



Vectors

The Newsletter of the Mathematics Department at Rowan University

WHO'S NEW IN THE ROWAN UNIVERSITY MATHEMATICS DEPARTMENT

The Rowan Math Department welcomed five new faculty members during the Fall 2015 semester. Dr. Charalampos (Babis) Papachristou and Dr. Edward Dougherty joined us as tenure-track assistant professors. New 3/4-time instructors include Stephen Donahue '07*11, Christopher Urban '10*14, and Sky Waterpeace '05*14.



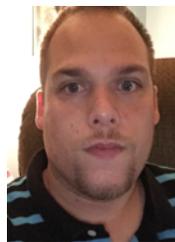
Dr. Charalampos (Babis) Papachristou, a native of Thessaloniki, Greece, earned a B.S. in Mathematics from Aristotle University and a Ph.D. in Statistics from the Ohio State University. Previously, he was a postdoctoral fellow in the Department of

Human Genetics at the University of Chicago and a tenured Associate Professor of Statistics at the University of the Sciences in Philadelphia. His research interests are in the areas of statistical genetics, epidemiology, and applications to biological and medical studies. He is currently collaborating on a wide variety of projects, such as uncovering factors affecting asthma susceptibility, building mouse models of response to leukemia treatments, reducing drug wastage in VA hospitals, and identifying genetic markers that predict drug response to cancer treatment. Dr. Papachristou is also very passionate about his teaching, for which he was recognized in 2013 with the Christian R. and Mary F. Lindback Award for Distinguished Teaching at the University of the Sciences. When he is not teaching or doing research, Babis enjoys playing volleyball and performing traditional Greek dances.



Dr. Edward Dougherty earned a B.S. in Computer Engineering from Syracuse University, an M.S. in Biomedical Engineering from Tufts University, and a Ph.D. in Computational Biology from Virginia Tech. Prior to his PhD studies, he worked at the MIT

Lincoln Laboratory as a researcher in the Ballistic Missile Defense Division and also was an Assistant Professor of Mathematics at Pine Manor College in Chestnut Hill, MA. His research interests include developing mathematical models and computational simulations of neurological treatments. In addition, he is interested in analyzing the numerical methods used in generating these simulations.



Christopher Urban '10*14 earned a B.S. in Physics, a B.A. in Mathematics, and an M.A. in Mathematics from Rowan University. He previously taught as an adjunct instructor at Rowan University, Rowan College at Gloucester County, Salem County

College, and DeVry University. In his spare time, he enjoys reading comic books, watching sports, and playing cards.

Stephen Donahue '07*11 earned his B.A. and M.A. degrees in Mathematics from Rowan University. He has collaborated with Dr. Tom Osler on translating Euler's work into English. Since graduating from Rowan, he has travelled the world, studied kung fu in China, gotten married, and settled down in a new home in Clayton, NJ. He is also a mathematics lecturer at Cumberland County College.

ROWAN MATHEMATICS LEARNING COMMUNITY WELCOMES 47 FRESHMEN

The Mathematics Department welcomed 47 new freshmen math majors in Fall 2015. The majority of these freshmen are living together in a residential learning community located in Chestnut Hall. Freshmen math majors are also encouraged to take Precalculus, Calculus I, Symbolic Logic, Discrete Math, and Calculus II together in special learning-community sections of these courses. The learning community course, offered for the first time in Fall 2015, was designed to introduce freshmen to the Rowan math major, department faculty, and the field of mathematics in general. Faculty and staff who gave presentations to the learning community this semester include Learning Community Coordinator Dr. Christopher Simons, Librarian Denise Brush, Advisor Mike Schillo, Dr. Edward Dougherty, Dr. Abdul Hassen, Dr. Karen Heinz, Dr. Laura Schultz, and Dr. Uma Thayasivam.



Math Learning Community freshmen listen to a presentation by Dr. Uma Thayasivam

Upcoming Events

April 16, 2016

Spring 2016 MAA-NJ Meeting at William Patterson University (Abstracts due February 2, 2016)

April 16, 2016

13th Annual Garden State Undergraduate Mathematics Conference and Competition at William Patterson University

April 22, 2016

Rowan University STEM Student Research Symposium in the Eynon Ballroom of the Chamberlain Student Center

May 10, 2016

Rowan University Commencement, College of Science and Mathematics (10 AM on University Green; inside the Rec Center if we have inclement weather)

August 3-6, 2016

MAA MathFest in Columbus, OH

ALUMNI SPOTLIGHT: BRIAN STEIN '78

Brian Stein '78 returned to campus in November 2015 to give a Rowan University Mathematics Colloquium presentation entitled, "Putting It All Together." After graduating *magna cum laude* from Glassboro State College, he took graduate courses in pure and applied mathematics at both New York University and Rensselaer Polytechnic University. Since then, Brian has worked extensively in the aerospace industry. He has developed systems, concepts, and algorithms for air traffic metering for the Federal Aviation Administration as well as anti-aircraft warfare software for the US Navy and our allies. After most recently working as a senior systems engineer for Lockheed Martin, he is presently the senior principal engineer for Methods, LLC.



