VOLUME X, NO. 1



Vectors

The Newsletter of the Mathematics Department at Rowan University

WHO'S NEW IN THE ROWAN UNIVERSITY MATHEMATICS DEPARTMENT

The Rowan Math Department welcomed seven new faculty members and two new secretaries during the Fall 2016 semester. Min Wang joins us as a tenure-track assistant professor. New 3/4-time instructors include Fang-Chi Benson *13, Richard Connor, Driss Drissi, Panakkal Mathew, Angela Napoliello-Ivory *00, and Jeff Savitz.



Dr. *Min Wang* earned a B.S. in Mathematics and Applied Mathematics and an M.S. in Applied Mathematics from Ocean University of China, and a Ph.D. in Mathematical Sciences from Northern Illinois University.

Previously, he was an Assistant Professor of Mathematics at the University of Tennessee at Chattanooga and a Senior Analyst at Equifax, Inc., in Atlanta, GA. He is an applied mathematician whose research interests include deterministic and stochastic differential equations, mathematical modeling, and numerical analysis. Due to his industrial journey, Min is also interested in the area of data analytics (*see related story on Page 3*). Outside of work, Min enjoys watching movies and hiking with his family.



Fang-Chi (Chloe) Benson *13 earned a B.S in Computer and Information Science from Guypedd-Mercy University and

Gwynedd-Mercy University and an M.A. in Mathematics from Rowan University. She has previously taught as an adjunct at Rowan

University, Wilmington University, Rowan College at Gloucester County, and Cumberland County College. She enjoys outdoor activities in her free time.



Richard Connor earned a bachelor's degree in Pure Mathematics and a master's degree in Applied Mathematics from Rutgers University - Camden. His interests include data science and

actuarial science. In his spare time, he enjoys hiking, rock climbing, salsa dancing, and spending time with his family.



Dr. **Driss Drissi** earned his B.S. in Mathematics, M.S. in Analysis, and Ph.D. in Functional Analysis from Université Laval. His research interests include functional analysis, transformations, and their

applications to stability problems. He is currently working on operator theory and its applications to combinatorics and number theory, and he is always looking for new applications of operator theory to other disciplines. He has been a visiting scholar at the Polish Mathematical Institute, University of Cambridge, University of Sciences and Technologies (Lille, France), and Leiden University. Driss enjoys playing and watching soccer, and he loves travelling with his family to explore different cultures. He has visited more than 50 countries, and he and his wife are fluent in more than five languages between them.

Dr. **Panakkal Mathew** earned his Ph.D. in Mathematics and Statistics from Georgia State University. He has taught courses ranging from high school to graduate level over his nearly 16 years of experience as a math educator. He enjoys teaching and firmly believes that " anybody can overcome the fear of mathematics if he/she dedicates time and gets proper guidance." His hobbies include cooking, traveling, and playing his guitar.

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WHO'S NEW, continued from Page 1



Angela Napoliello-Ivory earned an associate's degree in Computer Studies at Camden County College, a bachelor's degree in Psychology from Rutgers University, and a master's degree in Mathematics

Education from Rowan University. Angela previously taught mathematics, psychology, and computer studies at the middle and high school levels, and she supervised student teachers from both Rowan University and Richard Stockton University. Through her current work as a grant facilitator, she has visited many classrooms throughout southern New Jersey. As an independent contractor with the Educational Information and Resource Center (EIRC), she has conducted professional development workshops on the Common Core State Standards and other topics at high schools throughout New Jersey and also at the NJEA convention.



Jeff Savitz earned a B.S. in Operations Research and Computer Science from Columbia University and master's degrees in both Statistics (M.S.) and Marketing Research and Management Science (M.B.A.)

from the Wharton School of the University of Pennsylvania. After serving as a research manager at a number of major corporations, he founded Savitz Consulting, LLC. Jeff enjoys world travel and has visited 30 different countries.



