Faculty and Staff Updates in the Math Department

In August, 2023, Dr. Rich Mikula transferred to Millersville University from Lock Haven University. In this issue, you will find out more information about him, as well as about the other recent additions to the department: Dr. Patrick Stewart, Dr. Lindsay Dever, and Mrs. Linda Mellinger. In June 2023, Dr. Delray Schultz retired from the department. We will share how he will be enjoying his retirement, as well as sharing updates from Dr. Zhoude Shao and Mrs. Kathy Cody, who both retired in June 2022.

Dr. Rich Mikula

Dr. Richard Mikula received a Ph.D. in mathematics from Rutgers University, under the direction of Yanyan Li. His thesis is titled “Prescribing Gauss-Kronecker Curvature on Group-Invariant Convex Hypersurfaces,” and the results were published in 2006 in the Journal of Differential and Integral Equations (JDIE).

Dr. Mikula grew up in NE Philly and studied mathematics at Temple University, where he obtained his B.S. in 1998. Prior to becoming a math major, he studied electrical engineering at Temple. His family still resides in the Philadelphia area, and although he has no children, he is quite close with his 21-year-old nephew Zebulon.

Prior to coming to Millersville, Dr. Mikula taught in a tenure track position at William Paterson University (NJ), and at Lock Haven University from 2007-23. In his time at LHU, Mikula was a graduate program coordinator for a master’s program in actuarial science. His current research interests lie in applied statistics and actuarial science. His non-academic interests include the study of languages, music, paper making, painting, and traveling.
Dr. Patrick Stewart earned a Ph.D. in Statistics from Bowling Green State University. Prior to that, he received his Master of Science in Statistics from Virginia Tech as well as a Master of Arts in Mathematics with a Statistics emphasis. He holds a Bachelor of Science in Computer Science from Marshall University. After earning his BS at Marshall University, he took a year of education and curriculum courses for an MAT in mathematics education, but switched to mathematics before finishing that degree. His research interests focus primarily on nonparametric statistics and inflated data.

Dr. Stewart was born in southern West Virginia. Outside of work, he likes to play video games, read, watch movies, go hiking, and play with his cat. This past summer he gave a presentation at Mathfest titled “Introducing the law of large numbers to statistics courses through an interactive programming activity.”

Dr. Lindsay Dever started teaching at Millersville in Fall 2022 after finishing her Ph.D. in Mathematics at Bryn Mawr College. As an undergraduate, she majored in Special Education and Mathematics, and then she attended the Post-Baccalaureate Program in Mathematics at Smith College. Her research uses tools from calculus to solve problems in number theory and hyperbolic geometry. Hyperbolic geometry is a non-Euclidean geometry with strange rules – stretching a shape doesn’t change its volume, and the angles of a triangle add up to less than 180 degrees. Her research involves studying the “twist” if you travel along the straight lines in this space. This involves writing mathematical proofs and analyzing data collected by a computer.

Dr. Dever teaches mathematics courses at all levels, including introductory courses like College Algebra, Precalculus, and Calculus as well as upper-level courses like Real Analysis and Linear Algebra. She enjoys incorporating “active learning” into her classes to get students involved in the classroom. It is great to see students form connections with their peers through group activities in the classroom, especially when those relationships continue after the class is over.

Outside of teaching, Dr. Dever sings in a barbershop chorus called Vocal Harmonix and a barbershop quartet. She also enjoys cooking, yoga, and spending time with her husband.
Mrs. Linda Mellinger

Linda joined the math department in August 2022. She came to MU in 2019 and provided administrative support to the AVP of Student Affairs for 3 years. Linda moved to Millersville from New Jersey where she had worked in special services, guidance and business offices at regional school districts for many years. Linda received a BS in Business Administration with a concentration in Marketing from Albright College and went back to school to get a second BS degree and received NJ State certification as an Elementary School Teacher with Mathematics Specialization: in Grades 5 – 8. Linda enjoys working in the math department and providing customer service to students and faculty. She seeks new ways to market our department to prospective students and looks to engage our alumni with current math majors. In her time away from MU she enjoys spending time with her husband, playing golf, playing Sequence, doing puzzles, participating in church activities and traveling to the beach or out west.

