

GRADUATION

This academic year the Mathematics Department graduated five undergraduate students with B.S. degrees and five graduate students with M.S. degrees.

In fall of 2023, Brenton Nabors and Jamar Sullivan graduated with their bachelor's degrees and Patrick Bartol, Jeremy Carew, Isaac Gyasi, and Benjamin Vannoizzi graduated with their master's degrees.

In spring of 2024, Ethan Schlegel, Austin Waters, and Aidan Woodard graduated with their bachelor's degrees and Nengenen Shadrach Mbativga, this year's recipient of the Math Graduate Teaching Award, graduated with his master's degree.

Congratulations, graduates! We wish you success in all of your future endeavors.

CONGRATULATIONS!

Congratulations to Patrick Bartol, Jeremy Carew, Isaac Gyasi, and Benjamin Vannoizzi for successfully defending their theses in fall of 2023 and to Nengenen Shadrach Mbativga for successfully defending his thesis in spring of 2024.

Thank you to their graduate advisors, who guided them towards their success.

Patrick Bartol (Dr. Motoya Machida), *Feynman-Kac Formulation of Black-Scholes Option Pricing*.

Jeremy Carew (Dr. David Smith), *Induction of Diversity in Classifier Ensembles*.

Isaac Gyasi (Dr. Michael Allen), *Estimation of the AR(1) Model Using the Least Squares Method and Multi-Layer Perception*.

Nengenen Shadrach Mbativga (Dr. Yung-Way Liu), *Comparative Analysis Between Runge-Kutta Methods and Multistep Numerical Methods for Ordinary Differential Equations*.

Benjamin Vannoizzi (Dr. Alexander Shibakov), *Modern and Classical Interpretations of Calculus Notation via Differential Geometry and Nonstandard Analysis*.

On April 16, 2024, the College of Arts and Science's Honors Night was held to celebrate its outstanding students who have been offered awards and scholarships for their academic achievements.

Congratulations to the following recipients of 2024-2025 Math Department awards and scholarships:

Math Graduate Teaching Award –
Nengenen Shadrach Mbativga

Stanley Dolzycki Memorial Award –
Belguutei Ariuntugs

Dr. R. H. Moorman Memorial Award –
Clyde Haywood

Stanley W. Erwin, MD Scholarship –
Carson Alfaro, Emma Krebs, and
Christopher Wolk.

Dr. S. A. Patil & Mrs. Vijayalaxmi Patil
Scholarship
– Leesha Chaney

Grateful Heart Mathematics Scholarship –
Carson Alfaro, Charles Hasting, and
Michael Potts.

Richard P. Savage, Sr. Endowed Scholarship
– Chance Dunnington and Emma Krebs

Leonard Dunavin Mathematics Scholarship
– Lillian Mayfield

Stonecipher Mathematics Scholarship –
Carson Alfaro, Alexa Borski, Andrew
Cambron, Chance Dunnington, Isaac Essex,
Clyde Haywood, Jaden Johnson, John
Grzegorzcyk, and Lillian Mayfield.

WAY TO GO!

Congratulations to Deborah Okoli, an international mathematics graduate student, for getting accepted into the PhD program at Mississippi State University! Although she won't be finishing her degree at TTU and we are sad to see her go, we are excited for her to experience this wonderful opportunity.

Here is what Deborah has to say about this:

I am excited to announce my forthcoming transition to Mississippi State University, where I will be advancing my academic journey through pursuit of a Doctorate of Philosophy in Mathematics, specializing in Applied Mathematics. While embarking on this new chapter, I cannot help but reflect on the fond memories and invaluable experiences I have gained at Tennessee Tech, particularly within the esteemed Department of Mathematics. Though I anticipate the challenges and opportunities that lie ahead, I will undoubtedly cherish the connections forged during my time at Tennessee Tech and endeavor to maintain these meaningful relationships.

Submitted by Deborah Okoli

COOL MATH JOBS

One growing career for those with a bachelor's degree in mathematics is that of an Algorithm Engineer. Much like data analysts, algorithm engineers work closely with other engineers to identify problems and trends in datasets of AI applications. They design and install algorithms and test algorithmic models and software to tackle everyday challenges. The problems algorithm engineers typically address are those with machine learning, computer vision, and data analysis. The primary responsibilities of the role are to coordinate the development, establishment, and testing of codes and hardware components. In fulfilling these responsibilities, algorithm engineers must pay close attention to detail and develop strong problem-solving skills. This career is vital in numerous industries across the United States, with a projected growth rate of 23% over the next decade. Currently, major companies such as Netflix and DoorDash are hiring algorithm engineers to work on improving their technology applications. Locally, companies in the financial services industry such as Affirm and BDO USA are searching for algorithm engineers. Software companies are also hiring for this position. One such example is the technology solutions company KANINI. On average, algorithm engineers in these sectors receive a yearly salary of \$145,080.

