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Mathematics Newsletter

Mathematics Department

2014

Math Department Newsletter, 2013-2014

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MATH DEPARTMENT

2013-2014 Newsletter

Sacred Heart University

WELCOME to our second annual Mathematics Department Newsletter. We have had a very exciting year on many fronts. We welcomed two new faces to our department. Michael Ward joined the full-time faculty as an instructor. Prof. Ward was an adjunct for the department for fifteen years while teaching full time at Notre Dame High School. We are very happy to have him here full time with us, and he had a very successful year. We also welcomed Christina Palmieri as our new administrative assistant. During her first year, Christina has done a wonderful job in helping the

department run smoothly.

We have also had an exciting year on many other fronts. Our students have participated in and presented at conferences, our Math Club has hosted some wonderful activities, and our faculty have had some notable accomplishments too. 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. I hope you enjoy reading about all of this in our second annual newsletter.

Math Club

The Math Club continues to grow, both in terms of student members and events. President Ashley Bua '14 and Vice President Erin Puschak '14 did an outstanding job overseeing this expansion. Continuing with last year's success, the math club sold pies to celebrate Pi Day (March 14th). The math club also raised money and collected donations of both new and used calculators to give to students at Bassick High School. This event won the math club "Community Service Event of the Year" at the Campus Life Leadership Awards. We thank the Julie Kovar Fund and Nicholas Kapoor (math alum '11) for their generous donations that greatly helped the cause.

Students in the Math Club also volunteered many hours at Assumption Catholic School, a K-8 school in Fairfield. The math department and Assumption created a partnership last year. With the

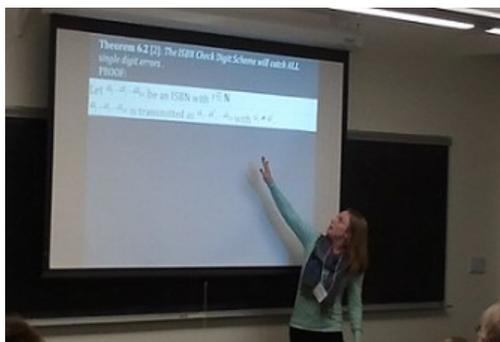
help of Matthew Kaye, the director of volunteer programs and service learning, Sacred Heart students offered free tutoring to Assumption students after school. The leaders of the program this year were senior math majors Ashley Bua and Erin Puschak. In addition, with hopes of expanding teaching opportunities for our students and creating a fun activity for Assumption students, the math club held the Math Olympics. This event took place on Saturday March 15. Children competed in games such as math bingo, math tic-tac-toe, and relay races. The success of this was displayed by articles found in the *Fairfield County Catholic*, the *Fairfield Patch*, *Fairfield's Hamlethub*, and the Sacred Heart website.

The Math Club hopes to build on its successes next year. The new president will be Kimberly Mata '15.

Student Accomplishments

Our students never cease to make us proud. We had several student accomplishments during the past academic year. First, two teams of students participated in the COMAP (The Consortium for Mathematics and its Applications) Mathematical Contest in Modeling, a worldwide mathematical contest. Students Christopher Bennett '16, Richard Cerulli '17, and Anthony Spiteri '18 received the final designation "Successful Participant" for their solution to *Problem A: The Keep-Right-Except-To-Pass Rule*. Students Stephanie Dytko '16 and Timothy Weiss '16 received the final designation "Successful Participant" for their solution to *Problem B: College Coaching Legends*. The department wishes to thank Dr. Loth for organizing this.

Also, thanks to Dr. Loth, the department continues 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 2013-2014 Monthly Problem Solving Competition, Dale Mack '17 was invited to the U. S. National Collegiate Mathematics Championship to be held during the MathFest 2014 in Portland, Oregon, August 7-9, 2014. MathFest is the national summer meeting of the Mathematical Association of America.



