Rowan University™

Vectors

The Newsletter of the Mathematics Department at Rowan University

FAREWELL TO PROFESSORS JANET CALDWELL AND GARY ITZKOWITZ

Two of our longtime faculty announced their retirements at the end of the 2015-2016 academic year.

Dr. Janet Caldwell received her bachelor's degree *cum laude* from Rice University and went on to earn an M.A. and Ph.D. from the University of Pennsylvania. Janet began her career as a secondary mathematics teacher in Texas and Pennsylvania and then spent five years at Research for Better Schools in Philadelphia before embarking on her long career at Glassboro State College in Fall 1983.

Dr. Janet Caldwell

Dr. Caldwell has taught a wide variety of undergraduate courses, from Structures of Math for prospective elementary school teachers to College Geometry and Mathematics Seminar for math majors. (She even used to teach introductory computer programming courses!) Students in her classes have been involved in volunteer projects, such as tutoring at elementary schools or helping out at conferences for K-12 math teachers. Some of her classes have created mathematical quilts that hang on the walls of Rowan's math department.

As the founder and director of the South Jersey Mathematics, Computer, and Science Instructional Improvement Program (McSiip), Dr. Caldwell has received approximately $11 million in grants to fund the Statewide Systemic Initiative Regional Center at Rowan; an NSF Math Science Partnership project with Bridgeton, Millville, Vineland, and Toms River;

Dr. Gary Itzkowitz received his bachelor's degree from City College of CUNY and his M.A. and Ph.D. degrees from the University of California at Irvine before starting his career at Glassboro State College in 1972.

Dr. Gary Itzkowitz

He served as the Chair of the Mathematics Department from 1989 until 1998, a time of monumental transition as Glassboro State College evolved into Rowan University. He later served as the department's Undergraduate Advisor.

In 1992, Gary was part of the Rowan College team that successfully obtained a challenge grant from the Association of American Colleges (AAC) to enhance the teaching and learning of mathematics. Over 200 colleges submitted grant proposals, with Rowan College being one of only eight colleges that were funded.

He was also the founding chair of the South Jersey Math Alliance (SJMA) in 1991. This organization was initiated by the New Jersey Board of Education to facilitate dialogue among math teachers in middle schools, high schools, and colleges. After 25 years, SJMA remains a valuable source of professional development for local math teachers.

Dr. Itzkowitz was a co-author of the *Mathematica Manual for Calculus* published by W.H. Freeman in 2009 that has since been used by many Rowan math students.

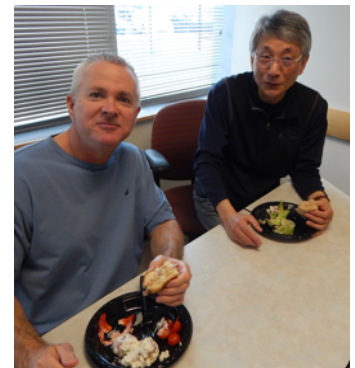## CONGRATULATIONS TO MATHEMATICS STUDENT AWARD RECIPIENTS

The Rowan Mathematics Department recognized our top students during the annual Awards Luncheon held on April 27, 2016. Numerous students were also honored for their participation on the Rowan math team and for conducting research.

Alexander Drumm was awarded the Scholarship for Outstanding Junior Mathematics Major.

Corey Vollmer received the John Sooy Award. This scholarship honors an outstanding junior pursuing a double major in mathematics and education.

Jennifer Crawford '16 was honored with the James M. Shafer Excellence in Mathematics Medallion Award for being the graduating senior math major with the highest GPA.

Long (Winston) Cheong '16 received the Dean's Recognition Award on the basis of his mathematical achievements both inside and outside the classroom.