Dr. Delray Schultz

After three wonderful decades at Millersville University teaching, interacting with the students and faculty, administrating, and exploring every other corner of MU he could find to be involved with, Dr. Schultz retired. He and his wife have moved to North Carolina to be near children and grandchildren and to take advantage of milder winters and more outdoor time. He hopes to enjoy more family time, pursue activities such as golfing and fishing, and perhaps keep his hand in the game with some teaching or consulting on the side. He misses his colleagues and students but is adjusting to life in retirement and welcomes staying in contact with and visits from his “Millersville family.”

Mrs. Kathy Cody

Since closing her chapter at Millersville (June 2022), Kathy has found a sense of relaxation and adventure in retirement. She is able to devote much more (sometimes wasted) time cheering on the Philly sports teams. She recently rescued a kitten, Charlie, who is keeping her on her toes along with her golden retriever, Jojo. She has taken numerous trips to new and familiar places, including her house in Ocean City. Kathy is appreciative of the extra time that retirement has allowed her to spend with family and friends (the jury is still out regarding the abundance of extra time spent with her husband who retired in March). Though her days are no longer centered around mathematics, Kathy misses spending time with her Millersville friends and the hustle and bustle around Wickersham.
Dr. Zhoude Shao

Dr. Shao retired at the end of spring semester, 2022, after 28 years of service at Millersville. He describes his tenure at MU as extremely rewarding and fulfilling. While he misses being in the classroom and interacting with his colleagues and students a great deal, he enjoys the life of retirement, in particular, the luxury to do things on his own schedule. Since retirement, he has traveled back to China to see his family members in early 2023, for the first time in three years since the pandemic started and visited other interesting places like national parks and northern European countries. When not traveling, he enjoys golfing and gardening. Of course, he continues to read up on the new developments in his field of research and study other interesting math facts/subjects he did not have time to learn about while working.

Building Capacity to Identify and Address the Needs and Challenges of STEM Education Majors

From May 2022 to April 2023, Drs. Cynthia E. Taylor and Tyrone Washington along with Drs. Nanette Marcum-Dietrich, Laura Ramos-Sepulveda, and Sepi Yalda were awarded a one-year Noyce Capacity Building Grant ($74,965) funded by the National Science Foundation. The focus of the grant was to concentrate on efforts to address the need for secondary Science, Technology, Engineering, and Mathematics (STEM) teachers in Pennsylvania and to strengthen several areas of Millersville University’s secondary STEM teacher certification programs in order to take steps to foster and support the success of secondary STEM-focused prospective teachers who complete program requirements while also simultaneously building the groundwork for a future “Noyce Track 1: Scholarships and Stipends” proposal, which was submitted this past August 2023.

Millersville University has a long tradition of producing certified teachers, but despite strong overall student enrollments in several undergraduate STEM secondary education majors, the number of program completers declined (≈33%) from 2016-2021. The two main objectives of the project were to: (1) Identify and assess STEM education majors’ academic needs and challenges to help them earn their teacher certification and (2) Create a STEM Faculty Advisory Council that would define role(s) for faculty advisors of STEM education majors and an established community structure to address the students’ needs and challenges identified through (1). The project team met the identified objectives and the following key accomplishments resulted through meeting the proposal’s objectives.

The accomplishments were: (1) the addition of a fully funded graduate assistant position responsible for assisting STEM education students, coordinating with faculty communities, and facilitating STEM community outreach, (2) an identified and established faculty community who will continue to meet regularly, and (3) the creation of a Bachelor’s of Science in Education (BSE) STEM website that contains information for BSE STEM students and faculty advisors.
Three Millersville Math majors attended prestigious REUs over the past two summers. These programs are highly competitive and provide attendees an excellent opportunity to extend their mathematics education beyond the classroom.

