

MAXIMA: News and Highlights from the Department of Mathematical Sciences

The University of Texas at El Paso <http://math.utep.edu> <https://facebook.com/utep.math> FALL 2021

From the Chair (Dr. Christina Mariani)

Dear Alumni and Friends:

I hope you and your families are doing well during these challenging times. I am happy to be writing to you again after another year of outstanding achievements for our Mathematical Sciences Department!

Last year I communicated to you that the Data Science Ph.D. was approved by The Texas Higher Education Coordinating Board. The new doctoral degree in Data Science, the first Ph.D. program housed in the Department of Mathematical Sciences, had a “soft launch” with some initial courses and 8 students during the spring 2021 semester and a full launch in fall 2021 with 33 students and new course offerings like Data Visualization and Mathematical Applications in Data Science.

In September 2022, UTEP will host for the first time on the UTEP campus an American Mathematical Society (AMS) meeting. The AMS meeting that had been scheduled to take place at UTEP in September 2020 ended up being held virtually with about 400 participants (see story on page 3).

This year I am delighted to welcome several important hires: Assistant Professor Dr. **Asim Dey** (a hire who will support our Data Science and Statistics programs), alumna Dr. **Azucena Zamora** (as Assistant Director of our Ph.D. program, she will coordinate student employment, internships, degree plans, etc.), and **Laura Olivas** (started as our new Administrative Services Coordinator for supporting the Department and its graduate and undergraduate programs two days before María Salayandía retired, see story on page 2).

I am also proud to report that our faculty and staff continued their outstanding job adapting to the pandemic, by offering not only our traditional face-to-face courses but also meeting the needs of students who prefer the flexibility of hybrid or online classes. The Department continues to grow, with the last 5 years yielding nearly 350 peer-reviewed publications and books, and \$34 million in grants, and UTEP continues to be highly ranked by *Diverse: Issues in Higher Education* for Mathematics and Statistics degrees conferred to Hispanic students at both the undergraduate and graduate levels. As UTEP has a distinctive Hispanic population of future data science professionals, our new Ph.D. program will play an important role in closing the gap for a majority currently underrepresented in the field.

All these achievements are possible only with the hard work of our faculty and staff, and the strong support from our administration and from generous Alumni and Friends. *Continued on page 4*

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DATA SCIENCE Ph.D. PROGRAM LAUNCHED!

Since the spring 2021 launch of our Data Science Ph.D. program, our department has welcomed 33 new doctoral students from varied disciplinary backgrounds, including: biology, engineering, business and marketing, mathematics, statistics, computer science, and psychology.

There is also strength in this cohort's demographic diversity, which includes 12 women, 13 Hispanic, and 9 Black students. The significance of our department's commitment to inclusion is underscored by Dr. Laramie Paxton who stated in a [Medium article](#): “Data suggest that fewer than 3% of data scientists are women of color, fewer than 5% are Latinx, fewer than 4% are African-American, and fewer than 0.5% are Native American.” A commitment to diversity, equity and inclusion improves data science in multiple ways. A lack of diversity of perspectives and experience has been shown to lead to biased algorithms and lack of identification of relevant data, which can lead to institutionalizing cognitive bias in research, institutions and government agencies. *Continued on page 3*

DEAN SCHOLARSHIP ESTABLISHED

The Professor Eugene Alan Dean Memorial Endowed Scholarship has been established to provide annual scholarships for undergraduate students pursuing a degree in Mathematical Sciences. This endowment is established in memory of Professor Emeritus Eugene Alan Dean to recognize his extraordinary lifetime of service to the University, beginning with his role in the Schellenger Research Laboratories and the physics faculty in the late 1950s and continuing until his passing in 2017.

Dr. Dean was one of several people who earned a Bachelor's Degree (in 1958) in the combined Department of Mathematics and Physics and later returned to the campus to work in that combined department. When the department separated into two separate departments, Dr. Dean continued his employment in the Physics Department and was awarded the Distinguished Achievement Award for Service in 1997. In addition to his faculty role, he also served (some time in the 1990s) as the (sole) assistant dean (yes, “Dean Dean”) of the UTEP College of Science.