STUDENTS INDUCTED INTO THE NEW JERSEY XI CHAPTER OF PI MU EPSILON

New members of the New Jersey Xi Chapter of Pi Mu Epsilon include (front row, from left to right): Allie Nickerson, Miranda Pellicciotti, Kimberly Johnson, Amy Timko, Christopher Diem; (middle row, from left to right): Ryan Rutkoski, Sarah Dawoud, Heather Cicero, Kelsey Miller, Ashley Santos, Joseph Mandara; (back row, from left to right): Bianca Brooks, Erin D'Ascenzo, Edward Daisey, Megan Welch, Alana LaMorte, Ryan Rainey.

We proudly inducted 34 students into the New Jersey Xi chapter of Pi Mu Epsilon (PME) at Rowan University on April 26, 2016. PME, the National Honorary Mathematics Society, is dedicated to promoting mathematics and recognizing students who successfully pursue mathematical understanding.

Our new inductees include *Jennifer Abdul-Malak, Tyler Andjel, Michael Askins, Timothy Baker, Dominic Boccaleri, Bianca Brooks, Heather Cicero, Stephanie Cook, Erin D'Ascenzo, Edward Daisey, Sarah Dawoud, Christopher Diem, Marc-Gregory Dixon, Jonathan Frederickson, John Griffin, Amanda Halloran, Jillian Jamerson, Kimberly Johnson, Andrew Kalash, Alana LaMorte, Maria Leonen, Joseph Mandara, Kelsey Miller, Allie Nickerson, Miranda Pellicciotti,* *Ryan Rainey, Anne Rebecca, Ryan Rutkoski, Ashley Santos, Minxue Shi, Corry Stapleton, Amy Timko, Xuantong Wang,* and *Megan Welch.*

Inductees who have not yet graduated are invited to serve in leadership roles as PME strives to organize new events next year.

PME membership qualifications include the following:

- Undergraduate students who have completed at least the equivalent of two semesters of calculus and two additional courses in mathematics, at or above the calculus level, all of which lead to the fulfillment of the requirements for a major in the mathematical sciences. In addition, such students must have maintained a grade point average equivalent to that of at least 3.0 on a 4 point scale, both for all courses that lead to fulfillment of requirements for a major in the mathematical sciences, and also for all courses that lead to fulfillment of requirements for an undergraduate degree.

- Graduate students whose mathematical work is at least equivalent to that required of qualified undergraduates, and who have maintained at least a B average in mathematics during their last school year prior to their election.

- Members of the faculty in mathematics or related subjects.

- Any persons who have achieved distinction in a mathematical science.

Contact the faculty advisor, Marcus Wright (*wright@rowan.edu*), for more information about our PME chapter.

ALUMNI NEWS

Kyra Patel '13 earned a Master's degree in Occupational Therapy from Temple University in June 2015. She currently works as an occupational therapist at PowerBack Rehabilitation in Moorestown, NJ.

FACULTY NEWS

Christopher Lacke recently served on two Rowan Ed.D. dissertation committees. *Natalie Kautz* wrote a dissertation entitled, "Strategies for Teaching Developmental Mathematics Students at the College Level." *Anne Pinder*'s dissertation was titled, "Organizational Development and Learning Technology in the Workplace: The Migration of University Reporting Tools."

Laura Schultz was a Table Leader at the June 2016 Advanced Placement (AP) Statistics reading held in Kansas City, MO.
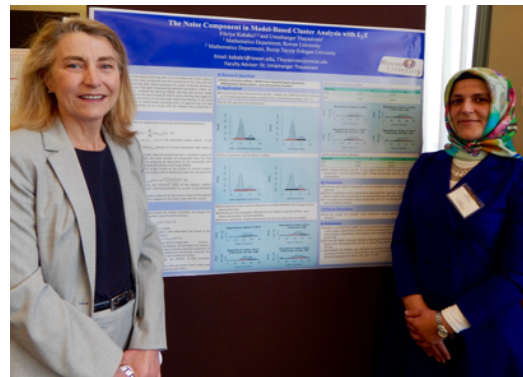
Umashanger Thayasivam was a co-author on a paper published in *Alzheimer's & Dementia* entitled, "Detection of Alzheimer's disease at mild cognitive impairment and disease progression using autoantibodies as blood-based biomarkers." He and his co-authors also presented this research at the 20th annual RowanSOM Research Conference in May 2016.