Our students have been very active in off-campus activities as well. This past August, four students participated in national MathFest 2013 which took place in nearby Hartford. Under the guidance of Dr. Stockton, Jonathan Bowers '14, Matt Cole '15, Jennifer Robillard '15, and Nicole Trommelen '15 gave the talk "An IBL Proofs Course: Student Perspectives." These students were in Dr. Stockton's MA 301 class, Structures and Proofs (which is the class where math majors begin to write proofs). Dr. Stockton taught this class using the innovative technique, Inquiry Based Learning (IBL). The students discussed this teaching technique from their perspective. This talk was very well received (see right picture below).

We also had students participate in the local Northeast Section of the Mathematical Association of America meeting which took place at Wheaton College in November. Lauren Lindsay '14 (left picture) gave the talk "Identification Numbers and Check Digit Schemes". She also gave this talk at SHU's Academic Festival in May. Several students, forming two teams to represent SHU, took place in the Collegiate Problem Solving Competition that took place at this conference. The students who participated were Jennifer Robillard, Matt Cole, Jonathan Bowers, Ashley Bua, Erin Puschak, and Lauren Lindsay.



Pi Mu Epsilon Inductions and Awards Night

April 9th marked the night of our Annual Pi Mu Epsilon Induction Ceremony and Special Awards. Dr. Christine Von Renesse from Westfield State University was invited as special guest speaker. Her presentation was titled "Exploring Straight Cut Origami".

We were pleased to induct Matthew Cole '15 into Pi Mu Epsilon this year. He joins current students that have achieved this honor in past years: Ashley Bua '14, Erin Puschak '14, Nicole Trommelen '15, and Connor Bohl '15. In addition, Ashley Bua

'14 won the Gold Medal of Excellence and Erin Puschak '14 won the Silver Medal of Excellence. The gold and silver awards are given to the top two graduating senior math majors. Nicole Trommelen '15 won the Rose Marie Kinik Award for outstanding junior math major. Christopher Bennett '16 and Timothy Weiss '16 won the Sophomore Awards while Victoria Jukic '17 and Lauren Puskar '17 won the Freshmen Awards. Congratulations to all members of Pi Mu Epsilon and all award winners!



Graduating Seniors

As we say goodbye to our graduating seniors, we are excited for what the future holds for them. Nichole Mangione has some very exciting plans for her future. She plans on participating in a Business Intelligence summer internship with Travelers Insurance in Hartford. After this internship she plans to move to New Zealand in hopes of finding a job within the insurance industry until she becomes a resident. Once a resident, she plans to pursue a

master degree in secondary education.

Jonathan Bowers plans to make use of his math major and economics minor – two fields that complement each other very well. Ashley Bua, Erin Puschak, and Lauren Lindsay will be sticking around SHU to complete the five-year master's program in education. Since they will be local, we hope they come back to visit often.

Additional Special Events

Due to its continued success, the department once again hosted 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 (front row) Lauren Di Stefano '09, Sarah Novotny Vigliotta '08, Carl Weigand '93, (back row) Nicole Lay Alaimo '07, Marc Wilson '09, Jesse Gatten '10, Michael Fenech '13, Bobby Lycoudes '12, Ken Giordano '13, and Kyle Evans '09.



In a trip organized by Dr. Stockton, several students and faculty spent a day at the Museum of Mathematics located in Manhattan. At the museum, students and faculty were able to experience mathematics hands-on with various puzzles and exhibits illustrating concepts in geometry, probability, algebra, and much more. A very exciting and educational day was had by all!

At the university level, Dr. Moliterno invited Dr. Tom Garrity from Williams College to present the annual mathematics talk to the general university community. Dr. Garrity's talk, "Physical Mathematics – A Revolution in Mathematics" was well received as a standing-room only crowd of over 400 students and faculty packed the University Commons! Dr. Garrity took complex topics in physics and mathematics and made them accessible (and interesting!) to an audience of non-math majors and to faculty outside of mathematics and science.