AMS STUDENT CHAPTER LAUNCHED

UTEP now has a Student Chapter of the AMS (American Mathematical Society) with Diego Seira as the founding President, Leslie Flaco as the current president, and Dr. Mike Pokojov as faculty advisor. UTEP undergraduates or graduate students in any field with interest in mathematics may join. According to minetracker.utep.edu/organization/amsgc, the Chapter will "represent and support the scholarly and professional interests of the current and future Mathematical, Statistical, and related Sciences student body, as well as provide a formal forum in which students in the Mathematics, Statistics, and related programs may voice concerns, ideas, opinions, and recommendations to enrich their graduate experience. Furthermore, this Graduate Chapter will promote mathematical research, by encouraging and communicating to other people the understanding and use of mathematics. Also, the Chapter will support mathematical education of all levels, while raising an awareness of mathematical connections to everyday life." With people returning to campus, the Chapter, with some financial support from AMS, is planning activities such as conducting workshops (e.g., on programming languages), hosting informational sessions on careers in mathematics, and assisting members in applying to summer internships.

One of this year's events is a talk by Seira, now a statistics alumnus, about how his time at UTEP prepared him for what he does now in his data science fellowship at NIH. To join the chapter, students should go to minetracker.utep.edu/organization/amsgc.



STUDENT NEWS

Reagan Kesseku is pursuing a Ph.D. in Data Science at UTEP and was awarded a UTEP Doctoral Excellence Fellowship.

John Koomson received a 2021-22 academic scholarship from the International Association of Black Actuaries.

Brandon Lee presented a 2021 CURI paper called "Laplacian eigenvalues of bipartite Kneser graphs". See story on page 3.

Aaron Ortiz participated in a summer REU and gave talks at MSRI, SACNAS and TUMC. See story on page 3.

ACADEMIC AND RESEARCH EXCELLENCE AWARDS AT COLLEGE OF SCIENCE PRE-COMMENCEMENTS

Fall 2020:

Mathematics - **Michael Orosz** (undergraduate)
MAT in Mathematics - **Edgar Sanchez**

Spring 2021:

Mathematics - **Elisabet Lopez Tapia** (undergraduate)
Mathematics - **Hyung Kyung Yi** (graduate)
MAT in Mathematics - **Claudia Torres**
Statistics - **Eric Anto** (graduate)
Statistics - **Reagan Kesseku** - College of Science Graduate Student Marshal of Students



DR. LESSER WINS CAREER AWARD



Photo: University Communications

Dr. Larry Lesser was announced as the 2021 winner of the Waller Distinguished Teaching Career Award, given by the American Statistical Association (ASA), the world's largest community of statisticians and the nation's second-oldest continuously operating professional association of any field. Selection among nominees with 20+ years of experience was based on: excellence in teaching across a variety of statistics courses; innovation, scholarship, and creative efforts in education; impact in statistics education beyond the nominee's institution; and education-related scholarship.

The award was announced in the October 2021 *Amstat News* and at the Awards Night of the 2021 Joint Statistical Meetings, which is the largest statistics meeting in North America, typically attended by 6000+ attendees from 50+ countries. Lesser is the 8th winner of this award, which was established by a contribution from 1995-2001 ASA Executive Director Ray A. Waller and his wife, Carolyn, and more information is at www.amstat.org/ASA/Your-Career/Awards/Waller-Awards.aspx. Lesser also won a UT System Regents' Outstanding Teaching Award and is UTEP's only winner of a Minnie Stevens Piper Professor Award in the last 9 years.

MS. SALAYANDIA RETIRES

Ms. María Salayandía retired as our Administrative Services Coordinator on August 31, after working for our department for 21 years, helping all the faculty and serving thousands of students with commitment and dedication. As Dr. Mariani put it, "She was always reliable and a priceless support for the Math Department faculty, staff and students, she will be immensely missed." A celebration gathering was held at Bell Hall August 26. As Salayandía expressed via email, "My next chapter in life will be full of priceless memories, I will be a strong foundation and support for my children, husband and will watch my grandchildren grow up and create memories they will forever cherish." and "I will always keep UTEP and everyone in the Math Department in my heart. Grateful is not enough to everyone for being part of this beautiful journey in the Math Department and being able to assist thousands of students is priceless."



Photo: Valerie Dominguez



Ms. María Salayandía enjoying her son's retirement gift: a trip to Hawaii. Photo: Leo Salayandía

FACULTY LAND HEALTH EDUCATION GRANT

Department faculty Drs. Wagler, Pokojovy, and Mariani helped land this fall an Office of the National Coordinator for Health Informatics Technology grant to fund education, training and certificate programs for public health informatics professionals. The grant, entitled Get PHIT (Public Health Informatics Technology), addresses a critical need for supplying Texas with professionals with health informatics training and involves multiple institutions collaborating with the lead institution, The University of Texas Health Science Center at Houston.