**Zachary Barnhart’s REU Experience**

This past summer, I participated in the Summer Institute in Biostatistics at NC State University and Duke University, which was sponsored by the National Institute of Health. I was part of the six-week long program along with eighteen other undergraduate students. Each day, we attended four hours of lectures, broken into two sessions, either in the Statistics Department at NC State or in the Department of Biostatistics at Duke. In the lectures, we learned about careers in biostatistics, statistical techniques, and graduate school opportunities. Almost every day (or every session) would feature a different lecturer who was typically either a statistician associated with NC State, a biostatistician associated with Duke, or a medical professional associated with the Duke Clinical Research Institute. We also had some group labs throughout the program which used R and SAS programming languages. Usually once a week, we would take an educational field trip to a biostatistics related company in the Raleigh-Durham area such as AstraZeneca, United Therapeutics, and the SAS Institute. With two weeks left in the program, we were assigned groups of three or four students to work on a final project. We were given myocardial infarction hospital data and required to create a presentation and answer a research question of our choice. My group of three decided to work on predicting myocardial infarction relapse based on symptoms during the hospital stay, medical interventions administered while in the hospital, and pre-existing conditions using the data set we were given. On the final day, each group presented their findings to the rest of our class and the three directors of the program. Throughout the program, all nineteen of us were housed on NC State’s campus and given a set meal allowance to use both on and off campus. In addition to learning about biostatistics, we also had some fun team building field trips on the weekends including a ropes course, an escape room, and a trip to the beach. I learned so much from this experience about what statistics looks like at the graduate level and in the real world. I also met so many amazing people through the experience. As a result, I have decided to attend graduate school to pursue a master’s degree in statistics. I am so thankful that my professors and peers (who have since graduated) at Millersville encouraged me to apply for this incredible opportunity. The experience overall was both challenging and engaging, and it helped me step outside my comfort zone.
Noé Oberholtzer Hess’s REU Experience

I am a 4th year undergraduate Mathematics and Physics student at Millersville University. I spent the summer working at Montana State University’s Imaging and Chemical Analysis Laboratory (ICAL). ICAL is a component to one of 16 NSF-supported nanotechnology facilities that comprise the National Nanotechnology Coordinated Infrastructure (NNCI). My work focused on the potential of annealing Cu coupons to slow down their corrosion. Annealing relieves strain in the crystal lattice introduced by metallurgical processes and produces new grains and grain boundaries. This reduced strain is hypothesized to result in lower corrosion rates of copper. Experimental techniques learned and applied include both careful sample preparation methods as well as an array of imaging and analysis techniques including Scanning Electron Microscopy, Atomic Force Microscopy, Auger Electron Spectroscopy, Energy Dispersive Spectroscopy, and Secondary Ion Mass Spectrometry.

Beyond the great research experience I gained at Montana State, I also formed a powerful community of like-minded young scientists from a variety of fields including computer science, microbiology, and electrical engineering. Western Montana is maybe the most beautiful part of the United States that I have seen, and getting to explore it with these amazing people was the experience of a lifetime.

Colin Myers’s Summer Internship

This past summer, I participated in an internship program hosted by the Society of Physics Students (SPS), which very closely resembled an REU. I stayed at George Washington University in Washington D.C. for 10 weeks with over a dozen other interns in the same program. We were all placed in physics related positions, and I had the opportunity to perform research at the National Institute of Standards and Technology (NIST). A government lab operated by the Department of Commerce, NIST houses research in every field of STEM on its campus. During my 10 weeks, I collaborated with an NIST faculty member and explored the electrical properties of diamond, surface transfer doping, and its industrial applications as a semiconductor. My typical day would involve meeting with my mentor to discuss goals and ideas, physically building various experimental setups, running electrical characterization through data collection programs, and writing weekly reports on our progress.
Overall, I had an overwhelmingly positive experience this summer. The research I did at NIST was something I would have been happy to continue pursuing, and it has only further motivated me to pursue materials science in graduate school. It was eye-opening to see how a modern laboratory runs, the procedures followed, the collaboration it encourages, and the excitement it offers. Spending 10 weeks in the nation’s capital was also incredible. I had plenty of time outside of research to explore the city. Arguably even more important than the development and mentoring I found this summer were the connections I made, professional and social. I still talk to several of the interns and mentors I shared the summer with! Looking forward, I plan to attend graduate school for physics, and I feel both this summer and my time at MU have more than prepared me for this undertaking.

