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Mathematics Newsletter

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Mathematics Department

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MATH DEPARTMENT

2018-2019 Newsletter

Sacred Heart University

WELCOME to our annual Mathematics Department Newsletter. This was a great year for the department. We welcomed two new full-time faculty members into the department. Dr. Elliott Bertrand just successfully completed his first year as an assistant professor. Dr. Bertrand came to us directly after finishing his Ph.D. at the University of Rhode Island. Tina Romansky, a long-time adjunct, successfully completed her first year as a full-time instructor. She was a visiting instructor for the year while we conducted a formal search. We are happy to announce that she has been hired for the position permanently beginning this coming academic year. In addition to her previous experience as an adjunct, Tina was also an electrical engineer at Pitney Bowes in Stamford.

The department is also pleased to announce that after a successful search which included preliminary interviews at the Joint Meetings in Baltimore and four highly qualified candidates coming to campus for interviews, we have hired a new Ph.D. faculty member at the rank of lecturer. Dr. Jean Guillaume will be joining us this coming Fall. Dr. Guillaume is completing his Ph.D. at the University of Rhode Island. His area of specialization is discrete mathematics with a special focus in graph theory. Welcome, Jean!

In addition to doing a search for a Ph.D. lecturer, we also did a search for two Master's level instructors. After conducting preliminary interviews and bringing four highly qualified candidates to campus, we hired two such instructors. One of which was Tina Romansky as mentioned earlier. The other is Zoe Cramer. Zoe is completing her

Master's degree at the University of Connecticut. She has taught at University of Connecticut, Central Connecticut State University, and Tunxis Community College. Welcome Tina and Zoe!

With our department growing so much, we have outgrown our current office suite in SC 220! In the Fall, we will be moving to our new office suite in the Martire building. In fact, the department has already moved to temporary cubicles in Martire while awaiting our new offices to be ready to be occupied. Please stop by and visit our new digs this Fall!



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!

Student Accomplishments

We had several student accomplishments during the past academic year. First, Michael Bubolo '19 was the winner of the College of Arts and Sciences (CAS) Honor of Academic Distinction competition in April. He was selected as one of three finalists from CAS and presented his senior project, "The Dynamics of the Logistic Map and Difference Equations" to the CAS Board of Trustees. He then won this academic competition for the most outstanding project. Congratulations, Mike! Mike also presented his project at the meeting of the Northeastern Section of the Mathematical Association of America held at Southern New Hampshire University.

Several students presented their senior projects at the university's annual Academic Festival. Mike Bubolo presented his senior seminar project listed above. Trevor O'Brien '19 presented "Identification Numbers and Check Digit Schemes". John Munday '19 presented "Connecting the Digi-

tal Root and Trigg Operator". Emily Murphy '19 was to present "The Fibonacci Sequence and Golden Ratio".

Congratulations to our students for their many fine presentations!



Pi Mu Epsilon Inductions and Awards Night

On April 3rd we held our annual Pi Mu Epsilon Induction Ceremony and Awards Night. Dr. Ben Fine from Fairfield University was invited as a special guest and presented "Secret Sharing Using Linear Algebra: The Shamir Schemes."

Inductees of Pi Mu Epsilon were Lauren Bolcar '20, Nicholas Dasilva '19, Emily Hague '19, Delaney Howe '20, Emily Murphy '19, Ryan Rogers '19, and Renee Russo '19. Current members of Pi Mu Epsilon who assisted in the induction were Michael Bubolo, Cariann Johnson, Sarah Ric-

cio, and John Munday.

Winners of the Freshmen Award were Linnea Caraballo and Amanda Haydu; winners of the Sophomore Award were Lucinda Cahill and Jaime Maggio. Stephen Clarke won the Junior Math Award; Lauren Bolcar won the Rose Marie Kinik award for top junior math major. The Silver Medal of Excellence was awarded to Sarah Riccio, and the Gold Medal of Excellence was awarded to Michael Bubolo. Congratulations to everyone who was recognized! (See photo on next page.)