STUDENT NEWS

Jennifer Crawford participated in the AERA (American Undergraduate Research Association) Undergraduate Student Education Research Training Workshop in Washington D.C. in April 2016.

Joanna Williams and ***Johnathan Morris*** presented their research with *Dr. Edward Dougherty* at the May 2016 Biology and Medicine Through Mathematics (BAMM!) Conference at Virginia Commonwealth University.

Fikriye Kabakci *(shown below with Rowan CSM Dean Karen Magee-Sauer)* is a visiting research scholar from Recep Tayyip Erdogan University, where she is working toward a Ph.D. in robust methods and multivariate data analysis. She is working at Rowan with *Dr. Umashanger Thayasivam*.

MIRANDA PELLICCIOTTI '16 NAMED WOODROW WILSON NJ TEACHING FELLOW

Miranda Pelliocciotti, a 2016 mathematics graduate, has been admitted to the Woodrow Wilson New Jersey Teaching Fellowship Program at Rowan's College of Education. Part of a statewide effort to prepare science, technology, engineering, and math teachers for careers in New Jersey's high-need school districts, the highly competitive program recruits both recent graduates and career changers with strong STEM backgrounds.

Each Woodrow Wilson Teaching Fellow receives a $30,000 fellowship to complete a specially designed master's degree program. In return, fellows commit to teach for three years in the urban and rural New Jersey school districts that most need strong STEM teachers. Fellows receive ongoing support and mentoring throughout their three-year commitment.

Miranda will teach mathematics at Vineland High School North. A leadership mentor at Rowan and a member of the Peer Referral and Orientation staff, she was president of the Rowan dance team and served on the executive board of the student commuter organization.

For more information about the Woodrow Wilson New Jersey Teaching Fellowship Program, visit http://woodrow.org/fellowships/ww-teaching-fellowships/new-jersey/.

...*CALDWELL, FROM PAGE 1*

Project SMART with Camden, Gloucester City, and Pennsauken; and the IMPACT project with Millville and Pennsauken.

Dr. Caldwell has been an active leader in mathematics education at the state, regional, and national levels. She has served as president of the Association of Mathematics Teachers of New Jersey (1989-1990), president of the New Jersey Association of Mathematics Teacher Educators (2007-2010), and executive director of the New Jersey Math and Science Education Coalition (2010-2011). Janet has also served on the boards of the National Council of Supervisors of Mathematics and the Association of Mathematics Teacher Educators, and she served on major committees for the National Council of Teachers of Mathematics.

Dr. Caldwell recently wrote three books for the National Council of Teachers of Mathematics that are geared toward developing understanding of elementary mathematics, and she is an author for Pearson's elementary math textbook series, *enVisonMATH*. She has also authored many journal articles, book chapters, and articles for national mathematics teacher journals. Also, she was actively involved in the development of the New Jersey State Standards in Mathematics from the mid-1990s until 2010.

Janet has received numerous awards during her esteemed career. In 1994, she was named the New Jersey Professor of the Year by the Carnegie Foundation and was honored with the Max Sobel Outstanding Mathematics Educator Award by the Association of Mathematics Teachers of New Jersey. She also received the Distinguished Teaching Award from the New Jersey Section of the Mathematical Association of America in 2000 and the Ernest Boyer Outstanding Educator Award from the New Jersey Association for Supervision and Curriculum Development in 2004.

Dr. Caldwell has made a tremendous impact on the field of mathematics education, and the students and faculty of the Rowan University Mathematics Department were privileged to have collaborated with her for the past 33 years. We all wish her the best as she starts the next chapter of her life.

