6-2016

Math Department Newsletter, 2015-2016

Mathematics Department
Sacred Heart University, mathematics@sacredheart.edu

MATH DEPARTMENT

2015-2016 Newsletter

Sacred Heart University

WELCOME to our annual Mathematics Department Newsletter. We have had a very exciting year on many fronts. Two of our colleagues, Dr. Andrew Lazowski and Dr. Julianna Stockton were awarded tenure and promotion to associate professor. We congratulate two outstanding colleagues on an honor that was very well deserved.

As part of a college-wide initiative, the department will be participating in a new 3+2 engineering program. This will be done under the leadership of Dr. Julianna Stockton. This is a wonderful opportunity to offer many more upper level courses for our students, and for more students to be taking math courses.

In other exciting news, Dr. Stockton is Co-PI on a $1.2M grant awarded by the National Science Foundation to establish a Noyce Scholars program at SHU. The Noyce Biology & Mathematics Education (BioME) program will provide scholarships and extensive educational opportunities to SHU undergraduates who commit to teaching in a high-needs school district after graduation.

The department is excited about many of its accomplishments this past year. Our students have participated in and presented at conferences, our graduates have exciting plans for the future, and our faculty have had some notable accomplishments. We have also been fortunate to keep in touch with several alumni who have written to us letting us know how they are doing. We have noted their accomplishments as well. We hope you enjoy reading about all of this in our annual newsletter.

Some of our graduating seniors (L-R): Nicole Deissler, Evan Ditommaso, Stephanie Dytko, Victoria Jukic, Courtney Ruvolo, and Timothy Weiss.

Student Accomplishments

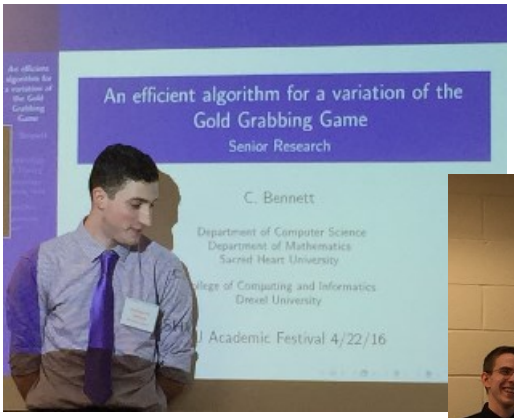
We had several student accomplishments during the past academic year. First, under the advisement of Dr. Loth (and Prof. Goss while Dr. Loth was on sabbatical), the department continued to run its monthly problem solving competition. Each month, students are challenged with an interesting mathematics problem and are invited to submit solutions. Problems reflect a broad spectrum of mathematical areas including calculus, probability, and number theory. As the overall top problem solver of the 2014-2015 Monthly Problem Solving Competition, Dale Mack '16 participated in the U. S. National Collegiate Mathematics Championship held during the MathFest in Washington, D.C. on August 8, 2015.

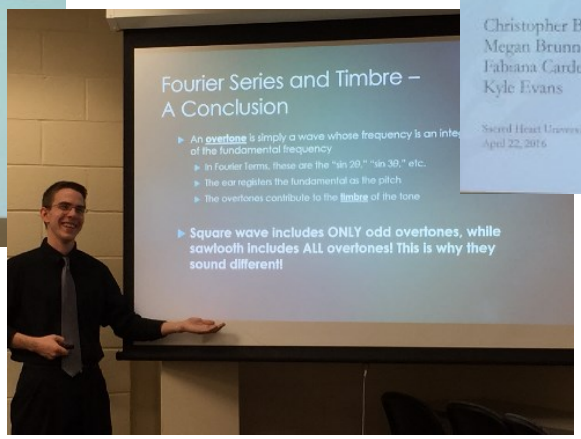
Dale was not be the only student who participated in MathFest this past summer in Washington D.C. Jennifer Robillard '15 and Nicole Trommelen '15 were also at MathFest giving a presentation on Inquiry Based Learning.

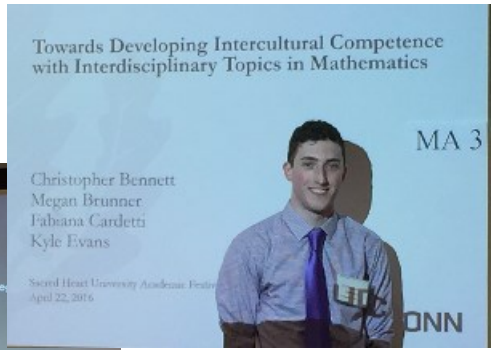
Students in the department also presented at conferences during the academic year. Chris Bennett '16 gave the presentation "An Efficient Algorithm for the Gold Grabbing Game" at a meeting of the Northeastern Section of the Mathematical Association of America held at Gordon College. Chris also presented a poster at the Joint Mathematics Meetings in Seattle on his work done during a summer REU at UConn.