**Math Department Graduates, 2022 – 2023**

**Undergraduates – Fall 2022**: Brianna M. Hileman, Justin J. Horst, Danielle S. Mast, Michael L. Ruchalski, Justin R. Sellman, Madison N. Whitcomb

The goal of Math Club is to create a sense of community between all of the math majors and math-oriented people at Millersville University. We do this through socializing, playing different kinds of games, helping at local STEM community events, and having alumni guest speakers. Meetings are typically every other week throughout the semester.

Last year, on March 31st, Math Club hosted its inaugural “Wicke at Night.” From 8 PM until 2 AM, members of Math Club stayed inside Wickersham Hall under the supervision of Dr. White and Dr. Robinson. Throughout the night, we decorated a banner, designed our own cups, raced through a scavenger hunt, tried to solve a murder mystery, ate pizza and snacks, participated in a trivia contest, sang karaoke, and ate freshly made pancakes from Dr. Robinson. It was a fun night filled with lots of laughter, great food, some surprisingly good singing, a little bit of math, and wonderful memories. We are planning to hold “Wicke at Night II” this upcoming spring in a joint effort with MEMU.

In what has become an annual tradition, Math Club celebrated Pi Day once again last year. We had a pie eating contest, a pi memorization contest, and a pi dice rolling contest. Current Treasurer Lucas Schwartz took home first place in all three contests. This spring, we will once again hold a Pi Day celebration sometime around March 14th.

This past year, Math Club bought new t-shirts from Marauder Graphics, an on-campus club. The design was created by current Social Media Coordinator Julia Fischer and comes in two colors: light purple and dark red. The design features some math symbols and a reference to Millersville’s iconic pair of swans. This September, Math Club volunteered to have a table at the inaugural Career Carnival through the Applied Engineering Department at Millersville. The participants of the Career Carnival, ranging from college level to elementary level, stopped by our table to play our math and stats themed activity.
In Fall 2022 and Spring 2023, aspiring mathematics teachers joined MEMU to participate in the Math Fairs held at Wharton Elementary School (Fall 2022) and J.P. McCaskey High School East (Spring 2023). This semester, MEMU facilitated their 11th Math Fair at Wickersham Elementary School on Thursday, October 19, 2023. There was a great turnout of nearly 60 elementary school students in the newly renovated school. During each Math Fair, aspiring teachers were encouraged to create and then play math-based games along with students. This once a semester event has been held since Spring 2015 to encourage grade K to 6 students to engage with mathematics.

Along with planning and facilitating Math Fairs, MEMU holds bi-weekly meetings that are used to engage with other aspiring, and even current, teachers. Meeting activities include welcoming back Millersville alumni who are current teachers. Millersville University graduates who have shared their teaching experience with MEMU members in the past year include: William Eichorst (BSE Spring 2022), Micah Francis (BSE Spring 2022), Olivia Hess (BSE Spring 2022), Katherine Riley (BSE Spring 2022), and Hannah (Miller) Snyder (BSE Spring 2022). MEMU members have also had the opportunity to experiment with TI-84 robots to model certain mathematical concepts and much more!
MATHCOUNTS Regional Competition

Millersville University hosted the 39th Annual MATHCOUNTS (Lincoln Chapter) Regional Competition for middle school students February 2023 and will host it again in February 2024. This contest is a national program for students that is sponsored by corporations such as RTX, DoDSTEM, BAE Systems, Northrop Grumman Foundations, Texas Instruments, 3M and others. MATHCOUNTS has four levels of competition – school, chapter, state, and national. Each level has four rounds of competition – sprint, target, team, and countdown. Over 110 students from 20 local school districts participated in February 2023.

Individual portion of the MATHCOUNTS competition.

