

NEW FACULTY



Welcome to Dr. Maximilian Pechmann, Assistant Professor for the Math Department.

When asked where he was from, he said, "I was born and raised in Germany, more specifically in Munich, the capital city of the state of Bavaria". When asked about his education, he replied, "In Munich, I attended the Maximilian Gymnasium, a preparatory high school whose curriculum focuses on the classical languages Latin and Ancient Greek. I went on to earn a Diplom degree in physics and, in addition, a Vordiplom degree in mathematics from the Ludwig-Maximilian University of Munich. (By now you may have noticed that Maximilian is a popular name in Bavaria.) In 2019, I completed my doctoral degree in mathematics at the University of Hagen, Germany. Already while I was working on my doctorate, I was living for much of the year in Johnson City, Tennessee, where my wife attended ETSU and Tusculum for her nursing degrees. Before joining Tennessee Tech as an assistant professor this fall, I was a postdoctoral associate at the University of Tennessee, Knoxville for 4 years". When asked to share a little about himself, he said, "When I am not preparing for class or conducting research, I enjoy spending time with my family. In addition, I like hiking very much and look forward to exploring the many hiking trails and waterfalls in the Cookeville area and on Tennessee's Cumberland Plateau. I also like to work on

cars, mostly to save money and to know the job was done right. But since we have a last-generation Panther platform Lincoln Town Car and a Toyota, there is usually not much to do other than regular maintenance. Lately, I have enjoyed reading books and articles and listening to podcasts and seminars about American history and law, and I am interested in learning more about the Constitution in particular".

PATSY'S REPLACEMENT



Please give a warm welcome to the Mathematics Department's new Administrative Associate 2, Rachel Engelhardt.

Although she was born in Maryland, she considers Cookeville her true home. For the past 19 years her family has worked for Tennessee Tech. As an alumna of Tennessee Tech and the daughter of two TTU faculty members, she is excited to be working at a place she considers a second home.

GRADUATE STUDENTS

The TTU Mathematics Department would like to welcome four new graduate students this year: Belguutei Ariuntugs, Meredith Hall, Deborah Okoli, and Shamima Tumpa. Two of the new graduate students are international students. The other two graduated from TTU this past Spring with their undergraduate degrees in mathematics.

COOL MATH JOBS

Currently, statisticians are one of the most popular mathematical professions.

Statisticians are considered crucial for the success and advancement of any business or industry. Statisticians play a vital role in research, policy development, risk assessment, and business optimization.

Although the specific tasks that statisticians complete vary depending on the industry and organization they work for, all statisticians have the same objective: to use statistical methods, mathematical theories, and models to solve real-world problems by collecting, analyzing, interpreting, and presenting data.

Since the objective is the same for all statisticians, some responsibilities are universal. Most statisticians have the following duties: to provide evidence-based solutions and informed strategies by identifying patterns, trends, and relationships within data and drawing meaningful conclusions from data; to design experiments, surveys, and data collection methods; to use statistical models that describe and predict behavior or outcomes based on the data; to present their findings and analysis of results in a clear and understandable manner through charts, graphs, and reports; to perform data validation, outlier detection, and data cleaning to eliminate errors and inconsistencies in the data; and to complete or learn about research that develops new statistical methods, improves existing techniques, and contributes to the advancement of the field of statistics.

Similarly, all statisticians are expected to possess not only analytical skills, problem-solving skills, and logic and reasoning skills, but also technical skills, communication skills, and leadership skills. Statisticians often use computer programming languages and software to perform various aspects of their job such as analyzing data sets, performing complex calculations, and

developing statistical models. Likewise, it is common for statisticians to collaborate with colleagues and professionals from different disciplines, as well as present their findings to stockholders and/or colleagues. Therefore, statisticians need to communicate in a clear and accessible way. Furthermore, leadership skills are important since statisticians need to understand the objectives of their clients or collaborators.

Some common types of statisticians are: Academic Statistician, Biostatistician, Econometrician, Environmental Statistician, Financial Statistician, Government Statistician, Machine Learning Statistician, Market Research Statistician, Quality Control Statistician, Social Statistician, and Sports Statistician. Statisticians are employed in most industries. Typically, statisticians that work in the private sector will collect, analyze, and interpret data in order to provide informed organizational and business strategies, whereas in the public sector they often focus their efforts on furthering the public good.

Statisticians had a mean salary in 2021 of \$95,570; and the job outlook from 2021 to 2031 is an expected growth of 31 percent. Education requirements for becoming a statistician can vary depending on the company or industry. Usually, there is a requirement of a bachelor's degree in mathematics or a related field. However, some require a master's degree in mathematics or even a PhD. It is recommended statisticians be knowledgeable about the industry that they work in.