...*ITZKOWITZ, FROM PAGE 1*

Gary has helped shape the current Rowan University Math Department by serving on the search committees that ultimately hired Drs. Abdul Hassen, Hieu Nguyen, Umashanger Thayasivam, and our current Head, Dexter Whittinghill, among others.

According to Rowan math instructor Jay Schiffman, "Gary possesses keen mathematical insight and understands student pitfalls, and [he] possesses a keen understanding of education and its challenges. [When he was chair,] Gary treated his faculty as an extended family, not just as co-workers." Everybody who has been part of your Rowan family for the past 44 years will miss you, Gary, as you move on to other challenges.

OTHER DEPARTURES

Tony Breitzman will be moving upstairs to begin a tenure-track position in the Rowan Computer Science Department starting Fall 2016.

Edward Dougherty has resigned to begin a tenure-track position at Roger Williams University in Fall 2016.

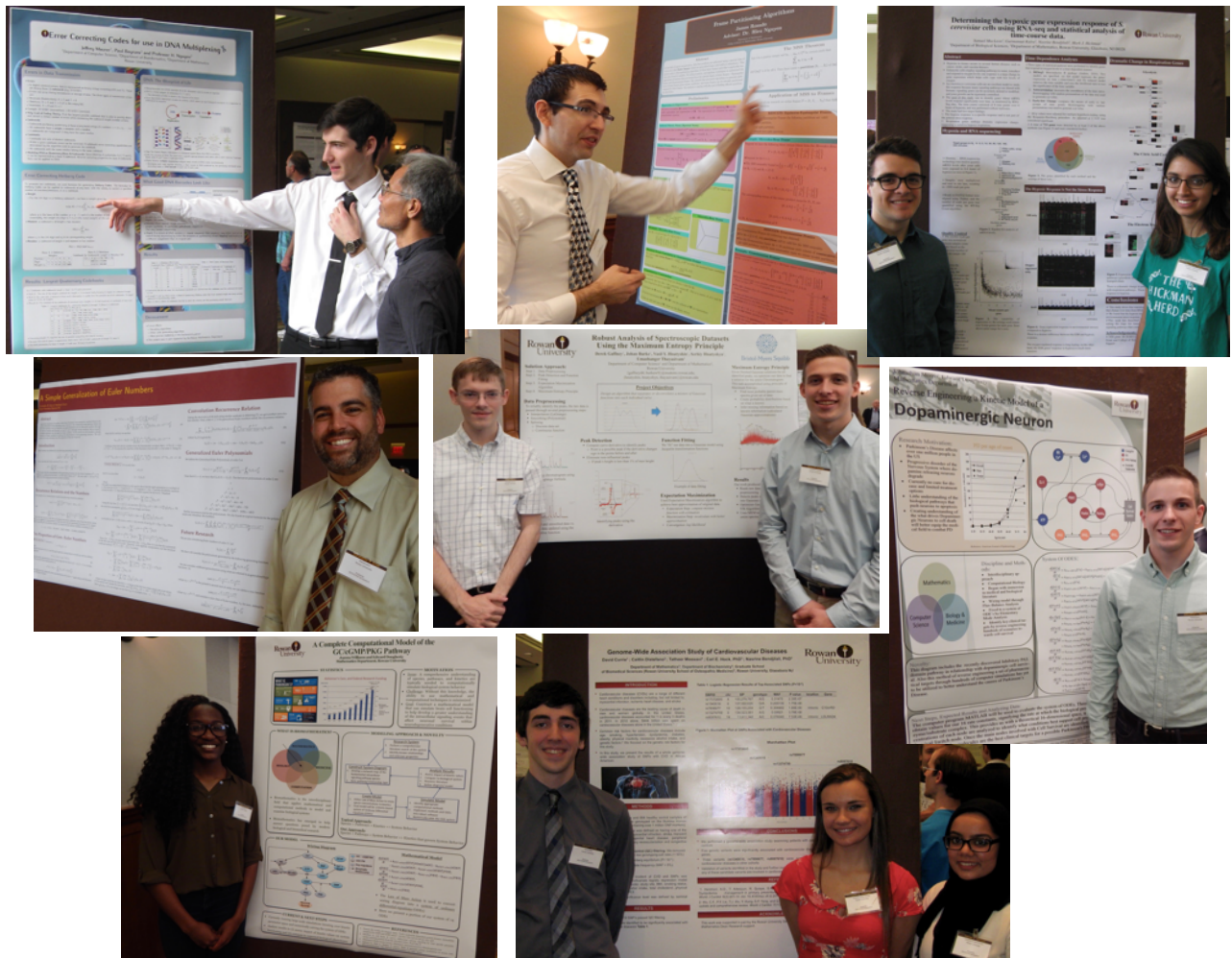Our department secretary *Barbara Miraglia* passed away from brain cancer in January 2016.