Millersville University High School Math Contest

The Millersville University Annual High School Mathematics Contest is a spring tradition that has been hosted on the MU campus for over 40 years. The contest is divided into two parts. The first is a short answer mathematics contest consisting of 30-35 problems completed by individual students in which the top five scorers receive recognition. The second portion of the test is team-based. Teams of 2-4 students from the same school work together to complete five problems. Again, the top five scoring teams receive recognition. The problems are chosen from a broad range of mathematical topics at the precalculus level including algebra, trigonometry, number theory, probability and statistics, combinatorics, geometry, mathematical modeling, graph theory, games, logic, applications of mathematics, and others. This past year we had 24 schools competing with additional schools asking to participate this coming year.
Millersville math students par
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cipated in the annual Made in Millersville event, showcasing some of the
excellent accomplishments of the past year.

• Josh Rushlow – Poster presentation – “Mathematical Modeling of Drug Delivery Methods for HIV Treatment.”

The full article can be found in the Made in Millersville Journal: https://www.mimjournal.com/_files/ugd/9b0806_e8aa6d5a61634602ae3c6f9cb2bea90b.pdf

• Brian Fodale – Article – “Changes and Perceptions Experienced by Secondary-Level Mathematics Teachers During the COVID-19 Pandemic”

The full article can be found at: https://millersville.tind.io/record/109860

• Keelie N Steiner, Ethan J Kerr, and Jacob K Biondo – Oral Presentation – “Modeling Whale Populations”

2022 Millersville Mathematics Fall Convocation

At the annual Millersville Fall Convocation nine Millersville alumni shared their expertise with our majors.

• Alanna Clark (BSE Spring 2016) Mathematics Teacher – McCaskey High School
• Robert Jones (Post Bac Certification Spring 2020) – Mathematics Teacher – Wheatland Middle School
• Ann Kovacs (BS Spring 2015) – Senior Supply Chain Project Specialist – Lutron Electronics
• Steven McClure (BS Spring 2010) – Senior Test Engineer – Google
• Megan (McGee) McKay (BS Fall 2019) – Mathematics Instructor – University of South Carolina
• Michael Motyka (BS Spring 2007) – Product Line Manager – Corning Incorporated
• Autumn (Kaltreider) Shuchart (BSE Spring 2022) – Mathematics Teacher – Bermudian Springs HS
• LeAnn Trembley (Post Bac Cert Spring 2013) – Mathematics Teacher – Red Lion Area High School
• Josh Waterman (BS Spring 2015) – Senior Analyst Reporting Center of Excellence, Global Business Services – The Hershey Company

Engage With Current Math Majors

Our students would greatly benefit from your experience and encouragement. If you would be willing to share about your current position (or previous position if you are retired) through a future newsletter, “Alumni Spotlight” on our bulletin board or as a featured speaker at a club meeting, conference or other event, please click on this link and provide us with a bit of information. https://millersville.qualtrics.com/ jfe/form/SV_0Vg7HZQlejcsRbU.

Thank you for your continued interest and support of Millersville University.
In Fall 2021, the National Science Foundation Scholarships in STEM program (NSF S-STEM) awarded a team of Millersville University faculty a $1.5 million grant to fund scholarships for students in the Millersville University College of Science and Technology.

The program, named ‘Supporting Student Success (S³)’, features support of unmet need up to $10,000 per academic year (renewable for four years) for each scholar, as well as support services for each scholar to prepare them for the STEM workforce. Among these support services are peer mentoring, a paid workforce development program, and community-outreach activities.

The Project Team was ambitious in including seven departments within the College of Science and Technology and includes the following faculty from across the university: Program Administrator/Principal Investigator: Dr. Janet A. White (MATH), Program Manager/Co-PI: Dr. Carolyn Weaver (BIOL), Mentoring Initiative Coordinator/Co-PI: Dr. Nanette Marcum-Dietrich (EDFN), Workforce Development Program Coordinator/Co/PI: Dr. Judy Cebra-Thomas (BIOL), CoBRA Program Coordinator/Co-PI: Dr. Nazli Hardy (CSCI), and Senior Personnel: Dr. Ajoy Kumar (ESCI), Dr. Xin Li (PHYS), Dr. John Haughery (AEST), Dr. Kristen Lawson (Academic Advising), and Dr. Melissa Mullen Davis (CHEM).

