



# MATHEMATICS DEPARTMENT

Editor: Mrs. Liz McInnis, Math Lecturer

## Student Highlights & Achievements

Fall 2019 – Spring 2022

### REU Acceptances

Manav Kotharia (Mathematics minor) and Gabriel Williams (Applied Mathematics-Actuarial) have been accepted for an REU (Research Experience for Undergraduates) at the University of Nevada, Reno. The program is entitled "Big Data Analytics in Smart Cities."



Manav Kotharia



Gabriel Williams

According to their website, "This REU Site aims to develop undergraduates' cross-disciplinary research skills in big data for smart cities by providing tangible research experience of solving practical problems in various smart city applications." With this acceptance, each is entitled to approximately \$7500 in stipend, travel, room, and board for the 8-week REU experience. In addition to engaging in real-world research, students will participate in workshops on writing applications for graduate school and a National Science Foundation (NSF) Graduate Research Fellowship.

Only 10 students are accepted to this program per summer, and the department is very proud that two of the spots have been filled by Columbus State students. Congratulations, Manav and Gabriel!

### Data Science Updates

In Spring 2022, the Mathematics Department helped to create three new internships for our Data Science Minor Students, overseen by Dr. Kristin Lilly:

Two internships are held by students Kiera King and Selina Budde, with Dr. Sridhar Sitharaman in the office of Institutional Research and Effectiveness at CSU. Another, held by student TJ Sabau is with Sallie McMullin in the office of Enrollment Management. These students are using skills learned in their Data Science classes to investigate issues related to student success at Columbus State University.

Other projects overseen by Dr. Lilly include:  
\*"The Effects of Geography and Demographics on Financial Literacy" a project with students Selina Budde, Kiera King, and Michelle Lamorte, in collaboration with Ms. Gina Hall at Merrill Lynch Columbus Georgia.

\*2021 CFP Academic Research Colloquium Presentation: "Identifying Characteristics of Successful Financial Advisors" with student Summra Akalework and Ms. Gina Hall from Merrill Lynch.

\*In Fall 2021, Johnathan Watson worked with Cougar Athletics over the semester doing analytics for various sports teams, which included recording statistics for individual players and games and also summarizing those results for players and coaches.

\*Students Selina Budde and Kiera King will present "The Effects of Geography and Demographics on Financial Literacy" to fellow students at Tower Day this spring.

Thanks to Dr. Kristin Lilly for overseeing these projects!

### Oxford University Visiting Scholar: Felicity Acosta

Math Major Felicity Acosta (pictured right) has been accepted as a St. Anne's College at the University of Oxford Visiting Scholar for Fall 2022 in Maths. Recently, she shared her story to encourage others to reach for these types of opportunities:

"This year I am a sophomore mathematics major student because last year I did dual enrollment. I found out about the visiting student program that Oxford offers through the CSU study abroad coordinators during my summer orientation 2021. As soon as I heard about this opportunity, I planned to apply for the next academic school year.

I had heard the program was very competitive, and I knew if I wanted to go for math I would have to be a really strong student. I'm thankful that CSU's math program has really challenged me so far and has prepared me for this program. The classes that I have taken this past semester and currently are a lot more difficult than I thought and have helped me grow as a math student and stay encouraged to pursue math.

Dr. Fan has really inspired me, as I had her as a Linear Algebra professor last semester. She always encouraged questions and me and she was able to engage deeper into topics before and after class. She was so enthusiastic about what she taught that it got me excited to come to her class, which is the best environment for learning. I thank God and the mathematics department at CSU for this amazing opportunity and look forward to my study abroad in the fall!"

We wish Felicity well on her learning adventure!



# Departmental Updates

## ***Dr. Guihong Fan Appointed Mathematics Department Chair***

Dr. Guihong Fan is an Associate Professor in the Mathematics Department at Columbus State University since 2013 and is serving as the current department chair since August 2021. Dr. Fan obtained her Ph.D. degree in mathematics from McMaster University in Canada in 2009.

Dr. Fan's research interest is Mathematical biology with a focus on the investigation of dynamical systems and their applications in biology and epidemiology. Her research topics include predator-prey models, neural network models, data analysis, and modeling study of vector-borne diseases (like West Nile virus which is spread by mosquitoes, and Lyme disease which is spread by ticks). She published 28 papers in total in refereed journals. Recently her research focus has shifted to the modeling and data analysis of Covid-19 ever since the pandemic and has made 4 publications in this new area.

Dr. Fan has a lovely family with two boys. She has adopted two white ducks as pets from a friend. A homeless mother cat decided to stay in her backyard and gave birth to three kittens around nine months ago. Now all kittens grow up and play around in her backyard. Her backyard has one big peach tree and three cherry trees. In spring, the backyard is beautiful and Dr. Fan is looking forward to some sweet fruits but has not produced any fruit yet.



## ***Dr. Nehal Shukla Promoted to Full Professor***



Dr. Nehal Shukla with CSU President Dr. Chris Markwood

Dr. Shukla joined CSU in 2008 as adjunct Faculty and became an Assistant Professor in 2012. She was promoted to Full Professor in March of 2022.