Our head secretary *Bette Counsellor* will retire effective August 2016. She has been tirelessly serving the Rowan Math Department for the past 26 years. Bette has been a pillar of the department, and we will miss her tremendously.

MATH RESEARCH PRESENTED AT THE 2016 ROWAN STEM SYMPOSIUM

The Math Department was well represented at the 19th annual Rowan Science Technology, Engineering, and Math (STEM) student research symposium held on April 22, 2016, in the Chamberlain Student Center.

Student Presenters	Faculty Mentors	Title of Poster Presentation
Joanna Williams	Dr. Edward Dougherty	*A Complete Computational Model of the GC/cGMP/PKG Pathway Between Calcium and Neuronal Gene Expression*
Fikriye Kabakci	Dr. Umashanger Thayasivam	*The Noise Component in Model-Based Cluster Analysis with L_2E*
James Rosado	Dr. Hieu Nguyen	*Frame Partitioning Algorithms*
Jesse Kosior	Dr. Thomas Osler	*A Sequence of Good Approximations for the Period of a Pendulum with Large Initial Amplitude*
Jeffrey Maurer & Paul Bayruns	Dr. Hieu Nguyen	*Error-Correcting DNA Barcodes for Multiplex Sequencing*
Johnathan Morris	Dr. Edward Dougherty	*Reverse Engineering a Kinetic Model of a Dopaminergic Neuron to Apoptosis*
Christopher Ernst	Dr. Abdulkadir Hassen	*A Simple Generalization of Euler Numbers*
David Currie, Caitlin Distefano, & Tatheer Moosavi	Dr. Carl Hock (Cell Biology, Rowan SOM) & Dr. Nasrine Bendjilali	*Genome-Wide Association Study of Cardiovascular Diseases*
Samuel Macleon & Gurmannat Kalra	Dr. Mark Hickman (Biology & Chemistry) & Dr. Nasrine Bendjilali	*Time Course Analysis of the S. cerevisiae Hypoxic Gene Expression Response Reveals a Switch in Metabolism*
Derek Gaffney & Johan Burke	Dr. Umashanger Thayasivam & Dr. Vasil Hnatyshin (Computer Science)	*Robust Analysis of Spectroscopic Datasets Using the Maximum Energy Principle*
Scott Boyce	Dr. Vasil Hnatyshin (Computer Science) & Dr. Umashanger Thayasivam	*Implementation of Universal Mass Spectrometry Data Parser*

Student Spotlight: Christopher Pryer

Christopher Pryer is spending his summer working as a supply chain engineer intern at NFI Industries. To land this prestigious internship, he went through three intense rounds of interviews, some of which included problem solving and solution engineering scenarios that provided opportunities to apply his knowledge of discrete math, statistics, and optimization.

His mathematical knowledge and computer programming experience gave him an edge when applying for summer internships; he also received an offer to work for TradeU in Boston and went through multiple rounds of interviews for other positions. At Rowan, Christopher has worked in Web Development/IT for the Philosophy Department, and he will be head of web development for the Rowan ACM chapter during the coming academic year.