Here is a 3D-printed projection of the 4D 120-cell, or hyperdodecahedron. What delightful mathematical objects could <u>you</u> print with the math department's new LutzBot Mini 3-D printer? [Photo contributed by I. Fine]



Colleen Migeot is our new department secretary. She graduated from Glassboro State College with a degree in Communications and comes to us after working in the front office of the Rowan Wellness

Center. She has also been a dance instructor for the past 32 years. Her children Matt and Haley currently attend Rowan, and her husband Bob works for the Rowan Athletics department.



Paula Pilitowski is our new head secretary. She has previously worked in the Rowan Payroll and Art departments. Paula and her husband Frank, a retired Rowan groundskeeper, have four grown children and a

pet hermit crab named Phil. Her hobbies include scrapbooking and crochet.

Upcoming Events

March 26, 2017

Spring 2017 MAA-NJ Meeting at The College of New Jersey (Abstracts due February 2, 2017)

March 26, 2017

14th Annual Garden State Undergraduate Mathematics Conference and Competition at The College of New Jersey

April 21, 2017

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

May 11, 2017

Rowan University Commencement, College of Science and Mathematics (2 pm on University Green; inside Esby Gymnasium if there is inclement weather)

July 26-29, 2017, 2016 MAA MathFest in Chicago (Registration opens March 1, 2017)

ROWAN STUDENTS AND FACULTY EXPERIENCE DATA ANALYTICS

Dr. *Min Wang* conducted a workshop, "Experiencing Data Analytics: Data Analytics Using SAS," on November 16, 2016. A packed computer lab full of Rowan faculty and students eagerly participated in this hands-on workshop. Dr. Wang shared his industrial experience as a data analyst at Equifax, Inc., and demonstrated how to aggregate data and build predictive models with SAS. The workshop was very well received, with participants expressing a strong desire to attend future data analytics workshops by Dr. Wang.





ALUMNI SPOTLIGHT: SIOBAHN YOUNG '11

Siobahn Young '11 returned to campus in November 2016 to give a Rowan University Mathematics Colloquium presentation, "One Possible Option After Graduation: A Ph.D. in Mathematics Education." After graduating *summa cum laude* from Rowan with a B.S. in Mathematics and a Statistics concentration, Siobahn headed to the University of Delaware, where she earned an M.S. in Mathematics and is currently a fourth-year Ph.D. student in Mathematics Education. Her primary research interest is systems of continuous improvement. These systems consist of cooperating teachers who share and improve written lesson plans in iterative cycles. For her dissertation, she is investigating how teachers' interpretations of continuously improved written lesson plans influence their enactment of the intended curriculum.



Siobahn Young '11

HIGHLIGHTS FROM THE FALL 2017 SOUTH JERSEY MATH ALLIANCE MEETING

The Rowan Math Department hosted our annual fall South Jersey Math Alliance (SJMA) meeting on December 2. The theme of the meeting was "Engaging Activities in Mathematics, Mathematics Education, and Statistics." Attendees included area high school and county college teachers. **Jay Schiffman** opened the meeting by highlighting "Unexpected Problem Gems Throughout the 6-12 Curriculum and Beyond." Then, **Angela Napoliello-Ivory** challenged participants with "Productive Struggle in the Math Classroom." Dr. **Laura Schultz** wrapped up the meeting with an interactive session, "Solving the Monty Hall Problem: A Simulation Activity."



Meeting attendees used both hands-on and computer simulation techniques to solve the Monty Hall Problem.

Alumni Spotlight: Cathleen Battiste Presutti '92

After graduating from Glassboro State College with a B.A. in Mathematics in 1992, Cathleen went on to earn an M.S. in Mathematics from Rutgers University - Camden in 1996. She also earned a Ph.D. in Mathematics from Bryn Mawr College in 2008. She has been a faculty member in the math department at Ohio University - Lancaster since 2003. In April 2016, she was honored as the Phi Theta Kappa Professor of the Year at her campus.