Alumni Page

Once you enter the math department at SHU, you never really leave! We enjoy keeping in touch with our alumni and hearing about the wonderful things they are doing. Here are some highlights:

Ally Conca '07 just finished her sixth year at Fairfield Warde High School. She teaches primarily Algebra and Precalculus. Also, Ally will be getting married on July 12. Finally, we look forward to welcoming Ally back to the math department this Fall as an adjunct instructor!

Lauren DiStefano '09 recently finished her second masters degree. It is a Masters of Science in Teacher Leadership from Quinnipiac University. In the fall she will begin her sixth year/administrative certification at SHU. Lauren will also be getting married in the summer!

Kyle Evans '11 is now officially into the research stage of his Ph.D. career at UConn. He is working with Dr. Fabiana Cardetti researching math education.

Michael Fenech '13 was inducted into Pi Lambda Theta (education honors society). He will be finishing his Masters Degree during the summer, and will be teaching in Bridgeport starting this upcoming year.

Nicole Gomes '09 is completing her fourth year of teaching at Fairfield Warde High School. She is also finishing her sixth year degree this summer. Nicole coaches cheerleading at Warde, and this year they won the FCIAC Championship. Nicole also got engaged this past December and will be getting married next July!

Stephen Hanshaw '13 recently began working at Electric Insurance as a Pricing Analyst.

Nick Kapoor '11 is currently finishing his MBA at SHU. He is continuing to work as a financial analyst for a small software firm in Shelton, CT. This upcoming fall we look forward to welcoming Nick back to math department as an adjunct instructor!

Suzanne May '13 is currently working in Market Research for Directive Analytics in Trumbull. She is also working towards her Masters in Mathematics at Central Connecticut State University.

Richard Naumann '03 is graduating from Fairfield University with a M.S. in Mathematics. He received *The Robert E. Bolger Award* for excellence in mathematics for his coursework in the graduate program.

Sarah Novotny Vigliotta '08 continues her progress in the Ph.D. program at Wesleyan University. She and her husband had their first child on August 20, 2013 – a son, Gregory, Jr!

Katie Perzanowski '13 competed in the National Problem Solving Competition and also presented at MathFest last August after graduation. She is currently a substitute teacher for Berlin Public Schools and a volunteer Docent at Mystic Aquarium. Katie is also in a professional improv troupe, The Great Make Believe Society. They recently won the title of CT Cage Match Champions, after winning the last 5 rounds of sold out shows where the audience determines the winner.

Marc Wilson '09 is currently finishing up his fourth year teaching middle school math in Trumbull as well as working as an IT leader in the school and running the Web Club. He also teaches a LEGO Architecture program in Trumbull's Summer Explorations program. Marc got engaged in December to be married in the summer of 2015. He and his fiancée just bought a house in Newtown.

Steve Zito '08 is continuing in the Ph.D. program at UConn and recently passed his oral exam. He is looking forward to teaching linear algebra in the fall which will be the highest level math course he has ever taught.

Faculty Spotlight

The faculty have accomplished a lot this year. Dr. Jason Moliterno gave the talk “The Algebraic Connectivity of Planar Graphs” at two conferences: the International Linear Algebra Society meeting held in Providence, RI last June, and at MathFest 2013 held in Hartford, CT. MathFest is the national summer meeting of the Mathematical Association of America (MAA). Dr. Moliterno also continued in his role as the Section NExT coordinator for the Northeastern Section of the MAA. Section NExT is a program for new faculty in New England that helps prepare such faculty for tenure. On a more personal note, Dr. Moliterno recently got engaged! He plans to marry in July 2015.

Dr. Peter Loth had a very productive year. As mentioned earlier, he was the advisor for two teams of students participating in the COMAP (The Consortium for Mathematics and its Applications) Mathematical Contest in Modeling, a worldwide mathematical contest. He also was the advisor for the monthly Problem Solving Competition. In terms of his research, his paper *Partial decomposition bases and Warfield modules* (with C. Jacoby) was published in the refereed journal *Communications in Algebra* 42 (2014), 4333-4349. Dr. Loth also received a University Research/Creativity Grant (URCG) summer stipend to support his research project “Groups with partial decomposition bases”.