Brian Stein '78

IRA FINE TEACHES INAUGURAL COHORT OF COOPERMAN COLLEGE SCHOLARS

Instructor *Ira Fine '75*95*01* taught math to nineteen Cooperman College Scholars during a three-week Summer Academy at Rowan University. Funded by the Leon and Toby Cooperman Family Foundation, this program is aimed at helping highly motivated, academically talented, underrepresented students from Essex County thrive in college. The students spent the summer after 11th grade taking classes, living on campus, and receiving an early exposure to college life. During their senior year of high school, they will be assisted with preparing for the SAT exam, navigating the college application process, and applying for financial aid. Students who successfully complete the Summer Academy, graduate from high school, and enroll in a four-year college are eligible for a generous college scholarship and mentorship program.



Ira Fine and some of the 2015 Cooperman Summer Scholars pose with posters they made displaying Mandelbrot images and some origami they did on the last day of class.

Photos contributed by Ira Fine

Student Spotlight: Long (Winston) Cheong

Winston Cheong participated in a Research Experience for Undergraduates (REU) last summer at Fairfield University. Working with Dr. Stephen Sawin, (Fairfield University), Alexander Doser (Iowa State University), and McKinley Gray (SUNY Geneseo), he explored the relationship of the Hennings and Chern-Simons Witten invariants for higher rank quantum groups. Winston enjoyed the project because “the field of quantum topology is very modern” and found the REU to be a wonderful experience for “learning higher level math, learning how to work in a group, and getting used to the feeling of being stuck staring at a board for hours.”

Winston, who earned a perfect score on the ETS Math Major Field Exam this fall and was last year’s Outstanding Junior Scholarship recipient, plans to graduate in May 2016 with a B.S. in Mathematics, a B.S. in Computer Science, and a concentration in Honors Studies.



Winston (in green shirt) surrounded by the other Summer 2015 Fairfield REU participants.

STRUCTURES OF MATH II STUDENTS COMPLETE A GEOMETRIC QUILT PROJECT

Students in *Dr. Janet Caldwell’s* Fall 2015 Structures of Mathematics II classes designed geometric-themed quilt squares which Dr. Caldwell assembled into the two class quilts pictured below. Working in groups of two, students were randomly assigned a theme for their squares. Each group had to design a quilt square, describe how their square illustrated the assigned geometric theme, create a scaled pattern, and actually sew their squares using precision and accuracy.



Students posing with their Structures of Mathematics II class quilts include (from left to right) Kelly Davis, Kayla Todd, Tyler Luscko, Julio Silva, Meghan Ondo, Elise Daugherty, Zachary Wakeley, and Samantha Yaworski.

Quilt photos contributed by Janet Caldwell

HOMECOMING 2015: BACK TO THE FUTURE

The Mathematics Department sponsored a booth during Homecoming 2015. Alumni **Chris Walsh '13*15** and **Ira Fine '75*95*01**, along with Math Team members **Ashley Shepp**, **YongXian Wu**, and **Danny Lamberson**, helped visitors create origami hexaflexagons and learn a bit about Menger sponges.



Homecoming photos contributed by Ira Fine

STUDENT AND FACULTY NEWS

The following six students took the prestigious [Putnam exam](#) in December 2015: **Dane Charlton, Long (Winston) Cheong, Nathan Jones, Angel Ramos, Paul Stanton,** and **Joanna Williams**. They attended regular study sessions led by the Rowan Putnam supervisor, **Dr. Hieu Nguyen**.

Graduate student **Aaron Iles** spent a week last spring trekking 93 miles from Besisahar to Jomsom via the Annapurna Circuit in Nepal. He and his friend Mark Bonikowsky hiked a net elevation gain of 30,000 ft. through temperatures ranging from 18°F at the Thorung La Pass to 103°F in the jungle. Their plans to complete another 100 mile trek up to the base camp on Mt. Everest were thwarted by a devastating earthquake that had occurred a month earlier. Aaron also placed 2nd in the August 2015 Altra Coventry Woods Challenge in Pottstown, PA, by completing 33.9 miles in 6 hours.



Mark Bonikowsky and Aaron Iles

Dr. Abdul Hassen and Dr. Hunduma Geleta published a paper titled, "Fractional Hypergeometric Zeta Functions," in the *Ramanujan Journal*.

Vincent Mateescu sang in the chorus for the April 2015 production of *The Magic Flute* at Rowan University.

Dr. Eric Milou ran as an at-large candidate in the 2015 election for the NCTM Board of Directors.

Dr. Laura Schultz was an invited panelist for a Consortium for the Advancement of Undergraduate Statistics Education (CAUSE) webinar entitled, "Reflections on Making the Switch to a Simulation-Based Inference Curriculum," in September 2015. Also, she was re-elected to the Pitman Board of Education in November 2015.

ALUMNI NEWS

Jonathan Hall '05 earned a M.Ed. from Seton Hall University in 2010. He is currently a web developer at Software Paradigms International (SPI).

