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HELEN WALTON RETIRES

Helen Walton, Instructor of Mathematics at Elon University retired in May 2016 after 32 years of service.

Helen joined the then Elon Mathematics Department in 1984 as an instructor and has taught countless sections of Math. She also served as the in-house tutor for Math and dedicated countless hours to helping students who were struggling with mathematics. She was deeply committed to working with each student to find their best learning styles to ensure success. Helen initiated the first newsletter in 1996 for the Math and Stats Department and has continued publishing it for 19 years. This is the first newsletter that Helen has not published. We now realize how much time and effort it took her to put this together and for that, Helen, we thank you!

In January 2003, Helen spearheaded the math department's application for Pi Mu Epsilon, the most prestigious math honors society. In October of that same year, the Department was recognized with the NC Nu Chapter of Pi Mu Epsilon.

One of Helen's lasting marks on the academic landscape of Elon is her contribution to the establishment of a Phi Beta Kappa chapter at Elon. In 2010 she was appointed to a task force, which investigated the feasibility of establishing a Phi Beta Kappa chapter at Elon. She became the principal writer of applications in 2003 and 2006. When the 2006 application was accepted for further review, she wrote most of the longer application in 2007 and led the scheduling of a three-day site visit. When Elon received a vote of approval to establish a chapter in 2009, she helped plan the installation and served as the Secretary/Treasurer and Historian of the new chapter. In this capacity she established the procedures for inducting new members, planning speaker visits, and keeping records. Last October, Elon University was one of six collegiate chapters recognized as "outstanding" by the Phi Beta Kappa Society at its 44th Triennial Council.

Walton also teamed with Associate Provost Mary Wise to submit a successful SACS reaccreditation report in 2012 and to host the SACS visiting team in 2013. In 2014 Wise and Walton teamed again to revamp the faculty handbook into a searchable on-line format. The completed handbook was activated in March. Upon her retirement, she received the honor of faculty emerita.

A reception was held for Helen in the Isabella Cannon Room where she was honored by family and friends. She attended with her 3 children, Jeff, Charlotte, Drew and their spouses. Helen is looking forward to traveling and spending time with her family, especially visiting her grandchildren in California. She will be missed greatly in the math department as well as all over campus.

Helen with Provost House at the Annual Faculty/Staff Recognition luncheon

Helen at her Retirement reception held on May 10th

Retirement Reception. Helen is loved by so many.

Announcements from the Chair – Crista Arangala

With Helen's retirement, the department will move to a biannual newsletter, an online edition each February covering August through January news and our print edition highlighting alumni and February through July happenings. We would love to hear what all of our alumni are up to. **Please send updates to the department program assistant Tracy McBane (tmcbane@elon.edu).**

We would like to thank everyone who has been giving to the department through the annual fund. The department has decided to start a scholarship for incoming students interested in majoring in math or statistics. We ask that you consider contributing to the department with this new initiative in mind.

For more information on our new scholarship click on the Scholarship/Mentorship Program Application Tab on the department website. **We are also looking for some LEAD donors to help start an endowment for this initiative, if you are interested please email me at ccoles@elon.edu.**

We are sad to announce the passing of Trustee Emerita Janie Crumpton Evans Reece. Reece served as an Elon trustee from 1995 to 1999 and was elected trustee emerita in 2000. She previously served as an Elon faculty member in mathematics from 1966 until her retirement in 1987. In 1996, she and her husband established the Janie Crumpton Evans Reece and E. Kemp Reece Endowed Mathematics Scholarship to support upper division math majors from North Carolina. We feel great gratitude for Ms. Reece's contributions which have impacted many of our students.

Ryne Vankrevelen Becomes Lecturer

Ryne Vankrevelen joined the Elon Department of Mathematics and Statistics in Fall 2015 as an adjunct assistant professor before being hired as a lecturer in 2016. He earned his B.S. while studying statistics and philosophy at the University of Wisconsin. He earned his M.S. and Ph.D. in statistics at the University of Iowa. He graduated in May 2015 with a thesis titled "Improved Interval Estimation of Comparative Treatment Effects." He enjoys collaborative research with faculty from other fields as well as mentoring undergraduate research (particularly related to statistics and baseball.) In his spare time, he loves to watch baseball, go hiking in the many North Carolina State Parks and spend time with his fiancée and their dog.

Kristen Mazur becomes full time faculty

As a visiting assistant professor, Kristen Mazur joined the department in the Fall 2014 after spending a year as a visiting assistant professor at Lafayette College in Easton, Pennsylvania. She received a Bachelor of Science degree from Lafayette College and her M.S. and Ph.D. from the University of Virginia. She became a full faculty member of our department in August 2016.