IRA FINE MENTORS COOPERMAN COLLEGE SCHOLARS AT 2016 SUMMERACADEMY

Ira Fine '75*95*01 taught math to a cohort of Cooperman College Scholars during the three-week-long 2016 Summer Academy at Rowan University. The students studied selected topics from fractal geometry and graph theory. A highlight this year was a field trip to Rowan's Edelman Fossil Park.



Photos Contributed by I. Fine

Got news? Send it to the newsletter editor, Laura Schultz (SchultzL@rowan.edu).

THREE NEW SPECIALIZATIONS WITHIN THE MATHEMATICS B.A. PROGRAM

Starting in Fall 2017, students pursuing a B.A. degree in Mathematics will need to choose from among three different specializations. All students will take a core of seven required math courses (listed below), plus Introduction to Symbolic Logic, Introduction to Scientific Programming, and two physics courses. A new course, Concepts in Statistical Data Analysis, is included in this core. For students with a broad interest in mathematicsistice Gomprebensive Math specialization retains the required courses for the "old" B.A. program and includes a choice of three restricted electives. The **Statistics** specialization provides a coherent sequence of foundational and elective courses for students who are interested in pursuing careers in statistics and/or operations research. Finally, the **Mathematics Education** specialization includes College Geometry and History of Mathematics, courses required for K-12 mathematics STAT 02-205. STAT 02-205. certification. It also features two new courses: Mathematical Modeling, and Real and Complex Variables. Students who have already declared a B.A. major in Mathematics will be automatically grandfathered under the "bld" requirements, but they will also have the option of switching to one of the new specializations. SAME MASS MARK ECONSUL? They advisors if they have questions.

MATHEMATICS B.A. CORE COURSES 23 Semester Hours (SH)

MATH-03-150 Discrete Mathematics (3 sh)

MATH-01-131 Calculus II (4 sh)

MATH-01-230 Calculus III (4 sh)

MATH-01-210 Linear Algebra (3 sh)

STAT-02-295 Concepts in Statistical Data Analysis (3 sh)

MATH-01-340 Modern Algebra (3 sh)

MATH-01-499 Mathematics Seminar (3 sh, WI)

COMPREHENSIVE MATH SPECIALIZATION Required Courses (12 SH)

MATH-01-231 Ordinary Differential Equations (3 sh) MATH-01-330 Introduction to Real Analysis (3 sh) Choice of two MATH restricted electives from list below (6 sh)

Major Restricted Electives (Choose one) (3 SH)

	MATH-01-310	College Geometry (4 sh)	
MATU	MATH-01-430	Intro Complex Analysis (3 sh)	1—
MATH	MATH-01-331	Introduction to Real Analysis II (3 sh)	-
MATH	MATH-01-341	Modern Algebra II (3 sh)	
MATH	MATH-01-354	Intro. to Topology (3 sh)	
маты	MATH-01-332	Numerical Analysis (3 sh)	
MAIII	STAT-02-360	Probability & Random Variables (3 sh)	1
MATH	STAT-02-361	Mathematical Statistics (3 sh)	sh)
STAT-	MATH-03-400	Applications of Mathematics (3 sh)	
	MATH-01-421	Mathematics Field Experience (3 sh)]
	MATH-01-386	Intro. to Partial Differential Equations (3 sh)	
	MATH-01-352	Theory of Numbers (3 sh)	
	MATH-01-410	History of Mathematics (3 sh)	
	MATH-03-411	Deterministic Models in Operations Research (3 sh)	
	MATH-03-412	Stochastic Models in Operations Research (3 sh)]
	STAT-02-371	Design of Experiments: Analysis of Variance (3 sh)]
			-

