Message From the Chair
by Peter Trapa

As another academic year draws to a close, it's time to reflect on the successes of the past months and look forward to what's in store next.

Our annual Awards Ceremony, held on April 17, will honor many of our faculty, staff, and (especially) our students, both undergraduate and graduate. Some of their accomplishments are detailed in the pages that follow.

The fantastic level of research activity continues to be a hallmark of the department. Our graduate program has swelled in recent years bolstered by all-time high levels of external grant support, and we are constantly expanding research and career opportunities for our majors like our highly regarded Research Experience for Undergraduates (REU) program.

Our postdoctoral program continues to be one of the largest and best established in the country. In the coming months, we will select the first Donald H. Tucker Assistant Professor, named in honor of our longest serving faculty member. Meanwhile, Don shows no sign of slowing down, and recently collected yet another teaching prize, this time the 2014 MAA Intermountain Section Teaching Award.

We continue to reach into high schools through our successful programs for students, like the Math Circle and High School Summer Program, as well as those for teachers, like the Math Teachers' Circle. Working with the College of Education, we've strengthened our commitment to the training of secondary math teacher, and we continue our close collaboration with Math for America Utah.

Inside

Next year we will have four new tenure-track and tenured faculty join us: Assistant Professors Tom Alberts (probability) and Braxton Osting (applied math); Associate Professor Karl Schwede (on the interface of commutative algebra and algebraic geometry); and Professor Srikanth Iyengar. These four will bring exceptional energy to the department's research and teaching missions.

In addition to these outstanding additions, we will be conducting new faculty searches again in the Fall. I hope to have more good news to share with you next year!

Faculty Changes

Farewell
by Emina Alibegovic

Long, long ago in a place far, far away there was a math teacher. Hmm, I suppose all of these statements are true, although not all of them about the hero of our story, Marilyn Keir, the woman who paints her nails the red, white and blue every Fourth of July, makes pies for Pi day, sings a quadratic song to her students, and whose business card reads "Functioning on a higher plane". She cannot tell a lie. She indeed functioned on a higher plane for the whole 46 years she spent in the classroom!

Among her numerous awards were the Presidential Award for Excellence in Math and Science Teaching where she shook hands with George Bush Sr. and the Tandy Technology Scholar which got her picture in Time Magazine.

Marilyn also received the U of U Teacher Tribute back in the 90's because she was nominated as most influential by one or more of her students. She always said that that was the award that meant the most to her because she valued the respect and regard of her students above all else. Because,

ULTIMATELY...Marilyn wanted her students to love math as much as she does.

In 2012, Marilyn wrote her mathematical journey in which she admits to contemplating a retirement in 2010

"I am exhausted after recounting all of this. Perhaps it is time to RETIRE?"

but changes her mind quickly and in 2012 she writes:

"RETIRE? NEVER!"

I did think for a while that we'd have to carry her out, but it looks like she finally decided to kick back and relax for a few years (about 40, if the genes have anything to do with it). While this might be a pleasant change for her, it is a definite loss for our students and the mathematics education community in our department, university and the state. Whatever she does, however, one thing is certain: she'll continue teaching in one way or another. Even if it's teaching me what a proper attire is for one of her gatherings.

Marilyn Keir
has been a member of the department since July 2000

Amanda Cangelosi
has been a member of the department since July 2011

Sadly, Marilyn is not the only person leaving us. Let me back up a bit. When Marilyn started having the retirement thoughts, we realized it was going to happen eventually, and we were excited when we convinced Amanda Cangelosi to join our ranks. Amanda had taught secondary school in San Francisco and Salt Lake City, and completed her MS in Statistics, before joining our group. She infused the secondary teacher's sensibility coupled with love, appreciation and knowledge of mathematics we'd like all of our teachers to have into our teacher preparation program. She has spent countless hours and sleepless nights helping our future teachers develop their skills and knowledge.

A statistician and conservationist in her, the Sierras helped, too, have won over her dedication to mathematics education, and she's moving to Tahoe. Who could blame her? Their lake doesn't smell as much as ours and they tell me the rock doesn't crumble as easily. While this is an exciting career path for Amanda, her gentle, but no nonsense, manner will be missed in our programs. She has a special touch that calms people and eases them into the world of mathematics they might have dreaded. That, and they never could figure out when she made fun of them. The students will miss her. I intend to visit her often.

Marilyn and Amanda, thank you for sharing knowledge, expertise, and wine with us! Cheers!

Undergraduate Events

Undergraduate Research in Mathematics: Selected Numerical Algorithms and Their Analysis
by Yekaterina Epshteyn

Computational Mathematics is an essential part of modern applied sciences. The main goal of Math 4800 in Spring 2014 was to give an introduction to the research in the area of Numerical Analysis and Scientific Computing.