Dr. Shukla has been a champion of High Impact Practices (HIPs) in her classroom and as part of the USG HIPs Implementation Team as a representative from CSU. Her publications since our last newsletter include research on COVID-19 transmission analysis as well as some scholarship of

teaching and learning (SoTL).

She also participated in the LEAD CSU Fellowship Program in 2020 and was the recipient of several grants during this period, including a Teaching and Learning External Development grant and an Interdisciplinary Initiative grant with colleagues.

Congratulations on your promotion, Dr. Shukla!

## ***Dr. Ben Kamau Appointed Associate Dean***

Dr. Ben Kamau, who served as Chair of the Mathematics Department (beginning in 2016) and the Criminal Justice and Sociology Department (beginning in 2019), was appointed the Associate Dean of the College of Letters and Sciences in August of 2021.



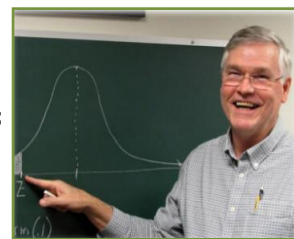
## ***Welcome Ms. Shaquoia Hill***



Shaquoia Hill joined CSU as Academic Support for the Mathematics and Earth and Space Science Departments in August of 2021. Shaquoia can be found in the Mathematics Department Office (University Hall 238) on Tuesdays, Thursdays, and alternating Fridays.

## ***Recent and Upcoming Retirements Thank You and Congratulations!***

**Dr. Richard Stephens**, a CSU faculty member since 2008, retired from the Mathematics Department as a Professor in May of 2020.



**Dr. Baiqiao Deng**, who has served in the Mathematics Department at CSU since 1993, will retire as a Professor in May of 2022.

**Dr. Ronald Linton**, a CSU faculty member since 1998 and Mathematics faculty member Since 2005, will retire as a Professor in May of 2022.





# Departmental Initiatives and Events

## Math Connections Seminar

The Mathematics Department at CSU continues its efforts to support students of varied backgrounds in their pursuit of mathematical knowledge through its Math Connections Seminar Series, which began in 2019. Starting in the spring of 2022, we have designed the series in collaboration with the CSU Center for Career Design in an effort to broaden this support.

Geared toward students outside of the realm STEM majors, Math Connections strives to alleviate math anxiety and make connections between quantitative thinking and varied career and life paths. With sessions on Growth Mindset and Odyssey Career Planning, students are asked to think about the way they perceive themselves and their abilities, as well as their future goals. One session, led by Dr. Kristen Hansen of the CSU Music Department, makes connections between music and mathematics to highlight that math can be found everywhere you look.

Future sessions are held from 12:30 to 1:30 in University Hall 250. The series will continue each Fall and Spring semester and is open to everyone! Please join us on alternating Tuesdays. See the <https://math.columbusstate.edu/> for details about future dates and topics. Email Liz McInnis with questions: [mcinnis\\_elizabeth1@columbusstate.edu](mailto:mcinnis_elizabeth1@columbusstate.edu).

## William Lowell Putnam Exam



Pictured (from left to right): Garrett Jones and Donald Beaulieu

The 82<sup>nd</sup> William Lowell Putnam Mathematical Competition took place in December of 2021.

Students Donald Beaulieu and Garrett Jones solved challenging problems to the best of their ability in this annual contest.

Dr. Eugen Ionascu leads a study group for the Putnam Exam every year to help prepare students. This year, Dr. Ionascu also worked for the MAA (Mathematical Association of America) as a grader for the Putnam Exam for about a month after the competition date and graded 750 problems.

All are invited to join the weekly preparation sessions that happen during the Spring and Fall semesters, led by Dr. I on **Fridays from 3 to 4 pm in University Hall, room 201.**



The Weekly Prep Session: (from left to right) Dr. Eugen Ionascu, Benjamin Garrett, Donald Beaulieu, Garrett Jones, Kayleen Linge, Himanshu Bohra, and Thomas Marino

## Affordable Learning Georgia (ALG) Grants

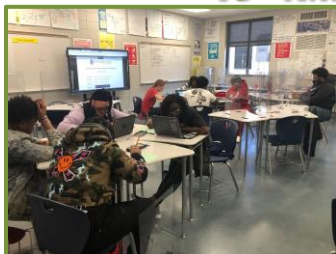
Seeking to reduce costs for students taking our courses, two groups of faculty pursued and received grants to create Open Educational Resources (OER) for two courses. Both groups worked on this project from February 2020 until May of 2021.

In a project initiated by then department chair Dr. Ben Kamau, Dr. Houbin Fang, Dr. Nehal Shukla, and Mrs. Liz McInnis worked to create materials for MATH 1001 (Quantitative Skills and Reasoning). Materials created include informative videos, presentation slides, and homework assignments. When the OER materials were implemented in Spring of 2021, four faculty members with 163 students in five sections of MATH 1001 were impacted, with a total reduction of textbook expenses of approximately \$20,000 for that semester alone. In general, the department has continued to use these and other open resources to teach many sections of this class in the semesters that followed.