MATHEMATICS EDUCATION SPECIALIZATION

MATHEMATICS EDUCATION SI ECIALIZATION						
	Required Courses (13 SH)					
	MATH-01-232 Mathematical Modeling (3 sh)					
	MATH-01-361 Real and Complex Variables (3 sh)					
	MATH-01-310 College Geometry (4 sh)					
	MATH-01-410 History of Mathematics (3 sh)					
Maj	or Restricted Electives (Choose one) (2 or 3 Sl	H)				
MATH-01	1-205 Tech. Tools for Discovering Mathematics (2 sh)					
MATH-01	1-341 Modern Algebra II (3 sh)					
MATH-01	1-332 Numerical Analysis (3 sh)					
MATH-01	1-352 Theory of Numbers (3 sh)					

MATH-03-411 Deterministic Models in Operations Research (3 sh) STAT-02-360 Probability & Random Variables (3 sh)

STATISTICS SPECIALIZATION **Required Courses (6 SH)**

STAT-02-360 Probability & Random Variables (3 sh) STAT-02-361 Mathematical Statistics (3 sh)

Restricted Electives for Specialization (Choose two) (6 SH) STAT-02-371 Design of Experiments: Analysis of Variance (3 sh) STAT-02-340 Elements of Statistical Learning (3 sh) MATH-03-411 Deterministic Models in Operations Research (3 sh) MATH-03-412 Stochastic Models in Operations Research (3 sh)

Major Restricted Electives (Choose one) (3 or 4 SH)				
MATH-01-231	Ordinary Differential Equations (3 sh)			
MATH-01-310	College Geometry (4 sh)			
MATH-01-330	Intro. to Real Analysis I (3 sh)			
MATH-01-331	Intro. to Real Analysis II (3 sh)			
MATH-01-332	Numerical Analysis (3 sh)			
MATH-01-341	Modern Algebra II (3 sh)			
MATH-01-354	Intro. to Topology (3 sh)			
MATH-01-386	Intro. to Partial Differential Equations (3 sh)			
MATH-03-400	Applications of Mathematics (3 sh)			
MATH-01-421	Mathematics Field Experience (3 sh)			
MATH-01-352	Theory of Numbers (3 sh)			
MATH-01-410	History of Mathematics (3 sh)			

STUDENT AND FACULTY NEWS

The following eight Rowan students participated in the prestigious <u>William Lowell</u> Putnam Mathematical

Competition in December 2016: Patrick Bray, Nathan Jones, Joanna Williams, Kyle Sullivan, Aseem Reid, Jerome Walker, Alex Drumm, and Dane Charlton (shown from left to right in the adjacent photo). Prior to taking the exam, these students attended regular study sessions led by the



Students enjoying a lunch break in between the two sessions of the 2016 Putnam exam [Photo by H. Nguyen]

Rowan Putnam supervisor, Dr. Hieu Nguyen.

Senior math major *Alex Drumm* (pictured below) presented a student paper, "An Efficient



Filtering Algorithm to Construct New Non-Binary Insertion/Deletion Error Codes," at the Joint MAA NJ/EPa-Del Section Meeting held in November 2016 at Villanova University. He also presented research, "Filtering and Decoding Non-binary Tenengolts Codes Capable of Correcting Multiple Insertion/Deletion Errors," with Dr. *Hieu Nguyen* at the 2017 Joint Mathematics Meeting in Atlanta, GA.

Graduate student *Christopher Ernst* presented his research with Dr. *Abdul Hassen* at the 2017 Joint Mathematics Meeting. Their presentation was titled, "Hyperbolic Euler Numbers and Polynomials." **Jeff Savitz** gave a presentation, "The Case for Inliers," at the 28th European Conference on Operational Research in July 2016 at the Poznan University of Technology in Poland.

Jay Schiffman gave a presentation, "Variations on the Harmonic Series," at the 2017 Joint Mathematics Meeting.

Drs. *Min Wang, John Graef* (University of Tennessee at Chattanooga), *Lingju Kong* (University of Tennessee at Chattanooga), and *Qingkai Kong* (Northern Illinois University) presented their research, "The Existence of Positive Solutions

of a Fractional Boundary Value Problem," at the 2017 Joint Mathematics Meeting.

