

# SSU M\*A\*T\*H Major

## From the Chair

Dr. Sam Brannen



Greetings from the SSU Mathematics and Statistics Department! I hope all of you are doing well in your current endeavors. This year we added an exciting new B.A. concentration in Mathematics, the Bi-disciplinary concentration. Please see the article on this concentration that appears in this newsletter for details.

Thanks in part to the Bi-Disciplinary concentration and also to our relatively new degrees in Statistics and Applied

Statistics, we have grown from 75 majors to 115 majors in the last two years. This spring we have 18 students graduating with degrees in mathematics and statistics, and we expect that number to grow each year.

We continue to struggle with underfunding due to the State budget crisis, but we remain cheerful nonetheless. The department of Mathematics and Statistics remains an inviting, nurturing department that values its majors and strives to help them achieve their educational goals. Please drop us a line to let us know how you are doing, and if you are in the area, please drop by and say hi!



Math Chair Sam Brannen and SSU CFO  
Larry Furukawa-Schlereth share dinner at  
M\*A\*T\*H Fest 2011



**Congratulations to all 2011 graduates!**



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# Pi Mu Epsilon

## News of California Nu

### SSU Chapter of Pi Mu Epsilon Honor Society

The Pi Mu Epsilon (PME) Society was founded on May 25, 1914 at Syracuse University. The purpose of the Society is to promote scholarly activity in mathematics among the students in academic institutions. The Society currently has over 340 chapters at colleges and universities throughout the United States.

The Sonoma State University (SSU) PME Chapter is called California Nu. Three new



Spring 2011 PiMu Graduates with their chords from left to right; presenter Melinda Barnard, Jill Schlichting, Bradley Regan, Brandi Loper, Haley Vicchio, Steven Gordon, August Blodow, Ethan Baldinger, and PiMu advisor Jean B Chan

PME members, Stephen Gordon, August Blodow, and Haley Vicchio were inducted at our Math Festival on 4/6/2011.

During the 2010 Fall semester, the California Nu was awarded a grant from the National PME to invite a lecturer to our campus to deliver a public math talk. We were fortunate that Dr. Brigitte Servatius of the Worcester Polytechnic Institute Mathematics Department, who is the PME Journal Editor, came to speak on "Hyperperfect Numbers and a Beautiful Mind" to an overflowing lecture hall of students and faculty on September 30, 2010. Dr. Servatius presented the content of an article appearing in the PME Journal. John Nash, son of John Nash the Nobel Prize winner, had written the article.

## Mathematical Modeling Competition

Brigitte Lahme

Every year in February the Consortium of Mathematics and its Applications (COMAP) organizes an international Contest in Mathematical Modeling. This year more than 3000 teams from hundreds of institutions participated in the contest. The competition starts on Thursday night when two very open ended mathematical modeling problems are posted on the COMAP website. The participating teams have 4 days to research the problem, come up with a model and write a paper outlining their solution. The competition does not



Alex Fleischmann, Jacob Peters and Austin Powell get ready for a sleepless night in the math lab working on their model.

just test mathematical knowledge, but also teamwork and communication skills. This year, SSU had one team participating in the math modeling competition. Alex Fleischmann, Jacob Peters and Austin Powell tackled a problem that required them to develop a model for a network of VHF radio repeaters. After 4 days of intense work, including Valentine's Day, they finished their paper and sent it in with 5 minutes to spare. The team did a great job, earning a "successful participant" finish in the competition. Austin Powell presented the results of the team's paper at the Northern California Undergraduate Mathematics Conference at the University of the Pacific in April 2011.



Austin Powell at the University of the Pacific presenting the groups findings.