We also had several students present at the Academic Festival right here at SHU. Courtney Ruvolo'16 presented "Molecular Origami" which applied mathematics to chemistry, Timothy Weiss '16 presented "Musical Sound: A Mathematical Approach to Timbre" which applied mathematics to music, and Christopher Bennett presented two talks: "An Efficient Algorithm for the Gold Grabbing Game" which applied mathematics to computer science, and "Mathematics and Intercultural Competence in the Middle School" which was the result of work Chris did during his summer REU at UConn with alumnus Kyle Evans '11. All presentations were well attended and well received.

Finally, we are proud to note that Tim Weiss won second prize in the university's Writing Across the Curriculum Writing Prize Contest for his paper "Musical Sound: A Mathematical Approach to Timbre". The department congratulates Tim on this prestigious award.







Pi Mu Epsilon Inductions and Awards Night

On April 13th we held our Annual Pi Mu Epsilon Induction Ceremony and Awards Night. Dr. Shawn Rafalski from Fairfield University was invited as a special guest and presented "Interesting Mathematics in Curious and Unexpected Places".

Inductees of Pi Mu Epsilon included Sarah Aanonsen, Rachel Andriunas, Michael Boyles, Amy Ellis, Sean Ferguson, David Iacono, and Akeylah Khandwala. Current members of Pi Mu Epsilon are Christopher Bennett, Stephanie Dytko, Victoria Jukic, and Timothy Weiss

Winners of the Freshmen Award were Sarah Riccio and Ryan Rogers; winners of the Sophomore Award were Rachel Andriunas and Christopher Domville. Amy Ellis won the Junior Math Award; Akeylah Khandwala won the Rose Marie Kinik award for top junior math major. The Silver Medal of Excellence went to Victoria Jukic, and the Gold Medal of Excellence went to Christopher Bennett. Congratulations to everyone who was recognized!

Graduating Seniors

As we say goodbye to our graduating seniors, we are excited for what the future holds for them. Evan Ditommaso plans find a full time job in the field of data analysis or financial analysis. He is also considering pursuing a Master's in statistics a minor in computer science. Christopher Bennett will be pursuing a PhD in Computer Science at Drexel University in Philadelphia, Pennsylvania. He will be working as a research assistant in cryptography under the supervision of Dr. Omkant Pandey. Prior to leaving he is hoping to finish development of his current gaming project so that he can release that publicly, to finish the revised proof for his algorithm that he developed for senior seminar, to work with elementary and middle school kids in programming. Nicole Deissler, Stephanie Dytko, Victoria Jukic, and Timothy Weiss will be staying at SHU to complete their Masters of Arts in Teaching. Courtney Ruvolo plans on going to grad school, most likely at Queens College, and getting her degree in Secondary Education in Chemistry. While there, she is hoping to get dual certified in math and chemistry.

We wish our graduating seniors all the best as they embark on their futures.

Alumni Page

One of the greatest joys of the math department is keeping in touch with our alumni. It's always exciting to hear about their accomplishments, both professional and personal. Here are some highlights:

Christopher Carbone '11 has been teaching College Algebra at Post University in Waterbury, CT since January. In addition, he has been working as a tutor at Mathnasium of Trumbull for about one year.

Lauren DiStefano Dominick '09 is still teaching at Darien High School. She will be finishing her Sixth Year degree in July.

Kyle Evans '11 was the research mentor for the Mathematics Education group of the UConn Math REU in Summer 2015 which included our very own Chris Bennett '16. Kyle also gave a talk during Sacred Heart's senior seminar back in September as well as a talk at the Joint Mathematics Meetings in Seattle in January. He will be entering his sixth and final year of grad school at UConn in which he will continue to work on his Ph.D. dissertation.

Michael Fenech '13 is currently teaching Algebra 1 at Akins High School in Austin, TX. He is loving it but misses all of us at SHU!

Mary Frostick '14 is finishing her first year teaching at New Canaan High School.

Jesse Gatten '11 continues to work at Blue Sky ETO. He and his partner bought their first home in Shelton recently.