This was a year to remember for Dr. Andrew Lazowski. He received the Dr. Marian Calabrese Outstanding Faculty Award at the Campus Life Leadership Awards. This is a student nominated award given at the end of the spring semester and was an exclamation point on a great academic year. He was also invited to give talks at Yale University and Western Connecticut State University. At Yale

he presented “Infinitely Generated Kleinian Groups With Small Limit Sets” in the geometry & topology seminar. At Western he presented “Mathematics and Football” in a freshmen seminar class. Another talk that he gave was at the national Joint Mathematics Meetings held in Baltimore: “Finite Factors and Graph Labelings.” In addition to these presentations, he had three publications: “Mathematics in Conservation: The Case of the Endangered Florida Panther” which appeared in the *National Center for Case Study Teaching in Science*, “An Explicit Construction of Kleinian Groups With Small Limit Sets” which appeared in *Expositiones Mathematicae*, and “Constructing Infinitely Generated Kleinian Groups With Small Limit Sets” which appeared in the *Journal of Dynamical Systems and Geometric Theories*. Finally, Andrew is the advisor to the math club and they had an excellent year.

Dr. Bernadette Boyle’s paper “The Unimodality of Pure O-Sequences of Type Two in Four Variables” was accepted by the journal *Rocky Mountain Journal of Mathematics* in January 2014. She also gave a talk on this paper in the American Mathematical Society Contributed Talks Session on Commutative Algebra and Homological Methods at the National Joint Mathematics Meetings in Baltimore MD in January 2014. Dr. Boyle also gave a talk, “The Cayley-Bacharach Theorem Through the Ages,” at Fairfield University in their Undergraduate Mathematics Colloquium in February.

We missed Dr. Julianna Stockton this past semester as she was out on maternity leave. The department wished to congratulate Julianna and her husband, Adam, on the birth of their first son, Arthur, who was born February 22, 2014. We wish the Stockton family well and look forward to Julianna returning to the department in the Fall 2014.

Despite being on maternity leave, Dr. Stockton had a very productive year. She had two peer reviewed publications: "Horizon content knowledge in the work of teaching: A focus on planning" which appeared in *For the Learning of Mathematics*, and "History of Hungarian Gifted Education: Special Mathematics Classes" which appeared in *Newsletter of the International Group for Mathematical Creativity and Giftedness*. This publication is available at http://www.igmcg.org/files/newsletter_4.pdf. Most notably, Dr. Stockton presented "An IBL Proofs Course: Student Perspectives" at MathFest 2013 with four students. This talk was very well received.

Professor Rosemary Danaher will be broadening her knowledge of the biological sciences in the fall semester. After several discussions with Professor Ben Alper in the chemistry department she plans to audit his course in bio-chemistry.

The additional knowledge she gains will be used to enhance the bio-stats course she will be teaching in the spring.

Finally, Dr. Hema Gopalakrishnan and Professor Rosemary Danaher continued their work on the Fairfield County Math Teachers Circle (FCMTC). They organized several workshops for middle school math teachers in Fairfield county and brought in several guest speakers. These workshops were supported by mini grants from the AIM, MSRI, People's Bank, and GE. Several teachers have expressed interest in the continuation of the FCMTC meetings again next year.

Coming Attractions!

As this academic year closes, we look forward to another great year ahead. We are offering two courses that haven't been offered in a couple years: History of Mathematics (MA 280) and Number Theory (MA 325). We are hopeful to have a combined field trip with the History of Mathematics class and the Senior Seminar class to a site of mathematical interest. We also plan to take students to the meeting of the Northeast Section of the Mathematical Association of America this coming November. The meeting will be held at South-

ern Connecticut State University which will be convenient location for our students to present their research and to also participate in the annual Intercollegiate Problem Solving Competition. 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 will continue to build on our student activity in the Math Club which has significantly increased this past year. Stay tuned!