MACS Newsletter

Department of Mathematics and Computer Scienc
Longwood University · Fall 2017

Lewis Co-authors Textbooks

Dr. Virginia Lewis, Associate Professor of Mathematics Education, has recently co-authored two textbooks providing an overview of research in STEM fields and aimed at incorporating scientific research as a regular part of the classroom learning experience.

Stem Research for Students Volume 1: Understanding Scientific Experimentation, Engineering Designs, and Mathematical Relationships is designed for middle school students engaging in scientific experimentation for the first time or for experienced students fine-tuning their research skills through active participation. Throughout the course of study presented, students design and conduct their own experiments, analyze and interpret data, and are introduced to the engineering design process by designing, building and testing models.

Designed for high school students expanding their research skills, Stem Research for Students *Volume 2: Creating Effective Science Experiments, Engineering Designs, and Mathematical* Investigations emphasizes designing and implementing projects in science, engineering, and mathematics, with the mathematical content of Vol. 2 focusing on more advanced algebraic and statistical techniques. Further, Vol. 2 has one chapter dedicated to encouraging students to share the results of their research through participation in STEM competitions.

Both books use active investigation to explore a specific aspect of STEM research and contain checklists for self/peer/teacher evaluation. Connections are made to mathematics through the analysis and interpretation of data, and through STEM perspectives which enrich chapter content with extensions in STEM fields. Both books are correlated to the Common Core Standards for Mathematics, Next Generation Science Standards and the International Society for Technology in Education Standards. The books are appropriate for middle or high school courses, as a guide for home school students (all materials for experiments are readily available), and for teacher preparation courses and professional development.

Dr. Lewis (née Vimpeny) is a 1992 alumna of Longwood College who graduated with a B.S. in Mathematics. After graduating from Longwood, Dr. Lewis spent time as an instructor for The Governor's School of Government and International Studies (1997-1998) and as a middle school math teacher at Pocahontas Middle School (1998-2004). Dr. Lewis began her tenure at Longwood University in 2003, when she was hired as an Adjunct Lecturer. From 2004-2010, Dr. Lewis served as a lecturer at Longwood University while simultaneously pursuing her Ph.D. in Mathematics Education from the University of Virginia. In 2010, Dr. Lewis was promoted to Assistant Professor of Mathematics Education, and in 2016 Dr. Lewis was awarded tenure and promoted to Associate Professor.

Throughout her tenure at Longwood University, Dr. Lewis has been an active participant in the Virginia Council of Teachers of Mathematics and the National Council of Teachers of Mathematics. Dr. Lewis also served as the Primary Investigator on Mathematics and Science Partnership Grant from 2014-2015. In the classroom, Dr. Lewis is known for her passion for mathematics education and her commitment to her students and Longwood University. Please join us in congratulating Dr. Lewis and wishing her continued success.

Kessler Awarded NSF Grant

The Longwood University Department of Mathematics and Computer Science would like to extend a warm and well-deserved congratulations to alumna Sarah Kessler, who was recently recognized as a 2017 recipient of a prestigious National Science Foundation Graduate Research Fellowship. This highly competitive award carries with it three years of financial support to help fund Ms. Kessler's graduate studies at North Carolina State University.

Ms. Kessler is a 2015 graduate of Longwood University, earning B.S. degrees in Psychology and Mathematics. While at Longwood University, Ms. Kessler was a member of the Cormier Honors College and served as a tutor for undergraduate math courses. Under the guidance of mathematics professors Dr. Leigh Lunsford and Dr. Phillip Poplin, Ms. Kessler also carried out undergraduate research aimed at assessing the effectiveness of a diagnostic pre-test and tutoring services used by the department in introductory statistics courses.

At North Carolina State University, Ms. Kessler is pursuing a Ph.D. in the field of Educational Psychology with a focus on mathematics education. Ms. Kessler's current research is aimed at understanding the conceptual and mechanical uses of fractions at the 3rd and 4th grade levels and on the number sense sub-skills that influence understanding and achievement. Congratulations on your continued success, Sarah!