Drs. *Ik Jae Lee and Hieu Nguyen* presented their research, "Alternating Minimum Braids and Caterpillar Graphs," at the 2017 Joint Mathematics Meetings.

ALUMNI NEWS

Dr. **Brian Seaman '03** was featured in the Summer 2016 issue of <u>Rowan Magazine</u> as one of forty accomplished Rowan Alumni who are under 40-years old. He is director of engineering for data science at WalmartLabs. In his spare time, he trains for and runs in ultra-marathon races. He and his wife *Rachel Specht '13* (Rowan chemical engineering) live in San Francisco with their 4-year-old daughter.

Sky Waterpeace '05,*14 ran 100 miles in the Pine Creek 100 Challenge in September 2016. He finished the race in 29.25 hours. Sky currently teaches in the Rowan math department as a 3/4-time instructor.

James Rosado*16 presented his research with Drs. **Hieu Nguyen** and *Lei Cao* (Georgian Court University), "Partitions of Equiangular Tight Frames," at the 2017 Joint Mathematics Meeting. James is a math teacher at Clearview Regional High School, where his math department supervisor is **Mary Marks *11**. James also joined the Rowan Math Department as an adjunct instructor in Fall 2016.

"Head's Up" from Dex



Hello again, fans of mathematics at Rowan! It has been a whole year since I filled you in on my point of view of what goes on here. Last spring was only my second semester as one of the eight experimental "Heads." Foolish me, instead of trying to do my second semester unencumbered, I decided to teach Design of Experiments: ANOVA as

an overload! (My thesis and research were in design.) Now you can ask the students what they think I "let slide," but my official story is that nothing slid (unofficially, it was not the course). The upshot of it is that the spring was a wild ride, but I had fun teaching the course, and I think they learned a lot (again, ask them).

Oh, the Department! Last spring was like any other except we had a surprise tenure-track resignation, Gary decided to retire after a medical leave, Janet decided to "hang up the chalk," our two year "temporary receptionsecretary"/ principal clerk typist (PCT) Rosemary moved on, and we had to get ready for Bette leaving. Everyone in Robinson had to prepare for moving out of our end of the building; yes, the HVAC upgrade finally happened! This created 15 paper boxes of shredding, and there is still more to clean out of our archives. Oh, and we hired Min Wang to join us as a new tenure-track professor.

Over the summer, the Department camped out in Robinson 227 in a Dilbert-like space without dividers. We saw Rosemary go, Paula Pilitowski arrive as PCT, Bette go, Paula move over to "Bette," and we hired six new ³/₄-time instructors. Special thanks go to all those who helped with all the searches. Except for the fact that I had only one secretary most of time and had to scrounge for private places to interview anybody, things were fine.

This fall, there was a lot of "new" and "change." We had more than 5400 students enrolled in math courses; some of them were new. We "kidnapped" Colleen Migeot from Student Health Services as our PCT secretary. We got new furniture and a new paint job in the reception part of the suite, so the place looks brand new. Janet brought back the quilts, so we have that comfortable feel again (thanks, Janet!). McSiip/STEM did not return to their corner, so for a time we had a kitchen/dining area, a new place for tables and chairs, and a research space for math students (or "the outline" of such). Then, McSiip/STEM moved back to the "kitchen," but we will be getting a new room for the Math Team and small seminars/meetings. The three (net) new spaces are getting new furniture and a coat of paint before the spring. Special thanks to Dean Magee-Sauer for the new space coming to us, but our thoughts should go out to McSiip/STEM and their downsizing.

Finally, going into the spring, I am looking forward to finishing a full year (and the second year) as Head, but without trying to teach. With this corner of the suite looking sweet, and the other corner coming to life with a new purpose and new faculty, I am hoping to see a renaissance for the Department. (And look for the rebirth of our webpages, too.)

> - Dex Whittinghill (whittinghill@rowan.edu)



We celebrated Bette Counsellor's many years of service to the department and wished her a happy retirement during a reception following the annual Mathematics and Computer Science Holiday Potluck in December 2016.