GRADUATE SEMINAR

All are welcome to attend the Math Graduate Seminar. The Graduate Seminar will be held each week on Tuesdays from 2:00pm-2:50pm in Bruner Hall 126. Each Tuesday a graduate student or math faculty member will give a talk on a math topic of

his or her choosing. Faculty and graduate students who would like to give a talk at the Graduate Seminar can contact Amy Chambers, achambers@tntech.edu. A list of the presenters and topics is still being updated as they sign up. Here is a link to the list: [Mathematics - Graduate Seminar \(tntech.edu\)](http://tntech.edu).

MATH CLUB

The Math Club is still welcoming new members. All TTU students who are interested in math are encouraged to join. Like most clubs, the club does more than just talk about math; it also has opportunities for socializing, games/activities, and completing service hours. Plus, it occasionally provides refreshments.

When asked for an update on the Math Club, the Math Club President, Meredith Hall, gave the following message:

We kicked this semester off with a bang! We met over 60 new students at this year's Mix and Mingle; and had over 20 students at our first meeting, August 29th. If you missed the first meeting, don't worry, the next meeting will be on September 26th where we will discuss Galois Theory, elections, and an upcoming service opportunity for students needing scholarship hours.

Submitted by Meredith Hall

CONGRATULATIONS

Congratulations to Dr. Amy Chambers and Dr. Wendy Smith from Mathematics, along with Ms. Janet Coonce from Chemistry and Dr. Hannah Kinmonth-Schultz from Biology! They have just been awarded a \$2.5 million National Science Foundation Grant, which will provide scholarships in STEM (Science, Technology, Engineering, and Mathematics). This grant will be used to provide scholarships to an estimated 45 full-time undergraduate students who are pursuing bachelor's degrees in biology, chemistry, earth sciences, mathematics, or

physics, as well as to provide the students with academic support, peer and career mentorship, cohort building, and leadership and career development. The main goal of the project is to increase the number of STEM degrees completed by low-income, academically high-achieving undergraduates who demonstrate financial need. The project also hopes to increase participation of underrepresented students in STEM fields, esp. low-income and rural students; improve the education of future STEM workers; promote students' success in their future STEM careers; and gain knowledge about the academic success, retention, transfer, graduation, and academic/career pathways of low-income students.

NEW TITLE, NEW RESPONSIBILITIES

During the summer, Dr. Michael Allen, math professor and chair of the Math Department, transitioned from Faculty Senate President Elect to Faculty Senate President. In addition to a change in title, he also received a plethora of new responsibilities, such as being the official representative of the Faculty Senate and presiding over all Faculty Senate meetings. His term as Faculty Senate President will last for one year. Then, he will serve one year as Past Faculty Senate President, in which he will mentor the Faculty Senate President, attend meetings, and serve in the capacity of the Faculty Senate President when necessary.

A Letter from the Chair

The next section, "Nous Rêvons des Étoiles", is an article submitted by Dr. Michael Allen. It is an honest reflection on his role as chair and his dreams for the future of the Math Department.

Nous Rêvons des Étoiles

When asked to write up an article for the newsletter outlining my plans for the Math Department in the coming years, I felt anguish and dread! But, I realized it might be good to share some of my thoughts as your representative to the administration. First, let me discuss the title I chose. For those who do not read French on a regular basis, the translation is “We Dream of the Stars”. I took this from a line in one of my many Star Trek books. Yes, I am a Trekkie! Anyway, the story revolves around Chief Engineer Montgomery Scott, or “Scotty”, talking with a group of students on a field trip to the moon. They are standing inside the museum looking out at the remnants of the Apollo 11 landing site. One of the young ladies asks Scotty why they risked their lives in that ancient craft. His answer was apropos. He explained that for the people of that time period, i.e. 1969, that was the most advanced space craft they could build. It was their starship. He said “Nous rêvons des étoiles”.

I know we all have a dream. Whether this dream is of retirement, a vacation, or the child or grandchild about to be born, these dreams tie us together. Furthermore, these dreams make us more than just faculty and staff teaching in some department at some university. We are colleagues; we are family.

Now a shared dream, that is powerful. But when we share our dreams, we must be careful because we influence each other, and our dreams can become nightmares.

With that as an introduction, let me now share my dreams with you.

First, I never expected to be chair of the Math Department. I was happy being a regular faculty member. As I have said before, I consider my job more service than anything. The Departmental Office is here to help you do your job, though sometimes encouragement is sent via email.