 During his internship, he has been developing mathematical and theoretical models for supply chain design in areas such as network design, activity-based optimization, distribution, inventory strategy, and cost modeling.

 Christopher plans to graduate in 2017 with a B.S. in Management Information Systems and a minor in Mathematics.

CONGRATULATIONS TO FALL 2015 UNDERGRADUATE DEANS' LIST HONOREES

 The following students majoring in Mathematics were named to the Undergraduate Dean's List in Fall 2015 in recognition of achieving a GPA of 3.45 or higher for at least 12 credit hours. Those students whose names are in boldface type were also named President's Scholars of Excellence for achieving a perfect 4.0 GPA in Fall 2015.

 Jennifer Abdul-Malak, Brigette Alessandrini, Thomas Bastawrous, Michelle Bertino, Dominic Boccaleri, Sabrina Boyle, **Bianca Brooks***, Ethan Caldwell, Dane Charlton, Nicole Chermark, Eve Ciancia, Heather Cicero, Mitchell Ciecierski, Luke Coffey, Stephanie Cook, Erin D'Ascenzo, Edward Daisey, Nicholas Daniello, Sarah Dawoud, Alexander Drumm, Lynsey Eddy, Cody Fauver,* **Derek Foglein***, Valerie Gambino,* **Riley Gartland***, Alyssa Gautieri, Mary Gehring, Allison Gilbert, Shannon Glatz, Zachary Goodwin, Jami Grosso, Joel Gupta, Amanda Halloran,* **Sean Halloran***, Carly Hausleben, Patrick Horner, Amber Howarth,* **Kimberly Johnson***, Ben Jordan, Amy Kohlsaat, Ryan Kraft, Marialena Kyriazis, Alana LaMorte, Uyen Le, Corey LeVan, Jessica Leonard,*

April Licato*, Mark Magoon,* **Gina Marino***, Rebecca Metelow, Matthew Mignano, Kelsey Miller, Johnathan Morris, Brett Myers,* **Heather Newton***, Sean O'Donnell, Zachary Ozalis, Marcus Patterson,* **Antonio Pugliese***,* **Ryan Rainey***, Amber Roscetti, Matthew Senni, Jessica Simber, James Smith,* **Thomas Smyth***, Devon Sozio, Paul Stanton, Corry Stapleton,* **Alyssa Stratton***,* **Kyle Sullivan***, Sarah Szoke, Slavador Teves, Amy Timko,* **John Villarante***, Corey Vollmer, Xuantong Wang, Courtney Waring, Annemarie Webb,* **Megan Welch***, Sarah White,* and *Veronica Williams.*

Got News?

Please send any photos or news items to the newsletter editor (schultzl@rowan.edu) for inclusion in the next issue of *Vectors.*

ROWAN UNIVERSITY CHESS CLUB HOSTS FIRST ANNUAL TOURNAMENT

The Rowan Chess Club, advised by math instructor ***Ira Fine***, hosted the first annual Rowan University Student Chess Championship on April 9, 2016, in the Chamberlain Student Center. *Josh Wible*, a senior computer science major, won first place. Math major ***Stan Genov*** tied for second place.

MATH DEPARTMENT HOSTS FIRST ANNUAL ALUMNI PANEL

Drs. ***Umashanger Thayavisam*** and ***Olcay Ilicasu*** organized a math alumni panel discussion held on April 27, 2016, in the Chamberlain Student Center. The panelists addressed how they are using their Rowan math degrees in their current careers. A common theme that emerged was the importance of becoming skilled at computer programming. The panelists *(pictured above from left to right with Dr. Ilicasu)* included ***Michael Groh '10*** (a software developer at Trion Interactive), ***Dr. Kristyanna Erickson '02,*04*** (a professor of mathematics at Cecil College), ***Steven Giambrone '14*** (a quality analyst with OptumRx), ***Brian Ruberti '08*** (an assistant actuary at Chubb), and ***Chris Donaldson '12*** (a risk adjustment data analyst at Health Partners Plans).