Mazur is currently working on research projects in approval voting theory, the scholarship of teaching and learning, and algebraic topology. This past January she gave a presentation at the Joint Math Meetings in Atlanta, GA on the way she uses Mathematica to teach calculus concepts. In June 2014, Mazur was chosen as a 2014-2015 Project NExT fellow, a national program of the Mathematical Association of America dedicated to training recent mathematics Ph.D. recipients for careers as teacher-scholar-mentors. Mazur joins five other members of the department who have been Project NExT fellows. In addition to teaching and learning mathematics, Mazur enjoys ultimate frisbee, hiking, and volunteering at Paws4Ever, a local animal shelter. She is married to David Allison, who is a postdoctoral fellow at the UNC Lineberger Cancer Center.

Math and Stats Department Holds First Annual Welcome Dinner

On November 14, 2016 the Math and Stats Department held the first annual welcome dinner for new and current students that may be interested in a major or minor in Math, Applied Math or Statistics.   The evening started out with a panel of Majors that talked about their experiences during their course of their academic success at Elon. The panel consisted of Ben Rogers-Math with Teacher Licensure Major 19', Jenny Faig-Stats and Applied Math Major 17', Peter Jakes-Stats and Math Major 17', Erin Murnane-Applied Math Major 17' and Brendan Thiry-Stats Major 19'. The interested students were given a chance to ask the panel about their experiences, classes and even professors! Following the dinner we were honored to have Dr. Dominic Klyve, Associate Professor of Mathematics at Central Washington University speak to the group. He spoke about battles between famous mathematicians and how they won those battles. This was a very successful evening.   We look forward to hosting this event for many years to come!

Dr. Dominic Klyve speaking to the group.

Panelist Ben Rogers, Jenny Faig, Erin Murnane, Brendan Thiry and Peter Jakes

Welcome Dinner in full swing

Math and Stats Department co-sponsor a workshop featuring Amazon Web Services

The "AWSome Analytics Workshop," sponsored by Elon's Center for Organizational Analytics and the Department of Mathematics and Statistics, highlighted how students, educators and industry professionals are using Amazon Web Services (AWS) to develop, deploy and operate secure applications and IT services that improve agility and reduce costs for organizations.

More than 120 students, faculty members and professionals gained a deeper understanding about data and analytics best practices through an Amazon Web Services workshop held Nov. 7 at Elon University.

Dr. Vankrevelen, Dr. Doehler and Dr. Metts deep in thought about analytics.

SPOTLIGHT ON STUDENTS

Applied Mathematics major **Kelly Reagan** '17 recently gave two oral presentations at the Eighth Annual Undergraduate Research Conference at the Interface of Biology and Mathematics in Knoxville, Tennessee. The conference is organized by the National Institute for Mathematical and Biological Synthesis (NIMBioS).

Reagan gave a presentation related to her ongoing undergraduate research project at Elon, "A Mathematical Model of Dengue Fever Incorporating Human Travel." She also participated in a Summer Research Experience (SRE) at NIMBioS in Summer 2016 and co-presented on her SRE research topic, "Modeling of Human Emotions," at the conference.

Peter Jakes '17, **Nathan Pool** '17, **Michelle Rave** '17, **Kelly Reagan** '17 and **Jade Schrader** '16 gave presentations at the 12th Annual Regional Mathematics and Statistics Conference held at UNC-Greensboro on Nov. 11-12.

A total of 210 students and faculty attended the UNC Greensboro conference, including 12 from Elon University. Among the 68 student presentations, nine individuals were recognized with an award for outstanding presentation. Reagan received one of the awards this year, marking the third time an Elon student has received an award at this conference. Previous award winners were Nicole Soltz in 2014 and Alison Miller in 2012. Reagan also participated as panelist on Saturday afternoon, where she discussed the benefits of engaging in undergraduate research.