Transitioning to a new position can be somewhat unnerving at times. Last year, at about this time, a perfect storm seemed to form. While I was still adjusting the Fall schedule, the first draft of the Spring schedule and our IE report was due. With teaching my classes, attending mandatory meetings, and looking for a replacement for Vickie, I felt a little overwhelmed. But everything worked out. As my thesis advisor, Dr. Patil, used to say, “An inch a day!”. So, if in my first year or two I seemed a little gruff at times, please forgive me. As I worked through the intricacies of being chair, I began to realize there were some problems with our curriculum. As you remember, the graduation office declared Math 1130 and Math 1710 as the same course. We consequently dropped Math 1130 from our curriculum. Also, from the beginning, I noticed Patsy and Vickie giving permits for almost every student who wanted to register for Math 3070. I thank you, as a department, for looking into the prerequisites of Math 3070 and making the changes you made. Lastly, we created four new Bachelor’s concentrations in Mathematics. Ever since we started those concentrations, the number of Math majors has increased.

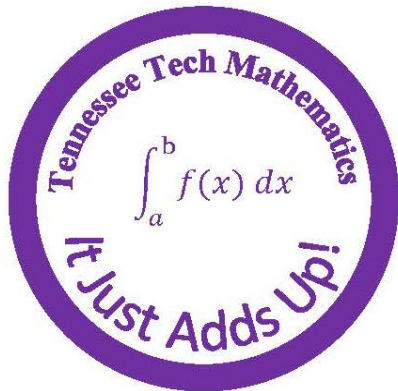
Now we are at the present and looking towards the future. In a few years, I see our Math major core grow to 60 or 70 students. Because of our numbers we will have to add three new tenure track assistant professor lines. Also, I envision our curriculum growing to include two or three more concentrations. In addition, I see a change in the name of the Department because of our thriving research component. Our master’s program has more students in it without an assistantship than those with one. In the future, I see one or two of our full professors hooding their first PhD students. We have consulting, COOP students, and joint colloquiums with other universities. As for

our service courses, I see a day where we have finally figured out a proper assessment, and DFW rates are the lowest we have ever had. Finally, I see all these things happening in our own building.

I have shared my dreams and I think you will agree I dream of the stars. But this is your department, and it is also your dreams and aspirations that take us there. Tell us your dreams.

Mike

Submitted by Dr. Michael Allen



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!

Follow us on Instagram @tntechmath

Mathematics Faculty:

Dr. Michael Allen, Chair	BRUN 219	372-3569	MALLEN@tntech.edu
Mr. Troy Brachey	BRUN 113	372-3128	TBRACHEY@tntech.edu
Dr. Stacy Brown	BRUN 226	372-3619	SLBROWN@tntech.edu
Dr. Debra Bryant	BRUN 110	372-3594	DDBRYANT@tntech.edu
Dr. Amy Chambers	BRUN 222	372-3690	ACHAMBERS@tntech.edu
Mr. Jared Daniels	BRUN 422	372-3567	JCDANIELS@tntech.edu
Dr. Chris Davis	BRUN 339	372-3445	CBDAVIS@tntech.edu
Mr. Hank Duvier	BRUN 303	372-6594	HDUVIER@tntech.edu
Mr. Tommy Elliott	BRUN 419	372-3591	BELLIOTT@tntech.edu
Ms. Shelly Forgey	BRUN 111	372-3622	SFORGEY@tntech.edu
Ms. Madhu Gandhi	BRUN 423	372-6177	MGANDHI@tntech.edu
Dr. Pamela Harden	LIBR 360C	372-3892	PHARDEN@tntech.edu
Dr. Andrew Hetzel	BRUN 223	372-3581	AHETZEL@tntech.edu
Mr. Spencer Kennon	BRUN 109	372-3592	SKENNON@tntech.edu
Dr. Damian Kubiak	BRUN 420	372-3529	DKUBIAK@tntech.edu
Dr. Richard Le Borne	BRUN 424	372-3582	RLEBORNE@tntech.edu
Dr. Yung-Way Liu	BRUN 337	372-3564	YWLIU@tntech.edu
Dr. Motoya Machida	BRUN 338	372-3583	MMACHIDA@tntech.edu
Dr. K.D. Gayan Maduranga	BRUN 335	372-3011	GMADURANGA@tntech.edu
Dr. Sam Narimetla	BRUN 112	372-3593	SNARIMETLA@tntech.edu
Dr. Brian O'Connor	BRUN 224	372-3570	BMOC@tntech.edu
Dr. Maximilian Pechmann	BRUN 432	372-3096	MPECHMANN@tntech.edu
Mr. Mark Rogers	BRUN 108	372-6160	MCROGERS@tntech.edu
Dr. Alexander Shibakov	BRUN 336	372-3438	ASHIBAKOV@tntech.edu
Dr. David Smith	BRUN 421	372-3568	DDSMITH@tntech.edu
Dr. Wendy Smith	BRUN 227	372-3621	WDSMITH@tntech.edu
Dr. Padmini Veerapen	BRUN 225	372-3526	PVEERAPEN@tntech.edu

Administrative Associate:

Rachel Engelhardt	BRUN 217	372-3441	RENGELHARDT@tntech.edu
Robin Huff	BRUN 218	372-3442	RHUFF@tntech.edu