SCENES FROM THE 2016 GRADUATION LUNCHEON RECEPTION

CONGRATULATIONS TO THE CLASS OF 2016

We welcome the following students to the ranks of Rowan Mathematics Department alumni. Honors as of April 2016 are designated in parentheses as follows: *summa cum laude* (cumulative GPA between 3.85 and 4.00), *magna cum laude* (3.65 - 3.849 GPA), and *cum laude* (3.45 - 3.649 GPA). The list of candidates below also includes students who received their degrees in either August or December 2015.

The following students are candidates for the **Master of Arts (M.A.) degree in Mathematics**: *Jeremy Banks, Patrick Bower, Laura Dingler, Kevin Farrow, Michael Herrera, Aaron Iles, Brian Krementz, Tuan Le, James Rosado, Michelle Swerdlow,* and *Racquel Thompson*.

Candidates for the **Bachelor of Science (B.S.) degree in Mathematics** include: *Long (Winston) Cheong* (cum laude), *Nicholas Dennis* (cum laude), *Krista Diodati, Ryan Fetters, Dante Gates* (magna cum laude), *Jami Grosso, Brendan Gysbers, Amber Reichardt-Howarth* (magna cum laude), *Isaac Muck* (cum laude), *Kyle Pasquino, Bhumi Patel,* and *Paul Rebecca*.

Rounding out our graduates are the following candidates for the **Bachelor of Arts (B.A.) degree in Mathematics**: *David Achinstein, Joseph Antonelli, Jessica Beal, Michelle Black, Carol Boyd, Bianca Brooks, Stephanie Brunarski* (cum laude), *Eve Ciancia, Heather Cicero* (cum laude), *Mitchell Ciecierski* (magna cum laude), *Joseph Ciraolo, Jennifer Crawford* (summa cum laude), *Nicholas Daniello, Sarah Dawoud* (cum laude), *Joseph Dinsmore, Salvatore Ficara, Valerie Gambino, Alyssa Gautieri* (summa cum laude), *Chelsea Gotshall, Sean Halloran* (cum laude), *Kyle Higham, Benjamin Jordan, Patrick Kelly, Christina Knaack, Amy Kohlsaat, John Kumpf* (magna cum laude), *Danny Lamberson, Kirstyn Lawler* (cum laude), *Jessica Leonard, Corey LeVan, Olivia Liedtka, Bryan Lindorff, Jessica Lutes, Rafael Martinez, Shannon Miskey, Patrick O'Donnell, Alfredo Pawid, Miranda Pellicciotti* (cum laude), *Erin Posch* (magna cum laude), *Antonio Pugliese* (summa cum laude), *Ryan Rainey* (magna cum laude), *Brian Raley, Meghan Ryan* (cum laude), *Jessica Simber* (summa cum laude), *Megan Solmen, Ilianna Soto, Brian Swatek, Caitlyn Szymczak, Stephanie Van Twuyver, Mark Ventrella* (magna cum laude), *Corey Vollmer* (magna cum laude), *Keith Watkins,* and *Ryan West* (cum laude).

Surreal Sunset Scenery in the Gulf of Riga in Jurmala

**The bright light the clouds demolish
while the sunset's beauty they astonish.**

**The clouds' patterns the sun rays break
and spectrum of colors they create.**

**The sunset's scenery the clouds sketch
while its spirits they perfect.**

**The sunset's mood the sea describes
with multiple reflections in its eyes.**

**The waves diminish the sunset's theme
with memories as flashing streams.**

Dr. Michael Radin '95, an Associate Professor of Mathematics at the Rochester Institute of Technology, will have this poem and photograph published in the 2016 edition of Le Mot Juste.