## Actuarial Science @ SSU

Scott Nickleach


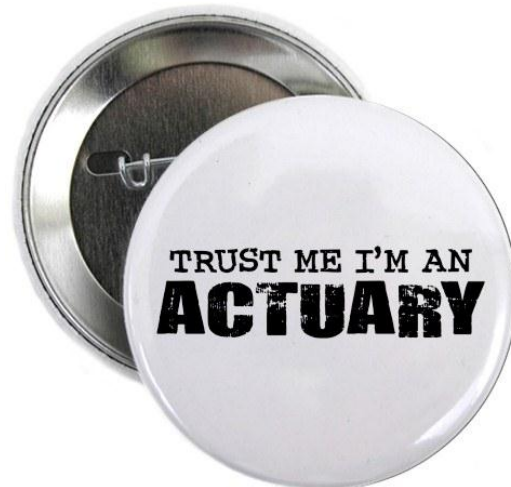
It has been an exciting year for the actuarial science program at SSU. The newly approved degree in Bi-Disciplinary Mathematics, as well as both the B.S. in Statistics and the B.A. in Applied Statistics all provide students interested in pursuing a career in actuarial science with a variety of options. Plans are also being developed to soon begin offering a minor in actuarial science.

Actuarial students are generally required to take a series of actuarial examinations throughout their careers. Completion of various exams is a requirement in order to earn certain designations from the Society of Actuaries (SOA), including the prestigious and highly rewarding SOA Associateship and Fellowship status. The Department currently offers courses to help students prepare for the first two examinations, which cover probability and financial mathematics. A reimbursement program to help students cover the costs of taking the exams was also recently established. The Department is very proud of two SSU students, August Blodow and Jill Schlichting,

each of whom recently passed the first two actuarial exams; WAY TO GO August and Jill!!

Another recent development pertains to the SOA Validation by Education Experience (VEE) requirement. Completion of each of three areas of VEE is required in order to partially satisfy the requirements for earning SOA Associateship status. Those areas are finance, economics, and applied statistics. During the past year, various SSU courses have been approved by the SOA as courses that satisfy these requirements, thus students are able to complete each of the three VEE areas while pursuing their degrees.

Anyone interested in finding out more about actuarial science at SSU should contact Dr. Scott Nickleach at [scott.nickleach@sonoma.edu](mailto:scott.nickleach@sonoma.edu).



## Statistics is the Sexy Job of the Future

Susan Herring

“The *sexy job* in the next 10 years will be *statisticians*,” according to Hal Varian, chief economist at Google.

Perhaps that explains the growing interest in both our B.A. and B.S. degrees in statistics. From the first three students who graduated with a B.S in Statistics in May 2009, we have increased to 22 students who have declared Statistics as their major.



The B.S in Statistics is intended to prepare students for graduate school and careers in statistics. The new B.A. in Applied Statistics is intended as a second degree

for students preparing for careers and graduate programs which use statistics, such as psychology, economics and biology. The statistics minor also continues to grow because of its wide appeal to students across many disciplines.



## Bi-Disciplinary Concentration Report

Sam Brannen

This spring our department began offering a new B.A. concentration in Mathematics: The Bi-Disciplinary concentration. This concentration requires 30 units in mathematics, at least 14 at the upper-division level, and 22 units from another discipline, at least 12 units at the upper-division level, chosen so that the study of each discipline complements the other. While the concentration does not require a second major, it is ideal for students who want to add a math major to their current major and still graduate on time. This semester alone, 15 students have declared the Bi-Disciplinary concentration. We are hopeful that this new concentration will continue to contribute to our growing number of majors. In the past two years, we have grown from 75 majors to 115.

## Alumni News

**Nick Dawdall 2007** a recent mathematics graduate is completing his masters in mathematics at San Francisco State University, he is currently working on his thesis in graph theory.

**Dave and Leanna Lofte 2007** graduated from the University of Denver in June 2010 with MS degrees in mathematics. A couple months later, their first child, Lila, was born. Dave is continuing his education and working toward a PhD from the University of Denver while Leanna teaches math part time at a school for gifted children and local colleges.

**Kristen Roland 2009** is finishing up her Master's degree from the University of Rhode Island. She was one of our first statistics program graduates and we wish her well on her future plans in the field of statistics.

**Leslie Banta 2006** has accepted a full-time tenure track math teaching position with Mendocino College beginning this fall.

**Jessica Kelb (aka Doran) 2006** is currently the math resource specialist at Prospects Independent Study High School in Antioch, CA. In June she will complete a Master of

Arts in Teaching with a Special Education Emphasis at National University

**Francesca Schott 2010** a recent math graduate was recently accepted into Columbia University Actuarial Program.

Aaron Donahue 2007 is studying at Notre Dame University in Indiana in the field of Civil engineering.