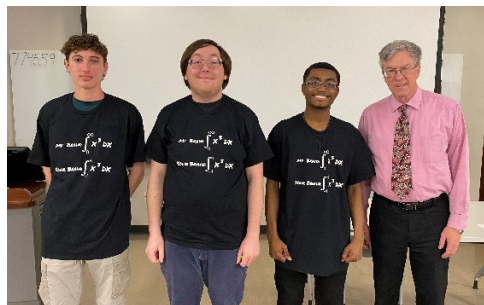
To be successful as an algorithm engineer, a mathematics graduate should have knowledge of at least one coding language, strong knowledge of mathematics and data structures, and experience with software development. They must also be willing to work in a team environment. Those on the Statistics and Applied Math tracks would be well suited for this position because of their course experience with datasets and familiarity with mathematics geared towards engineering applications.

MATH CLUB

This spring semester has been full of great talks and good times for the TTU Math Club! We had multiple monthly events that included learning the system behind assigning leap days to icing cookies and enjoying each other's company. We are so excited to continue to grow this club each year and provide an outlet for everyone on campus to discuss interesting math topics or just take a breather from the craziness of balancing school and life!

Submitted by Meredith Hall

INTEGRATION BEE



(from left to right: Simone Azzani, Charles Hasting, Trevon Collins, and Dr. Brian O'Connor).

On Thursday evening April 11, the Math Department hosted an Integration Bee. An online qualifying round resulted in eight students vying in person for the first-place prize of \$125. Second- and third-place winners received \$75 and \$50 respectively. Funds were donated by the College of Arts and Sciences. First place was secured by Charles Hasting, a senior Math/Chemical Engineering major from Maryville, TN. Second place went to sophomore Mechanical Engineering major Trevon Collins from Smyrna, TN. Simone Azzani, a sophomore Civil Engineering major from Crossville, TN took third place.

Contestants received a T-shirt designed by the Math Club.

Many thanks to all who participated!

Submitted by Dr. Stacy Brown

WHAT'S HAPPENING

The Math Department is in the process of hiring a new lecturer, who will begin teaching in fall of 2024.

The 2024 TMTA Math Contest was, unfortunately, cancelled due to severe weather. Although it is unfortunate the event was canceled, we can all agree the safety of participants and everyone involved in the event is the number one priority. So, thank you, Dr. Michael Allen and Dr. Stacy Brown, for coordinating an appropriate response to the unpredicted turn in weather to ensure the safety of everyone involved. Also, thank you to everyone who took part in organizing and preparing for the contest. Hopefully, next year will proceed without a hitch.

The Spring 2024 Showcase was held on February 24, 2024 and March 2, 2024. On both showcase days, representatives for the TTU Math Department met with potential math majors in hopes of recruiting them. These representatives provided guided tours of Bruner Hall and TTU's campus to the potential math majors as well as answered their questions about TTU, the Math Department, what kind of classes they could take, and what potential careers they could pursue with a math degree. Thank you, Mr. Spencer Kennon, Mr. Mark Rogers, and Dr. Allan Mills, for representing the Math Department on February 24, 2024. Thank you, Mr. Spencer Kennon and Dr. Michael Allen, for representing the Math Department on March 2, 2024. Also, thank you to everyone else who organized or participated in the Spring 2024 Showcase.

JOINT MATHEMATICS MEETINGS:



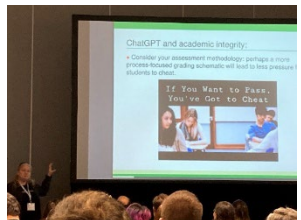
The 36th annual Joint Mathematics Meetings were held January 3 – 6, 2024, in San Francisco, CA. A collaborative venture between 17 different



mathematical societies, the JMM offers an unparalleled opportunity each year to hear hundreds of invited lectures on an



incredibly wide range of mathematical topics. Some of the more well-attended talks at this year's

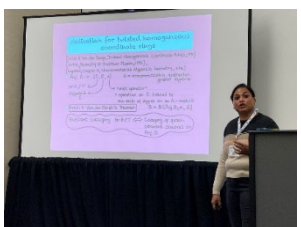


conference were by notable names in higher mathematics, including child-prodigy-turned-UCLA-professor



John Urschel (left) and Mr. Mark Rogers (right).