Graduating Seniors

As we say goodbye to our graduating seniors, we are excited for what the future holds for them. Emily Murphy has a job in Xylem's first Finance Leadership Development Program. Xylem is a sustainable water technology company. The FLDP is a rotational program. She will be spending a year in 3 different key finance departments and end with a permanent job practically guaranteed. Mike Bubolo will be studying for Exam P – Probability, which is the first actuarial exam toward the Associate of the Society of Actuaries (ASA) designation. In addition to preparing for the test, he will look for employment opportunities that relate to the Actuarial Science field. John Munday will begin his Master's in communication science and disorders at Teachers College in New York. Trevor

O'Brien is hopeful that an admissions counselor position opens up here at SHU. He will also be looking into jobs involving stat-checking and keeping, hopefully with some applications in sports. Taylor Samuel will be pursuing an M.S.Ed. in Math Education at Hofstra University. Taylor Andarek, Nick Dasilva, Emily Hague, Cariann Johnson, Kirsten Link, Kate Perri, and Sarah Riccio will be sticking around SHU for an additional year to student teach and pursue a Master's degree. Alexandria Toumbacaris will also be pursuing education. 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:

Michael Calvagna '18 will be teaching math at UCSD (San Diego) this summer to high school students through the TRiO outreach program.

Christopher Carbone '11 just graduated from Fairfield University with his Master of Science in Mathematics and Applied Statistics certification. Additionally, he was inducted into their chapter of Pi Mu Epsilon (Gamma chapter), in April.

Kyle Evans '11 just finished his first year at Trinity, in which he taught an upper-level statistics course and an education course for the first time. In the Fall, through the support of a Community Learning Fellowship, he will be teaching "Mathematics and Redistricting", a brand-new Math and Political Science course that he is designing in which students will have the opportunity to learn about redistricting from elected officials and staff in the Connecticut state government. In addition, through the support of a Teaching and Learning Fellowship, he will be converting one of his courses to a mastery-based grading system.

Michael Fenech '13 is finishing his fifth year teaching high school math. In the Fall, he is taking a hiatus from teaching and returning to graduate school to pursue a Ph.D. in STEM Education at the University of Texas at Austin.

Nick Kapoor BS '11 MBA '14 will be transitioning from his role as VP of Operations at I-Engineering, Inc. to full-time teaching in the Math Department at Fairfield University in the upcoming Fall semester. He continues to serve as a Commissioner on the Connecticut Commission on Human Rights and Opportunities. Nick and his partner Anthony (and fellow math teacher!) purchased their first home in Nick's

hometown of Monroe, CT. Nick looks forward to, once again, running for municipal office in this November's election. Nick also continues to be an adjunct faculty member in the Department of Government at SHU.

Sarah Novotny Vigliotta '08 and her husband welcomed their fourth child, Aidan Robert, on August 17, 2018. In addition, Sarah has finished up her position as a Lecturer at Yale and will be starting a new position as a Continuing Track Assistant Professor at the University of Delaware in their Associate in Arts program in the new academic year.

Katie Perzanowski '13 started a full time career last July with the State of Connecticut Department of Energy and Environmental Protection as an Environmental Analyst. It is a rotational program for the first year and a half where she and two others spend six months in each of the three Environmental Quality Divisions focusing primarily on enforcement, before being assigned permanently to one section. She is currently working in the Dam Safety Program writing orders and reviewing dam inspection reports and Emergency Action Plans. Her math degree helped her land this position and has helped her with calculating penalties and helping create enforcement reports amongst the divisions. She is still active in the improv and swing dance communities and can be found performing at Sea Tea Comedy Theater in Hartford or dancing around CT. She also is a volunteer at Mystic Aquarium with the Animal Rescue Program helping to save and rehabilitate sick and injured seals.

Marc Wilson '09 and his wife, Rachel, had big news this year with the birth of their son, Sawyer, in February. Everyone is happy and healthy. They continue to live in Newtown and he is finishing his ninth year teaching middle school math in Trumbull.

Faculty Spotlight

The faculty have accomplished a lot this year. Dr. Jason Molitierno was promoted to full professor, effective September 1, 2019. He was also elected as Secretary/Treasurer of the Northeastern Section of the Mathematical Association of America. Dr. Molitierno also gave two presentations at national conferences. He presented "Projects Applying Linear Algebra to Calculus" presented at MathFest in Denver, CO in August 2018 and "A Tight Upper Bound on the Spectral Radius of Bottleneck Matrices for Graphs" at the Joint Mathematics Meetings in Baltimore, MD in January 2019.