Student presentations were as follows:

- **Jakes** presented "Degree Six Polynomials and Their Solvability by Radicals". He is mentored by A.L. Hook Associate Professor **Chad Awtrey**
- **Pool** presented "The Automatic Construction of Fractals of Arbitrary Dimension". He is mentored by Professor **Jeff Clark.**
- **Rave** presented "Prevention Methods: Mathematical Modeling of Dengue Fever". She is mentored by Professor **Crista Arangala** and Associate Professor **Karen Yokley.**
- **Reagan** presented "A Mathematical Model of Dengue Fever Incorporating Human Travel". She is mentored by Associate Professor **Karen Yokley** and Professor **Crista Arangala**.
- **Schrader** presented "Galois 2-adic Fields of Degree 16". She is mentored by A.L. Hook Associate Professor **Chad Awtrey** and Associate Professor **Jim Beuerle.**

Taylor Cesarski '17 was recognized with the Outstanding Mathematics Education Student award by the N.C. Council for Teachers of Mathematics on Oct. 27 at their annual conference in Greensboro, N.C. The council recognizes outstanding mathematics education students at colleges and universities across the state in an effort to encourage student enjoyment of mathematics and mathematics education. The winning students are invited to attend the state conference in October where they are recognized and receive their awards. Cesarski is an Elon University Teaching Fellow and Noyce Scholar in secondary mathematics. In association with these scholarships, she has worked with students and mathematics educators in high need schools in the Alamance-Burlington School System. Cesarski has served as a student representative on many advisory committees at Elon including the teacher education committee and the mathematics education advisory board. Cesarski has maintained a stellar academic record including minors in Spanish and coaching.

She has also completed research in mathematics which she presented on the state and national levels. Her academic work has been recognized through her induction into the Elon University chapter of Phi Beta Kappa and Pi Mu Epsilon, the national mathematics honorary society.

Jan Mays, professor of mathematics, with Taylor Cesarski receiving her award.

Peter Jakes with Angie Spalsbury from Pi Mu Epsilon

Elon University's Department of Mathematics and Statistics had a strong showing this August in Columbus, Ohio, at MathFest, the summer meeting of the Mathematical Association of America.

Lumen Scholar and Honors Fellow **Peter Jakes '17, Professor Jeff Clark, Assistant Professor Aaron Trocki, and A.L. Hook Associate Professor Chad Awtrey** all offered presentations at the meeting. This meeting is the largest summertime gathering of mathematicians in the country. Jakes received an award and cash prize for the presentation of his paper, "Degree 6 polynomials and their solvability by radicals" The president of the national mathematics honor society, Pi Mu Epsilon, **Angie Spalsbury** from Youngstown State University, presented the award to him at the Society's annual banquet held during MathFest.

Pi Mu Epsilon Hosts Mathematicians for Engaging Colloquiums

On Thursday, Oct. 27, Elon's Chapter of Pi Mu Epsilon, the national honor society, hosted **Zach Abernathy** from Winthrop University for his talk, "Modeling the Cancer Stem Cell Hypothesis: Growth, Treatment, and Recurrence."

To a crowd of 51 Elon students and faculty, Abernathy, an assistant professor of mathematics, explained how tumor recurrence is a common event in cancer patients. Abernathy gave a description of the research he has conducted with undergraduate students which aims to predict cancer dynamics and therefore has the potential to inform treatment plans to maximize the lengths of cancer remission.

Kristen Abernathy, assistant professor of mathematics at Winthrop University in South Carolina, spoke to students and faculty about her research in the areas of analysis and mathematical modeling on Thursday, Sept. 29, 2016. Abernathy began by describing various ways of measuring distance between mathematical objects. She then mentioned that the notion of distance can be abstracted and its properties studied. Many interesting research questions arise from such studies. In particular, Abernathy often applies her research skills to answer biological questions.
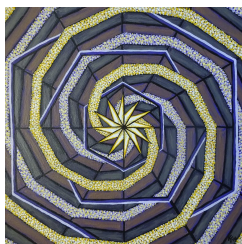
On Thursday, Dec. 1, PME and Elon Statistics Club co-hosted the 4th Annual Fall Pizza Party, an event that attracted 46 Elon students and faculty and featured a guest lecture by Associate Professor of Mathematics **Jim Beuerle.**

Beuerle's interactive lecture, "Magic, Logic, and Puzzles," engaged audience members in several fun mathematical activities. One of these was a contest to see who could draw the most perfect circle.

"Much to learn you still have" -Yoda

FACULTY UPDATES

A painting by Associate Professor of Mathematics, **Dr. Karen Yokley** was featured at the Bridges Organization's visual art exhibition at the annual Joint Mathematics Meetings (JMM) in Atlanta, GA., held Jan. 4 through 7.

The Bridges Organization promotes work related to mathematical connections to art, music, architecture, education and culture. Bridges presents two gallery showings a year, one at the annual Bridges meeting and one at JMM. The Joint Mathematics Meetings is the largest mathematics meeting in the world and is organized by the Mathematical Associate for America (MAA) and the American Mathematical Society (AMS).