Zaleski Participates in REU

Olivia Zaleski, a senior double majoring in Computer Science and Spanish, spent the summer of 2017 in Spain participating in an NSF funded Research Experience for Undergraduates (REU) conducted by the University of South Florida and Dr. Miguel A. Labrador. Ms. Zaleski's REU was a part of a combined study abroad program that brought a select group of undergraduate students from across the United States to Oviedo, Spain to study the Spanish culture and ubiquitous sensing. Ms. Zaleski's summer long research project was focused on the gait analysis of humans and comparing the effectiveness of smartphone based sensor systems and inertial movement unit (IMU) based systems in recording movement and helping diagnose physical ailments.

Ms. Zaleski is from Midlothian, Virginia and is a member of the Cormier Honors College. She is an active member of Longwood's chapter of Upsilon Pi Epsilon, the international honor society for computing and information disciplines, and Longwood's Association for Computing Machinery. In addition, Ms. Zaleski was chosen as the 2015 recipient of the Albert W. and Mary N. Jones Scholarship, and the 2016 and 2017 recipient of the Merry Lewis Allen scholarship. These scholarships are offered by the Department of Mathematics and Computer Science to students excelling in a program within the Department.

As Ms. Zaleski approaches graduation in the spring of 2018, she is considering the options of graduate school or joining the work force. Regardless of her choice, we are confident that she will find continued success.

Catching Up!

Dominick Pastore, Math and CS, 2014

1.) Favorite search algorithm?

Depth first and breadth first search are kind of interesting just because the algorithms are the same apart from one using a stack and the other using a queue.

2.) The mathematical theorem that you found most surprising?

Definitely that the set of rational numbers is countable. There are an infinite number of rationals between any two natural numbers, yet the rational numbers can be mapped to the natural numbers 1-1. This blew my mind.

3.) What are you up to now?

I will be starting graduate school at the University of Pennsylvania shortly, but I've been in industry working for SWIFT since graduating. I do testing and test automation for one of the networks banks use for international payments and transfers.

4.) Fondest memory of your time at Longwood?

Without a doubt, late hours in the Hardy House lab working on the Operating Systems labs. The projects were diabolical and the late hours were atrocious, but the camaraderie and satisfaction of a job well done were exhilarating in a way that I haven't been able to reproduce since.

Miscellaneous Notes

Gale Moss Retires

With a mix of sadness and a hearty congratulation, the Department of Mathematics and Computer Science announces that longtime administrative assistant, Gale Moss, has officially penned her last set of minutes and retired. Ms. Moss arrived at the Department in the summer of 2004 and was a stabilizing and organizing force for all members of the department. Serving as a dedicated co-worker and friend, Ms. Moss was always available to help any faculty member or student, and took special care to look after the students occupying the lounge across from her office. Congratulations on your retirement, Gale. We wish you all the best!

Remember! to update your contact info at www.LongwoodNetwork.com Like us on facebook

Computer Lab Moves

The Department's computer lab has been moved from The Hardy House to Stevens Hall. The new lab is located on campus and is situated in a single classroom, making it more effective for teaching and presentations. While the new lab might lose some of the charm associated with The Hardy House, students will maintain 24-hour access and the joy and spirit of camaraderie found in The Hardy House will be maintained.

X Word

Rules: The digits 1 through 9 appear in each row and each column exactly once (including the blue squares). Follow the clues for the products of the digits in each horizontal or vertical region.

The puzzle was created by Dr. David Shoenthal and many others like it can be found at Dr. Shoenthal's blog, Cine Cura, where Dr. Shoenthal posts a new puzzle every week. To find out more, go to www.cine-cura.blogspot.com.

→32 ↓12	↓480		→45		↓5		→42 ↓112	↓54
→105		↓28			→72	↓252		
	→120		↓480		→56			
→2 ↓35			→1134	↓1344				↓80
		→1728 ↓54				→10 ↓135		
	→54 ↓252			→120	↓30			
→224 ↓48			↓14		→162			↓12
→42			→54					→4