has 200 students. Each student is assigned a number, in order, from 1 to 200 (no two students are assigned the same number). The professor wants to pair up the students for a homework assignment. However, he makes a rule that two students can be paired up only if their numbers, *m* and *n*, satisfy |m-n|=1 **or** |m-n|=100. How many ways can the professor pair up the class?

I want to support students and faculty in the Department of Mathematics!

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