Stefanie Vesci '05 taught math in Cherry Hill for six years after



Stefanie Vesci '05 and her family

graduating. She got married her senior year at Rowan and now has four children. She currently homeschools her two oldest children and teaches a high school psychology class through a homeschool co-op.

Brian Ruberti '08 is an assistant actuary for the ACE Group. He earned a M.S. in Applied Mathematics from the University of Delaware in 2010 and recently sat for his eighth actuarial exam.

Carolyn Sisto '08 is a data analyst at Beacon Health Options.

Stefanie (Bulleck) Austin '10 earned a M.S. degree in Statistics and Operations Research from Penn State University in 2014. She is currently employed at Penn State as a statistical information specialist at the Data Learning Center, an instructor in the Statistics Department, and a staff member at the Statistical Consulting Center.

Nicholas Berzanskis '11 earned an M.S. degree in actuarial science from Columbia University in 2013. He is currently employed as an actuarial analyst at O'Sullivan Associates.

Jacqueline Huynh '11 earned an M.S. degree in applied statistics from Villanova University in 2013. She is currently a data insights associate at J.P. Morgan Chase and Co. in New York. She was previously a statistical analyst for Urban Outfitters in Philadelphia.

Matthew Brady '12 is a high school math teacher at the Y.A.L.E. School in Cherry Hill, NJ. He is also the advisor for the Y.A.L.E. Robotics Club.

James Zuccarello '12 is an underwriting account senior associate at Cigna.

Lindsey Mading '13 is a Woodrow Wilson New Jersey Teaching Fellow at Rowan University.

Dan Reeve '13 is a computer programmer/account manager at Health Care Software (HCS).

Alumni News continued on page 7...

...Continued from Page 6

Steven Giambrone '14 is a quality analyst at Optum.

Alicia Boncardo '14 is a math teacher at Washington Township High School.

Kaitlyn Philipson '14 is a math teacher at Pequannock Township High School.

Jennifer Stief '14 is a math teacher at Washington Township High School.

Kristina Yoroshko '14 is a math teacher at Kingsway Regional Middle School.

Jason Cornog '15 is a professional bowler.

Tara Craig '15 is an underwriting specialist at Swift Capital.

Jennifer Crawford '15 participated in the DIMACS REU program at Rutgers University last summer. Her project, "Determining the Age of an Improvised Jazz Solo via Note Intervals," was mentored by Dr. Alex Kontorovich.

Alexandra Grote '15 is a math teacher at Pitman High School.

Kathleen MacIntosh '15 is a basic skills math teacher at Orchard Valley Middle School in Washington Township.

Ashley Payne '15 is the resident director for the Whitney Center and the sophomore wing of 220 Rowan Blvd. She is currently pursuing a Master's degree in Higher Education Administration at Rowan.

Head's (Chair's) Corner



Hello students, faculty and friends of Rowan Mathematics! Here we are at the end of the Fall semester, and the world is turned upside down! Well, not really, but there has been some real change. I am no longer the Chair of Mathematics, but the *Head* of Mathematics! Yes, it's true!

Last year, in my third year as Chair, I was still not getting a handle on the job. Math continued to teach more students (in full-time equivalents, or FTEs) than any other department and more than the College of Engineering. The job had reached the point where I did not think it could be done with 6 semester hours "release" from teaching, so in December I tendered my resignation (as of June 30). As the spring wore on, there were no volunteers to follow me, so I started negotiations for 9 hours off. In the meantime, the five departments in Engineering were re-configured to each have a full-time, managerial chair, or *head*, with no teaching. Well, the Administration gave Mathematics "an offer that it could not refuse," and the result is that I accepted the position of Managerial Chair (one of eight across campus). But enough about me.

Mathematics continues to grow in faculty and students taught. For each of the last four falls, we have had 6, 7, 7 and 9 three-quarter-time faculty (6, 8, 10 & 12 counting Rowan Select), and 26, 40, 49 & 45 adjunct professors. The dip in adjuncts is by and large due to the fact that we have hired two additional three-quarter-time and two additional full-time, tenure-track faculty! The full-time faculty headcount over the last four falls: 21.5, 24.5, 23 and 24 (an increase of only one because we lost me!). As far as students taught—yes, many are in two or three classes—we have seen 3524, 3917, 4471 and 5105 (with the first three being final counts). But enough of the whining!

We have also been teaching some of the new courses that were created for the "things biological" push, the Biomathematics Track of the M.A. and the Data Analytics M.A. Last Spring, we saw the *Partial Differential Equations in Biomathematics*, *Introduction to Statistical Data Analysis* and *Applied Stochastic Processes* graduate courses come on line. This coming Spring, we are teaching the undergraduate *Statistics for the Biomedical Sciences* (undergraduate) and *Applied Multivariate Data Analysis* (graduate).

In closing, these continue to be exiting times for the Department of Mathematics. I hope that your fall has gone well!

- Dex Whittinghill