Nicole Gomes '09 got married last July (ironically, on the same day as Dr. Molitierno) and bought a house with her husband. She is finishing her sixth year teaching at Fairfield Warde High School and still loves it! She also coaches cheerleading there and is a class advisor.

Stephen Hanshaw '13 is working for Electric Insurance as a pricing analyst. He is actively looking into taking the actuarial exams. On a more personal note, Stephen has moved down to Charlotte, NC and was recently engaged.

Anna Kadlof '13 started at Portfolio Advisors as an analyst two and a half years ago and is now working as an associate there. She was accepted to the Fairfield University Master's of Mathematics program which she will be beginning later this year. Lastly, Anna recently got engaged and plans to marry next year.

Nick Kapoor '11, MBA '14 continues to teach in the SHU Math and Government & Politics departments. He teaches elementary statistics, intro to American government, and two first year seminars looking at LGBT issues - the first LGBT-specific courses to be taught at SHU. This past academic year he was the Adjunct Representative on the SHU Academic Assembly Council where he advocated for adjunct issues and provided an active adjunct voice to the Council. Nick was also elected to the Monroe Town Council in his hometown of Monroe, CT this past November and currently serves as the Assistant Minority Leader. He also continues to work for his family's small business in insurance software as a financial analyst. Nick also had the pleasure of working with SHU Sociology Professor, Dr. Amanda Moras, to develop a new minor in Human Rights and Social Justice that will pilot this upcoming Fall semester. He is proud to be a SHU Math grad and looks forward to continue being involved in the SHU community.

Breanna McLaughlin '14 has, for the past two years, been working as an Actuarial Pricing Analyst for Endurance Specialty Insurance, a property and casualty insurance carrier located in Midtown Manhattan. She is currently working towards achieving her ACAS designation, and recently sat for her last part of CAS Exam 3.

Sarah Novotny Vigliotta '08 will be defending her Ph.D. thesis at Wesleyan University this summer. She has accepted a three-year position as a Lecturer at Yale University. The position entails teaching non-major math courses as well as helping to train graduate

students in teaching undergraduate mathematics.

Katie Perzanowski '13 recently moved to Georgia and is an AmeriCorps member working at the Georgia Sea Turtle Center doing husbandry. The center is a rehabilitation facility for sea turtles, as well as other reptiles and birds. Katie also still tries to do improv as much as possible. While doing all of this, she enjoys swing dancing and have met some fellow people with math backgrounds!

Malvina Reinhold '15 is currently taking her Master's in mathematical modeling and computation at the Danish institute of technology close to Copenhagen.

Stephen Zito '08 completed his Ph.D. in mathematics at the University of Connecticut. He has accepted a one-year Visiting Assistant Professor position there.

Additional Special Events

Once again, the department hosted its Alumni Night. Over 30 current students attended to hear how several SHU math major alums have been applying their degree in mathematics to their careers and to their daily lives. We were happy to welcome back Richard Naumann '03, Melissa Tobin '13, Nicole Trommelen '15, Jennifer Robillard '15, Suzanne May '13, Mary Frostick '14, Jesse Gatten '11, and Bobby Lycoudes '12.

At the university level, Dr. Molitierno invited Dr. Colin Adams from Williams College to present the annual mathematics talk to the general university community. Dr. Adams' talk, "Blown Away: What Knot To Do When Sailing" was well received as a standing-room only crowd of over 400 students and faculty packed the University Commons! In his talk, Dr. Adams told a story about sailing on the high seas and applied the branch of mathematics known as knot theory to sailing. His talk was captivating and made an advanced branch of mathematics accessible to the general university audience.

Faculty Spotlight

The faculty have accomplished a lot this year. Dr. Jason Molitierno gave the talk "The Algebraic Connectivity of Outerplanar Graphs" at the Joint Mathematics Meetings in Seattle. Dr. Molitierno is looking forward to continuing his research on the algebraic connectivity of planar graphs when he is on sabbatical in the upcoming Fall semester. Dr. Molitierno also began his three-year term as Governor of the Northeastern Section of the Mathematical Association of America. On a more personal note, Dr. Molitierno got married on July 4, 2015. He was happy that several members of the department attended his wedding.