After a successful first year, the project welcomed its second cohort of students to the program, including our first mathematics scholar. The third and final cohort will be selected in the spring of 2024 for Fall 2024 admission. For more information on the program or to meet our scholars, please visit our website: https://www.millersville.edu/scienceandmath/supporting-student-success/index.php.
Millersville University’s Department of Mathematics co-hosted the 15th biennial Careers in Mathematics Conference along with the EPaDel section of the Mathematical Association of America on October 28th, 2023. The event drew the active participation of approximately 100 students from various high schools, universities, and institutions in Pennsylvania and Delaware.

The Careers in Mathematics conference is a unique platform that brings together professionals from diverse fields, including actuarial science, finance, industry, government, education, and other prominent STEM career paths. At the morning panel discussion, our fifteen esteemed panelists shared their invaluable experiences and insights in a lively discussion, followed by an interactive Q&A session with the attendees.

Following the panel discussion, participants attended three break-out session periods that offered a deep dive into various career trajectories and presenters shared valuable insights into their professional journeys and highlighted the pivotal role that mathematics played in shaping their careers.

There were also two dedicated sessions focused on sharing experiences from graduate schools and Research Experience for Undergraduates (REU) programs, along with guidance on application preparation. The conference was a comprehensive and enriching experience for all those interested in the dynamic intersection of mathematics and promising career pathways.

For more information about the conference and a list of our panelists and speakers, visit [http://sections.maa.org/epadel/meetings/2023/careers/](http://sections.maa.org/epadel/meetings/2023/careers/).
Dr. Erin Moss Co-Edits a Blog for the MAA

DUE Point is a blog hosted by the Mathematical Association of America. Each month, it features a project funded by a grant from the National Science Foundation's (NSF's) Division of Undergraduate Education (DUE). Readers can learn about questions posed and creative interventions designed by colleagues across the nation interested in improving undergraduate mathematics education, and they will hopefully be inspired to make professional connections and seek grant-funding for some of their own ideas. As a co-editor, Dr. Moss is responsible for authoring four blog posts per year and editing eight others. Authoring a blog post involves learning about a particular project and developing a set of relevant questions, then collaborating with the Principal Investigator (PI) on the grant to create a post that captures the uniqueness of their work and that is accessible to readers from different areas of mathematics. Dr. Moss’s work on the blog has even impacted her own teaching, introducing her to valuable resources that informed the development of the Mathematics in Art and Music course she teaches!

Dr. Kevin Robinson

Dr. Kevin Robinson participated in the ETS AP Statistics Reading as Reader in Summer 2022 and Table Leader in Summer 2023.

Dr. Cynthia Taylor

Dr. Cynthia Taylor is a co-author of the first Grade 6-8 book, *The Mystery Underground*, which is part of *Powerful Mathematicians Who Changed the World* book series published by the National Council of Teachers of Mathematics. The series is written with children and youth in mind. The books are centered on underrepresented mathematicians and their realistic contributions through a storyline. The book series will contain three books for each grade band—K-2, 3-5, 6-8, and 9-12. The storyline for each book examines issues of equity, access, and/or belongingness in mathematics. All the mathematicians in Powerful Mathematicians who Changed the World series highlights mathematicians of color and women mathematicians, particularly those who are not normally discussed in K-12 mathematics classrooms.

Additionally, Dr. Taylor is a co-author of a companion book to the series, *Powerful Mathematicians who Changed the World from A to Z*, currently in press (scheduled to be published fall 2024).

Did we miss you? Has something new happened?

Send updates to Linda.Mellinger@millersville.edu

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Be part of the future of Millersville University’s Mathematics Department!

Help us keep our programs strong by supporting our majors with a gift. Visit www.millersville.edu and click on “Giving to Millersville”, or send your gift to: Development Office, Millersville University, P.O. Box 1002, Millersville, PA 17551. Gifts may be designated to the Mathematics Department Scholarship Funds.