(and Fields medalist) Terence Tao, superstring theorist Sylvester James Gates, Jr., $\text{T}_\text{E}_\text{X}$ creator Donald Knuth, and NFL-linebacker-turned-MIT-professor



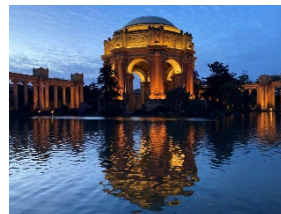
Dr. Padmini Veerapen

John Urschel. Also, among the speakers at this year's event was TTU associate professor Dr. Padmini Veerapen, who spoke about her

research in abstract algebra, specifically "Regular Algebras of Dimension Four and Twisted Homogeneous Coordinate Rings of

Quadrics". The work classifies Artin-Schelter regular algebras of dimension four with Hilbert series the same as that of the polynomial ring on four variables that map onto twisted homogeneous coordinate rings of rank-two quadrics, extending earlier work by Shelton, Vancliff, and Van Rompay on twisted homogeneous coordinate rings of rank-three and rank-four quadrics. She was also part of a group of six researchers from different universities giving a second lecture on a related topic, that of 2-cocycle twists involving Manin's universal quantum groups and their comodule algebras, determining when Zhang twists of connected graded algebras can be realized as cocycle twists.

Also, in attendance was TTU lecturer Mark Rogers, who had the good fortune to be able to share a flight with his wife, TTU history professor Dr. Elizabeth Propes, as by an exceedingly lucky quirk of fate the annual meeting of the American History Association was taking place in the exact same city, just a few blocks away, on the exact same dates. While not giving a talk at this year's convention, he was able to attend dozens of them, running his feet ragged darting back and forth around the



convention center.



This year's host city provided a rich panorama of unique architecture, world-famous cultural sites, and natural wonders. Those in attendance were able to step away in the early evenings to



enjoy Muir Woods and the Golden Gate Bridge, Chinatown and the Japanese Tea Gardens, the uniquely twisty



Lombard Street and the Haight-Ashbury district, and the unique experience of riding classic cable cars down



to the waterfront for some local seafood (and, of course, a Frisco Melt). And, to everyone's great astonishment, the threatened week-long torrent of rain... simply never materialized, although the matter may yet be very much in doubt with regards



to next year's JMM host city, Seattle.

Submitted by Mr. Mark Rogers

SOUTHEASTERN MAA MEETING

Dr. Brian O'Connor attended the annual meeting of the Southeastern Section of the Mathematical Association of America, held in Knoxville, TN on March 14-16. The Southeastern Section consists of chapters in Alabama, Georgia, North Carolina, South Carolina, and Tennessee. Once again Dr. O'Connor was one of the moderators for the Math Jeopardy Competition.

Submitted by Dr. Brian O'Connor

RETIREMENT OF DR. BRYANT

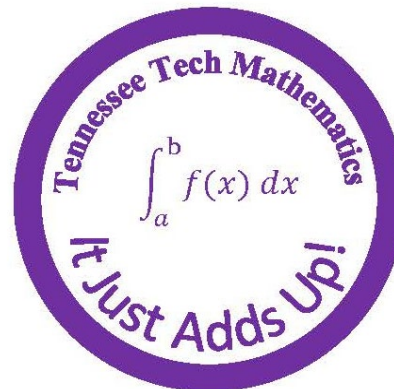


Dr. Debra Bryant, an Associate Professor for the Math Department, retired this semester. Although she has worked various positions in different departments at TTU,

her dedication to education as well as to others, has made every department and student lucky to have had her.

Over the decades, she has taught thousands of students. Some students were able to rise to meet her high expectations whereas others were not. Throughout her career she has inspired many of her students inside and outside the realm of scholastic pursuits. She has had many roles over the years such as teacher, mentor, friend, and colleague, but now she gets to focus on her other roles: friend, mother, wife, and her newest one, retiree.

She did retire earlier than she has hoped to, but just because she has retired doesn't mean she won't visit. In fact, she is hoping to start providing some tutoring, sometime in Fall 2024.



If you wish to donate to the Mathematics Department, [please click this link](#) and select "Mathematics Department" from the dropdown menu. If you prefer to donate to a specific fund, please select "Other" from the dropdown menu and enter the name of the fund. Your gift is truly appreciated!

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