Dr. Peter Loth was very productive over this past year, especially while on sabbatical this past fall semester. His research paper *Pure injective and *-pure injective LCA groups* was published in the refereed journal Rendiconti del Seminario Matematico della Universita di Padova 133 (2015), 91-102. Also, his research paper *Partial decomposition bases and global Warfield groups* (with C. Jacoby) was published in the refereed journal Communications in Algebra 44 (2016), 3262-3277. Dr. Loth was granted a University Research/Creativity Grant (URCG) summer stipend to support his project ``Classifications of Infinite Abelian Groups". At the Joint Mathematics Meetings of the American Mathematical Society (AMS) and the Mathematical Association of America (MAA) in Seattle, Washington (January 6-9, 2016), he presented the research paper *Abelian groups with partial decomposition bases* and accepted an invitation to co-chair the Contributed Paper Session on Group Theory and Generalizations, II.

This year Dr. Andrew Lazowski was awarded tenure and promoted to Associate Professor. In addition, he published *Evaluating the impact of curriculum infusion on US college students' alcohol use and academic performance* in the Health Education Journal. This paper was coauthored with Jessica Samuolis from the psychology department and Janice Kessler from the wellness center.

During this academic year Dr. Boyle had two papers appear in journals: "The Unimodality of Pure O-sequences of Type Two in Four Variables" was published in the Rocky Mountain Journal of Mathematics and "The Unimodality of Pure O-sequences of Type Three in Three Variables" was published in the Illinois Journal of Mathematics. Dr. Boyle presented on her new research project, "The Index of a Numerical Semigroup in Four Generators", at the MAA Mathfest conference in Washington D.C. She was also the speaker at Providence College's Pi Mu Epsilon's induction ceremony. Dr. Boyle taught Linear Algebra for the first time and enjoyed teaching a mix of mathematics majors and minors. In addition to her teaching and research, Dr. Boyle won the Faculty/Student-Athlete Mentor Appreciation Award for her work with the cross country and track & field teams.

Dr. Julianna Stockton had a very busy year. She was awarded tenure and promoted to Associate Professor. Along with a team from Biology and Education, Dr. Stockton is Co-PI on a $1.2M grant awarded by the National Science Foundation to establish a Noyce Scholars program at SHU. The Noyce Biology & Mathematics Education (BioME) program will provide scholarships and extensive educational opportunities to SHU undergraduates who commit to teaching in a high-needs school district after graduation. We are all excited for this phenomenal opportunity for our majors, and hope even more students will consider a career in teach-

ing thanks to the support from this grant. Dr. Stockton was also named Director of SHU's brand-new 3+2 Engineering program, launching in 2017. Through this program, students will complete a liberal arts degree at SHU in 3 years, then proceed to a partner engineering school to complete an engineering degree as well. Finally, in March, the Stocktons welcomed baby Eleanor Ruth to their family. Dr. Stockton is on maternity leave for the Spring & Summer 2016, and will be returning in the Fall.

Dr. Hema Gopalakrishnan continues to run the Fairfield County Math Teachers' Circle (FCMTC), an initiative of the SHU math department. The FCMTC had another successful year of workshops for middle school math teachers. Teachers from different districts collaboratively and enthusiastically participated in problem solving followed by pedagogical discussions on topics ranging from Combinatorics and Number Theory to Probability and Statistics. They particularly enjoyed the birthday problem, factor game, exploring concepts of the mean, median, and standard deviation, counting number of boy-girl combinations in a family of five children and finding probabilities of some combinations. We are grateful for the gracious support of Dean Robin Cautin and the continued support of the Mathematical Association of America that made these meetings possible.

Finally, the department wishes Dr. Gopalakrishnan well in her role as Acting Chair of the department this coming Fall semester while Dr. Molitierno is on sabbatical.

Coming Attractions!

As this academic year closes, we look forward to another great year ahead. As mentioned earlier in this newsletter, the department will begin participation in the university's new 3+2 engineering program. In conjunction with the department of biology and the College of Education, the math department will also being implementation of the Noyce Scholarship Program. At the undergraduate level, the department is excited to be offering the following electives next year: Differential Equations (MA 354), History of Mathematics (MA 280), and Complex Analysis (MA 372). We also plan to take students to the meeting of the Northeastern Section of the Mathematical Association of America this coming November. The meeting will be held at Trinity College. This will be a wonderful opportunity for students to present their research and to also participate in the annual Intercollegiate Problem Solving Competition. The department will also begin preparations for when we host the meeting of the Northeastern Section of the MAA in Fall 2017! We are also hopeful that our students will participate in SHU's annual Academic Festival. The department also plans to hold our annual Alumni Night, a Pi Day celebration on March 14th (3/14), problem solving competitions, and Math Club activity. Stay tuned!