ALUMNI SPOTLIGHT: LUCAS WILLIS '08

Lucas Willis graduated from Rowan in 2008 with majors in Mathematics and Physics, a minor in French, and concentrations in Honors and International Studies. He went on to earn an M.S. degree in Physics from Yale University in 2010. At Yale, he was supported by a prestigious National Defense Science and Engineering Fellowship.

After leaving Yale, Lucas recorded a 12-track solo vocal/acoustic guitar album entitled, Sober Months. He has since learned to play the violin.

Lucas is presently an optical research scientist at Edmund Optics, where he has worked since 2011.

Lucas Willis '08 performing at the Curtis Summerfest Adult Chamber Music recital in May 2016

Upcoming Events

July 30 - August 4, 2016
Joint Statistical Meetings in Chicago, IL

August 3-6, 2016
MAA MathFest in Columbus, OH.

September 1, 2016
Start of Fall 2016 classes

November 12, 2016
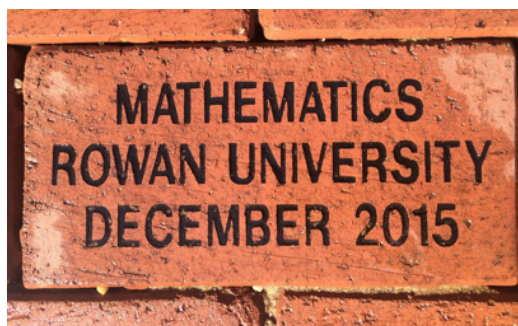Fall MAA-NJ Meeting at Villanova University (joint meeting with the EPaDel section)

January 4-7, 2017
Joint Mathematics Meetings in Atlanta, GA (Abstract Deadline: September 20, 2016)

2015-2016 MATHEMATICS DEPARTMENT COLLOQUIUM SERIES

Jay Schiffman coordinated another successful Mathematics Department Colloquium series. As summarized in the table below, presentations were made by department faculty, undergraduate and graduate students, and invited guest speakers. Anyone interested in giving a colloquium presentation during the 2016-2017 academic year should contact Jay Schiffman (schiffman@rowan.edu).

Date	Speaker	Title of Presentation
9-14-15	Dr. Thomas Osler, Rowan University Math Department	*Fun with Square Roots*
9-22-15	Dr. Tirupathi Chrandrupatla, Rowan University Mechanical Engineering Department	*Mean of Two Numbers*
10-5-15	Jay Schiffman, Rowan University Math Department	*Divisibility and Periodicity Patterns and Palatable Number Tricks in the Jacobsthal Sequence*
10-26-15	Long (Winston) Cheong, undergraduate student, Rowan University Math Department	*The Hennings and Chren-Simons Witten Three-Manifold Invariants*
11-9-15	Dante Gates, undergraduate student, Rowan Math Department	*Predictive Modeling with Medical Data*
11-23-15	Brian Stein '78, Methods L.L.C.	*Putting It All Together*
12-10-15	Drs. Hieu Nguyen and Ik Jae Lee, Rowan University Math Department	*Webwork Math Online Homework System*
2-8-16	Tuan Le, graduate student, Rowan University Math Department	*Introduction to SAGE Math*
2-22-16	Jay Schiffman, Rowan University Math Department	*Those Precalculus Polynomials Are Applicable in Higher Mathematics!*
3-28-16	James Rosado, graduate student, Rowan University Math Department	*Frame Partitioning Algorithms*
4-18-16	Paul Bayruns (computer science) and Jeffrey Mauer (bioinformatics), undergraduate students, Rowan University	*Error-Correcting DNA Barcodes for Multiplex Sequencing*
4-25-16	Tuan Le, graduate student, Rowan University Math Department	*A Study of k-Means Clustering*

Here is the brick we donated to the Paul R. Halmos Commemorative Walk at the MAA headquarters in Washington, D.C.