**Chad Griffith 2009** was just recently admitted into several PhD programs. He accepted and offer at University of California Santa Barbra, for a PhD program in Statistics and Applied Probability.

## Math and Stats Facebook

The Department of Mathematics and Statistics here at Sonoma State University has started a Facebook page! We hope that this page will function as a means to communicate with current and past math majors. We hope to add as many students past and present as possible. Please add us by going to the following link



[Http://www.facebook.com/mathandstat](http://www.facebook.com/mathandstat)

## Math & Stats Festival 2011

### Sam Brannen, Department Chair

We had a very successful Mathematics & Statistics Festival this year. On Wednesday, April 6<sup>th</sup>, the lobby of Darwin was full of math posters, and thanks to Stan Isaacs, puzzles and games. At the M\*A\*T\*H colloquium at 4:00 that day, the speaker was Keith Devlin, the "Math guy" from National Public Radio. He spoke on "First Person Solvers: Mathematics Education in the Video Game Era." He discussed the potential for teaching mathematics through innovative video games.



Following the talk, he joined us for the Mathematics & Statistics Awards dinner at Sally Tomatoes in Rohnert Park. Helping us

present awards were Larry Furukawa-Schlereth, the Chief Financial Officer of SSU; Melinda Barnard, the Interim Vice Provost for Academic Affairs (now the Associate Vice President for Academic Affairs); Matthew Lopez-Phillips, the Acting Vice-President for Student Affairs; and Lynn Stauffer, the interim Dean of the School of Science and Technology. Awards were presented for participation in the Putnam Mathematical Competition and the Mathematical Contest in Modeling. Memberships were awarded in the Association for Women in Mathematics, Mathematics Association of America, the American Statistical Association, the National Council of Teachers of Mathematics, and the Pi Mu Epsilon Math Honor Society. Additionally, MESA (Mathematics, Engineering and Science Achievement) members were honored, as were the graduating seniors selected by the department for Graduation with Distinction. Special service awards were given to Academic Coordinator Marybeth Hull and student assistant Haley Vicchio.

Many alumni of the department were in attendance, and fun was had by all. Wine was graciously donated by Traverso's Gourmet Foods and Liquors. We hope to see even more alumni at the dinner next year!

## Math Club News

Sunil Tiwari

Mathematics Club of Sonoma State University strives to enhance and enrich the lives of all students on campus by providing opportunities to connect students with a



common interest in the mathematical sciences. The events and activities organized by Math-Club strengthen the relationship between students and faculty and foster a love for mathematics. Keeping up with the traditions of the past, Mathematics Club had its pumpkins carving event in the Fall followed by Professor Luttmann Fashion Show (that was a blast) and sold math club t-shirt year round to raise funds. In the Spring Semester, Math-Club organized Pi-Day which was a great fun

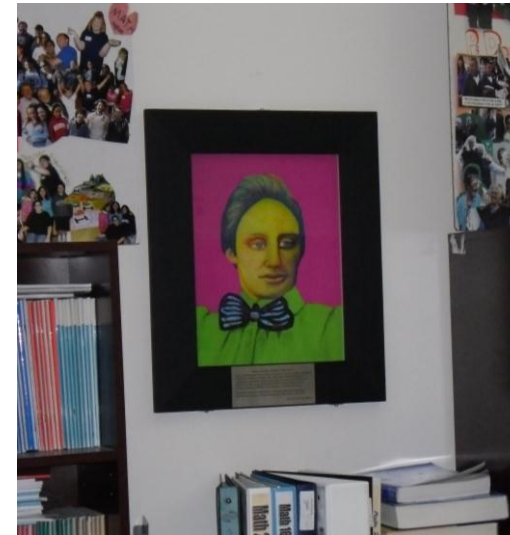
and a grand success. Mathematics Club, as every Spring in the past, helped the Mathematics Department organize and celebrate Mathematics Festival Week. It also participated in the Greek Week. This year, the School of Science and Technology



hosted "MESA-Day" at Sonoma State University. Members of the mathematics club played a vital role in helping the organizers in every way they could (running an information booth, helping guests with directions, organizing math-puzzle tables, and proctoring mathematics competitions with the judges) to make it a grand success.