Dr. Brian Muse, Dr. Carlos Almada, Dr. Madhusudan Bhandary, and Dr. Kristin Lilly worked to find reduced cost and OER materials for use in STAT 1401 (Introductory Statistics). Their grant also afforded the purchase 94 graphing calculators for rent to students at \$10 per semester instead of asking them to spend nearly \$100 to purchase one. Average annual student savings per year is estimated to be between \$31,000 and \$198,000.

Mathematics Faculty are buying in to identifying or creating more cost-effective options for their students and already offer several other courses (including the College Algebra to Calculus track of courses) with low-to-no-cost textbooks and homework management systems.

## 48<sup>th</sup> Annual Columbus State University Mathematics Tournament



Students from Sumter High School work on the Tournament Test

On Saturday, March 5<sup>th</sup>, 2022, the Mathematics Department held the 48<sup>th</sup> Annual Mathematics Tournament virtually for the second consecutive year. Students from six area high schools participated in this year's tournament, which lasted until early afternoon. Students worked as a team with their schoolmates and answered 30 very challenging problems in a test written by Dr. Eugen Ionascu.

The winning teams in the Large School Category: Columbus High School (1<sup>st</sup>), Chattahoochee High School (2<sup>nd</sup>), and Valdosta High School (3<sup>rd</sup>). In the Small School Category: Fulton Science Academy (1<sup>st</sup>) and LaFayette High School (2<sup>nd</sup>). Congratulations to the schools and students for their success!

# Recent Graduates and Alumni Spotlight

## Recent Graduates

Fall 2019	Spring 2020	Summer 2020	Spring 2021	Fall 2021
Elizabeth Biggs LaQuasha Bradley Jason Brown Daniel Collins Christopher Lane Yvette Maxwell Paul Miller Amy Starling Corey Stewart Josh Tracy	Alexus Alvarado Kristen Bain Rachel Mobley Timothy Pitts Vivien Special Ashlea Washington	Airianna Jones   <b>Fall 2020</b> Kayla Holloway Suriyana Mahedeo Jerad Munoz	Nolan Bidleman Charles Boggs William Gustafson Jacob Halbrook Isabella Nunez Georgia Patterson	Latia Carter Justin Cole Tiana Gates Henry Hetzel Kirsten Schwarting Leroy Ward



### Alumna Spotlight: Georgia Patterson

strategy. She notes that Dr. Linton took time in his actuarial courses to explain other applications in which a certain formula or strategy might be useful, and skills she learned in those classes have been most transferable to her current role. She “thinks in a whitespace,” finding moving pieces to solve whatever problem is at hand. Dr. Linton’s class helped her to prepare her for that type of thinking.

When speaking of Dr. Linton, Georgia laughs and says, “What a doll!” She is thankful for how much the professors in the Math Department have cared about her, during her time at CSU and afterward. “You don’t realize how much the professors really care about you until you get into the real world and realize the investment they put into you.” She still gets regular “check-in” emails from Dr. Linton and Dr. Fan, even a year after graduating, and feels the benefits of having hailed from a smaller program with professors who have time to bond with you, sometimes over several courses together. Her message to the faculty is a big “Thank you!”

To students in the midst of pursuing a math major, Georgia offers a few thoughts: “Don’t underestimate the workload,” but she goes on to paraphrase the adage about reaping the rewards of hard work. She also recommends thinking early about the “Big Picture” of life and career beyond college. Think about where you want to take your degree. If you want to stay in academia, your path will differ from

*“If you get your degree in math, you can do anything!”*

-Georgia Patterson

hers, but you really must begin career planning early. It was during her Calculus 3 course with Dr. Fan that she shifted her focus away from the risk assessment of actuarial science to the more financial product world due to a project that Dr. Fan assigned. In it, students were asked to do research on using calculus in their chosen career path. The project gave Georgia insight that helped her narrow her focus.

Georgia does wish she’d had a better sense going into her mathematics major of how hard it would be, and how much data science could be involved in mathematics. She wasn’t aware of the other technical skills she would need in order to be more marketable to employers like coding and economical and financial knowledge, and suggests that students who are interested in entering Industry upon graduation give early thought to these broader areas.

But, she offers a final note of encouragement: “If you get your degree in math – you can do *anything*. Anyone will hire you!”

Georgia Patterson (pictured), who graduated in Spring 2021 with a BS in Mathematics, began working for KeyBank headquarters in Cleveland, Ohio as a Foreign Exchange / Tech Analyst in Enterprise Payments in July of that same year. While a student at CSU, Georgia focused on Actuarial Science courses and completed a couple of internships in that area.

While Georgia has not pursued an official career in Actuarial Science, her job is extremely similar to that work, and she has found the actuarial courses she took at CSU to be the most impactful to her current employment. At Keybank, Georgia’s job primarily focuses on the analysis behind new product development and

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