Dr. Elliott Bertrand had an enjoyable and productive first year at Sacred Heart. With coauthor Mustafa Kulenovic, he published the article "Global Dynamic Scenarios for Competitive Maps in the Plane" in the journal *Advances in Difference Equations*. They also published the paper "Global Dynamics of Higher-Order Transcendental-Type Generalized Beverton-Holt Equations" in the *International Journal of Difference Equations*. Dr. Bertrand gave a talk with David McArdle on their joint work in mathematics education (in collaboration with Li Wu and Lubos Thoma) at the United States Military Academy in West Point, NY. He and David also co-organized a special session of the AMS Spring Eastern Sectional Meeting on Discrete Dynamical Systems and Applications at the UCONN Hartford campus. Dr. Bertrand presented recent work on the "Global Behavior of a Class of Order-k Discrete Dynamical Systems" at this conference. He enjoyed working with Michael Bubolo on his award-winning senior seminar paper and presentation "The Dynamics of the Logistic Map and Difference Equations." Dr. Bertrand also appreciated the opportunity to join the newly formed SHU Symphony Orchestra, which gave two performances this year.

Dr. Andrew Lazowski continues to direct the Thomas More Honors Program in addition being a member of the math department. He attended the ATMNYC conference in New York, NY along with math majors interested in teaching high school. Participation in the conference was part of a NOYCE grant for teaching fu-

ture high school teachers in high-needs school districts. Also, he received a second NOYCE grant this year! The new one is for the teaching of future elementary school teachers in high-needs school districts. Both grants focus on STEM education. In addition, he attended the JMM in Baltimore, MD and gave the talk: Combining Plurality and Alternative Voting. Finally, he represented SHU in the Bigelow Tea Community Challenge 5k in September.

Dr. Hema Gopalakrishnan was invited to do a math circle demonstration at the Northeastern Section meeting of the MAA last spring and at the regional meeting of the NCTM in Hartford last fall. She is grateful to Jason Molitierno for sponsoring the Fairfield County Math Teachers' Circle meetings held at SHU for middle school math teachers this academic year.

Dr. Bernadette Boyle has had a great year. She enjoyed teaching Calculus and Statistics as well as teaching new math majors in the Structures and Proofs course for the first time. She also had the opportunity to mentor two great seniors on their Senior Seminar research projects, as well as lead a Geometry independent study with three more seniors. In September, Dr. Boyle delivered a mathematics seminar talk at Connecticut College. The talk, which was titled "The Index of Families of Numerical Semigroup Rings", was related to her current research project. In addition to her teaching and research, Dr. Boyle continues to enjoy her work as the faculty mentor to the cross country and track and field teams at SHU.

Tina Romansky completed her 12 month contract with the department and was hired as a full time Mathematics Instructor, filling the position left vacant by Rosemary Danaher. In her new role, she will continue to teach foundational courses, and is excited to be mentoring a student in the fall through his senior seminar research. She is hopeful that her education and experience in Electrical Engineering and Computer Science will help serve our department as we support the expansion of engineering at SHU.

Math Club and Special Events

The Math Club was proud to sponsor another "Cocoa & Cram" event this year on December 3, 2018. Some of the organization's members served as tutors to help students enrolled in math and economics courses get some quality studying done in advance of final exams - all while enjoying some delicious cocoa! The Math Club also held a fundraising event at Moe's Southwest Grill in Fairfield on February 25, 2019. The Math Club congratulates its graduating seniors, welcomes its new 2019-2020 officers and members, and looks forward to another exciting academic year!

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 gave the talk, "Why Numbers are Mysterious and Hard to Understand". With the attendance in recent years outgrowing the University Commons, this was the first year that the talk was held in the Edgerton Theatre. The theatre was full and the talk was well-received! In his talk, Dr. Garrity discussed the structures of rational and irrational numbers and explained interesting ways to write numbers, focusing on continued fractions. It was a talk accessible and enjoyed by students of all mathematical abilities.



Coming Attractions!

As this academic year closes, we look forward to another great year ahead. We look forward to the arrival of our newest faculty members, Dr. Jean Guillaume and Zoe Cramer, and welcome Tina Romansky to a permanent position.

After completing an Academic Program Review this year in which the department received high marks from the external consultant, the department will review its curriculum. In our commitment to applied mathematics, the department will be offering a course in numerical analysis for the first time in the Spring 2020 semester. Dr. Elliott Bertrand will be teaching it. For the first time this

spring, we offered two pilot sections of a project-based statistics MA 131 class taught by Dr. Hema Gopalakrishnan and adjunct Dr. Liz Raver. We are excited to improve upon these courses next year.

We look forward to our students participating in academic activities such as giving talks and presenting posters at conferences and at SHU's annual Academic Festival. The department also plans to hold our annual Alumni Night in October, invite a speaker to give a mathematics talk to the university community, problem solving competitions, and Math Club activities. Stay tuned!