Through the series of lectures, presentations and independent projects, the ten very bright and dedicated students, Nathan Briggs, Annie Cherkaev, Stephen Durtschi, Kyle Hiroyasu, Erika Loertscher, Sean O'Connor, Troy Raen, Justin Talbot, Hitesh Tolani and Ericson Weah were exposed to some ideas of modern numerical algorithms for partial differential equations. The students also gained familiarity with applications of these algorithms to problems from Biology, Chemistry, Fluid Dynamics, Material Sciences, Physics, Finance, etc.

Among the discussed materials and possible projects were selected topics in numerical linear algebra and numerical methods for interface problems such as Immersed Interface Method, Ghost Fluid Method and Difference Potentials Method.

We also had a series of Guest Lectures:

- *Radial Basis Functions and Applications* by Varun Shankar,
- *Modern Numerical Algorithms for Hyperbolic Conservation Laws and for Shallow Water Models* by Jason Albright,
- *Computational Fluid Dynamics and Navier-Stokes Equations* by Kyle R. Steffen, and
- *Mathematical and Computational Modeling in Finance* by Jingyi Zhu

The course was intense and required a lot of work from everyone who participated in it. But all in all, I think this course was great fun and a valuable adventure into the research in modern Computational Mathematics.

Undergraduate Scholarships

A number of math undergraduate students received scholarships from the College of Science Dean's Office. Congratulations:
- Yuji Chen - Myriad Woman in Science
- Sara Fauver - Myriad Woman in Science
- Sara Fauver - Crocker Science House Scholar
- Ariel Herbert-Voss - Crocker Science House Scholar
- Trey Jensen - College of Science Deans Scholarship

Problem Solving Contest
by Aryn DeJulis

This year the Undergraduate Problem Solving was a great success. Participation increased and by the final problem, any one of 3 participants were in the running to be named winner. In the end, Aric Parkinson was declared the winner by submitting correct solutions to all 6 problems, and being chosen as the winner on 2 of these problems.

The success of this year's contest would not have been possible without the hard work of our undergraduate representative, Neil Xia. Neil posted each problem, graded the submissions, and selected the winners with the support from Mladen Bestvina.

As reward to Aric for winning and to Neil for running the contest, the math department will be sending them to attend MathFest 2014 in Portland, OR where they will be representing the University of Utah Math Department at the National Collegiate Mathematics Championship. Congratulations and best of luck to them both!

Pi Mu Epsilon

This year the Utah Alpha Chapter of the National Mathematics Honor Society of Pi Mu Epsilon is excited to welcome 10 new members to our organization. These students are selected as exceptional math majors with excellent academic performance in our undergraduate programs. Congratulations:
- Kouver Bingham
- Tabitha Finlinson
- Benjamin Gardiner
- Lindsay Gilson
- Erika Loertscher
- Curtis Miller
- Mary C. Neville
- Taylor Pope
- Jordan Rose
- Joshua Wolfe

Summer RTG Course for Undergraduates

Mladen Bestvina will be teaching a summer RTG course for undergraduates titled "Train Tracks, Diffeomorphisms of Surfaces and Automorphisms of Free Groups". It will take place in the Math Department, from July 7 through July 18 and is funded by the Algebraic Geometry and Topology RTG (Research Training Grant). A description of the course from the RTG webpage:

In the 1970's Thurston introduced the notion of train tracks as a combinatorial tool for studying simple closed curves on surfaces. This notion played an important role in his study of seldiffeomorphisms of surfaces. In the 80's, Bestvina and Handel introduced a parallel notion of train tracks for free group automorphisms giving a uniform way to study both the mapping class group and the group of outer automorphisms of free groups. This has proven to be a powerful tool and this course will provide an introduction to the topic for advanced undergraduates given by one of its originators.

For more information see the webpage:
www.math.utah.edu/agtrtg/traintracks/

Graduation

This year approximately 60 undergraduate mathematics majors will receive a baccalaureate degree. 8 students will receive a Masters degree in Mathematics, 7 will recieve the Master of Statistics degree, and 6 will recieve Masters in Mathematics - Teaching. Students receiving the Ph.D. in 2013-2014 are:

- Chih-Chieh Chen
- Sarah Cobb
- Veronika Ertl
- Brendan Kelly
- Geoffrey Hunter
- Xiaodong Jiang
- Sonya Leibman
- Ross Magi
- Brian Mann
- Cristian Martinez
- Robert Proctor
- Feng Qu
- Andrew Thaler
- Yuchen Zhang
- Patrick Dylan Zwick

Congratulations to all our graduates!

Don Tucker Wins MAA Teaching Award

Don Tucker was awarded the MAA Intermountain Section Award for Distinguished University Teaching of Mathematics at the 2014 MAA section meeting at Utah Valley University. Don has been an exceptionally influential teacher and mentor for 56 years her at the U. This is just one of many teaching honors that he has received over the years. Don is well known for his Texas style of teaching (teaching students how to learn mathematics, as well as the content), and is greatly valued by his students. He has had a lot of influence through his mentoring, having advised 13 PhD students here, as well as dozens of Masters students. Don was also key to building up the department as a major research institution.

Graduate Awards

Kenneth Jack Jeffries has been selected as a 2014-2015 University of Utah Graduate Research Fellow (GRF).