## Math Lab Dedication



No math or Stats Major has been able to graduate without becoming well acquainted with the department's Math Lab. This semester we were fortunate enough to hold an informal dedication ceremony of the math lab in Emmy Amalie Noether's name. Emmy Amalie Noether was one of the first female mathematicians she is most famous for her contributions to mathematics in the area of physics.



The plaque under her portrait reads:

Emmy Amalie Noether (1882-1935)

Emmy Noether made fundamental contributions in theoretical physics (establishing relationships between symmetries of a system and conservation laws) and in abstract algebra (developing ideal theory, the basis of modern ring theory). She was also a great mentor and teacher to many students. In this portrait, the famous "Noether's First Theorem" is worn on her bowtie.

This portrait is placed in honor of the service and support given to the Department of Mathematics by Professor Emeritus Clem Falbo (Professor 1964-1999).

The painting is by San Francisco artist Jennifer Mondfrans.





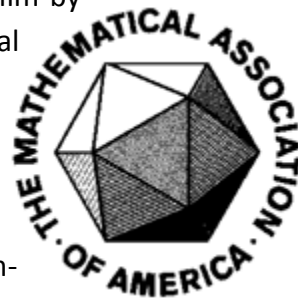
## Putnam Competition Report

Rick Luttmann



The 71st annual William Lowell Putnam Mathematical Competition was held on 4 December 2010. There were nearly 4,300 participants from about 550 institutions across the United States and Canada. Sonoma State's Mathematics Department fielded a team, as usual. Two of SSU's competitors, Brent Jones and Alex Fleischmann, scored 10 points each -- very respectable in a Competition whose median score is normally zero! Other SSU competitors, who achieved the median score, were August Blodow, Mike D'Angelo, Alma Gonzalez, Jon Graham, Bryan Lund, Brad Regan, and Casey White. All participants were awarded a silk-screened T-shirt at the annual Awards Ceremony -- with the Hindu "behold" proof of the Pythagorean Theorem stenciled on the front. In addition, Brent and Alex received cash prizes of \$100 each.

The William Lowell Putnam Mathematical Competition has been held every year since 1937 (except for a few World War II years) under the auspices of the Mathematical Association of America. William Lowell Putnam, a member of an old established family from Boston, studied mathematics at Harvard. The Competition was established by his heirs to honor him by furthering intellectual competition among universities in North America. The Competition stresses creativity in problem-solving rather than rote knowledge of mathematics. Sonoma State offers a fall class, Math 330 "Techniques of Problem Solving", to help students learn how to unleash and develop their full mathematical creativity.



## MESA DAY 2011

On Saturday, April 30, over 800 middle and high school students came to the SSU campus from as far north as the Oregon border and as far south as San Jose to



attend the annual Math, Engineering, Science Achievement (MESA) Day Competitions for the Northern California region. Together with parents, advisors, and over one hundred judges and volunteers, there were approximately one thousand people in attendance.

MESA is a 41-year-old state program working with thousands of educationally disadvantaged students to help them excel in math and science and improve their chances of obtaining engineering and other math-based degrees. In 2008, a MESA chapter was established at SSU. This year, the university hosted the annual regional MESA Day for the first time.

In addition to solo and team math tests, the competitions included flying gliders, racing cars built from mousetraps, strength tests for bridges built using manila folders or ice-cream sticks or balsa wood, building models of the human brain, arm and eye, and dropping eggs in protective cases from the roof of the Stevenson Building. In order to be eligible for this event, MESA students had to place among the top three in their age group at preliminary local contests.

The event was a huge success. SSU mathematics professors Brigitte Lahme and Izabela Kanaana (the current director of SSU MESA) were among the organizers. SSU Math Club President August Blodow set up

a "Math Puzzle" table in the Darwin Lobby, which had a busy crowd of people around it the entire time. Over 30 other mathematics and statistics students and faculty assisted with the event as volunteers and judges.



Stats Major Jana Putney opens up students contraptions from the egg drop at MESA day 2011



Math Chair Sam Brannen contemplates the meaning of life with recent graduate Alex Connor at MESA Day