Yokley's original painting, "Starburst," was displayed with other works chosen for the gallery by judges from Bridges. The review criteria for acceptance include (1) mathematical content, (2) esthetic appeal, (3) medium, (4) craftsmanship, and (5) innovation and originality.

"Starburst" is Yokley's fourth accepted painting in a Bridges exhibition. Yokley's previous painting, "Golden Approximation," was featured in the 2012 JMM Bridges gallery. Additional works, "Bubble Spiral" and "Pinwheel," were shown in the 2015 JMM Bridges exhibition. "Golden Approximation," "Bubble Spiral," and "Pinwheel" have been included in the glass cases outside the office of the Dean of Elon College, the College of Arts and Sciences in Lindner Hall.

More information about the painting can be found here: http://gallery.bridgesmathart.org/exhibitions/2017-joint-mathematics-meetings/kyokley

In September 2016, **Professor Lisa Rosenberg** transitioned into the role of Experiential Learning Coordinator for the Mathematics and Statistics Department. The position was previously held by Dr. Crista Coles. Professor Rosenberg is working to ensure the departmental capstone requirement continues to be both engaging and beneficial to the majors. In addition, Professor Rosenberg received a CATL grant in September 2016 to promote engaged learning in the classroom through the use of mini whiteboards to conduct low-stakes assessment tasks for her students.

Dr. Doehler presented "A Randomization-Based Activity to Introduce ANOVA while Reinforcing Knowledge of Sampling Distributions" at the Joint Statistical Meetings in Chicago, IL. August 2016.

Dr. Chad Awtrey, will be transitioning into a new leadership role this spring as Associate Director of the Undergraduate Research Program.

Five mathematics professors presented at the largest annual mathematics conference in the world, the 2017 Joint Mathematics Meetings, held Jan. 4-7 in Atlanta.

Professor **Jeff Clark** presented on "Teaching Combinatorics to Diverse Student Interests." In addition, he attended a meeting of the Mathematical Association of America (MAA) Committee on Minicourses and in his role as a committee member, he monitored a minicourse that met over two days. Finally, Clark attended a meeting of the MAA's section officers as chair-elect of the Southeastern Section.

Professor **Todd Lee** presented "Flipped Mastery Cycle Learning of Calculus II using a Plethora of Tools." Lee currently serves as Faculty Fellow for Technology.

Assistant Professors **Kristen Mazur** and **Aaron Trocki** delivered talks in themed sessions. Mazur spoke on "A Basic Approach for Creating Interactive Calculus Lessons in Mathematica," in which she shared how she uses the software program Mathematica as a learning tool in calculus. Trocki presented "Using History as a Vehicle for Humanizing Mathematics," in the MAA's Session on Humanistic Mathematics.

A.L. Hook Associate Professor **Chad Awtrey** gave two talks on joint work with Elon undergraduates Michael Keenan '16 and Jade Schrader '16 and Associate Professor Jim Beuerle titled "Constructing Galois 2-extensions of the 2-adic numbers," and "When is a quartic polynomial isomorphic to an even polynomial?" Awtrey's invited talk, "Some open problems in computational Galois theory," was part of a special session organized by the Council on Undergraduate Research (CUR) Division of Mathematics and Computer Science.

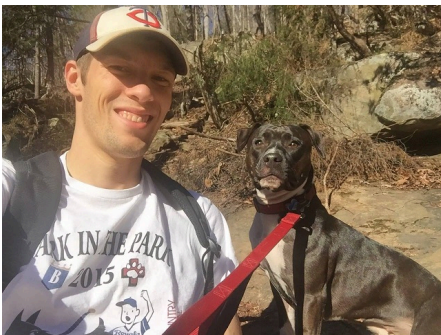**Dr. Doehler goes up to bat while teaching in the Dominican Republic this winter term.**

Dr. Lee and his son Aaron escaping the snow and enjoying the tropics!

Faculty Pet Adoption!!!!

We all love our pets! We have 4 faculty members who recently adopted a furry family member and gave them an awesome home!

Meet Libby, the newest member of Dr. Yokley's household.

Dr. Trocki with his wife Maren, and their dog Bailey.

Dr. Vankrevelen and Fiona enjoying a day in the park.

Dr. Mazur and Mortiz resting from their hike by the waterfall.

Looks like Mortiz and Fiona are great friends!

THANK YOU FOR YOUR DONATIONS!

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To learn about majors, see photos, and get contact information, visit our link at www.elon.edu/e-web/academics/elon_college/ mathematics_statistics/. Like our Facebook page at Elon University Math and Stats. This newsletter is a production of the Department of Mathematics and Statistics at Elon University.

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