This partnership will provide many opportunities to UTEP students, both in and beyond our department, such as developing a publicly available course module on analytic methods for health disparities research and hosting data science summer boot camps that will help prepare any UTEP student for the health informatics field and profession. And starting this coming summer, students in our Data Science Ph.D. program will have paid internships to work collaboratively with community organizations and the Departments of Public Health in major Texas metropolitan regions.

DATA SCIENCE Ph.D. PROGRAM *(from page 1)*

To provide more training opportunities to UTEP students in data science and to recruit more students into the field, we have developed more data science curricular pathways, created new extra-curricular options, and provided additional supports for students such as the Data Science Seminar Series. In the summer, the series focused on a course on decision science led by retired UT-Austin professor Dr. Ron Hagquist and hosted by Dr. Amy Wagler. This course and seminar series let students see how data-intensive methods are used in decision-making processes in industry and government. The series continues this fall with a focus on high performance and cloud computing.

Another exciting addition is the newly-named, newly-renovated Data Analytics Lab (see photo) on the first floor of Bell Hall, that provides space for seminars, projects, and collaborations for our program's students. Finally, as part of long-term recruitment, we have introduced a data science minor and concentration at the undergraduate level that will prepare students for the doctoral program and increase program interest. Other plans are underway to introduce the exciting field of data science to a larger group of UTEP students. Alumni with expertise and experience are warmly invited to contact the department or program director Dr. Amy Wagler (awagler2@utep.edu) with any queries or ideas about participation.



Data Analytics Lab. Photo: María Barraza

UNDERGRADS PRESENT MATH RESEARCH



Aaron Ortiz (left) and Brandon Lee. Photo: Ricardo Isaac

Aaron Ortiz participated in the 2021 Mathematical Sciences Research Institute Undergraduate Program, a comprehensive 6-week summer program where students were put in teams of three and mentored by program faculty in doing original research. Aaron's team studied new combinatorial objects and made connections with other objects. This led to his giving talks at MSRI, SACNAS and TUMC, and presenting a poster ("The Defective Parking Space and Standard Young Tableaux") at the 2022 Joint Mathematics Meetings (JMM) this January in Seattle. Aaron says, "My internship experience has shown me the depth of mathematical research and the importance of having a community that supports you. I hope I can use my experience to encourage other students to participate in REUs or research here at UTEP."

Brandon Lee participated in the MERITUS program hosted by UTEP's COURI during the past academic year. This program paid him to conduct research under the mentorship of Dr. Art Duval and participate in professional development workshops. His research culminated in a COURI Spring Symposium poster, "Laplacian eigenvalues of bipartite Kneser-like graphs," which he will also present at the 2022 JMM. Brandon also participated this past summer in a UT-Austin directed reading program where he was mentored by a graduate student to develop some integral parts of knot theory and its interplay with combinatorics and graph theory. Brandon says, "Both programs allowed me to experience what actual academic research in mathematics feels like, an experience which is invaluable to have as an undergraduate and one I cannot recommend highly enough for all other students."

AMS 2022 CONFERENCE NEARS

UTEP expects to host its first in-person American Mathematical Society (AMS) meeting in fall 2022. UTEP alumnae Dr. Brisa Sánchez (B.S., Mathematics, 2000; M.S., Statistics, 2001) and Dr. Alejandra Sorto (B.S., Mathematics, 1990; M.S., Statistics, 1992) are plenary speakers. Official conference information is at www.ams.org/meetings/sectional/2297_program.html.



IN MEMORIAMs



Dr. **John Anthony Narvarte**, Associate Professor Emeritus, passed away at 81 on April 30, 2021 at his home in San Antonio. An alum of UT-Austin, St. Mary's University and University of Arizona, Dr. Narvarte was a UTEP mathematics professor from 1970 until his retirement in 2005, chairing the department for four years in the late 1970s.

During his tenure at UTEP, Dr. Narvarte (along with Drs. Joe and Louise Guthrie of our department) founded RTR Software, a software company comprised of mathematicians and a computer scientist. They were first to design a program that could chart stocks on a computer and provide trending data for users to anticipate buy and sell signals. RTR had an exclusive agreement with Dow Jones to develop what would become the Dow Jones Market Analyzer - the first program of its kind. This program revolutionized how people tracked stock trends. In addition to being a great topologist, scholar, and teacher, Dr. Narvarte enjoyed talking about math and helping relatives with math homework (even if they didn't ask). He also enjoyed playing Sudoku, solving puzzles, reading, fishing and following the San Antonio Spurs basketball team.

Dr. **Leslie "Les" Owen Foged** passed away July 22, 2021 at the age of 67 in El Paso. He began his career in 1979 as an assistant (and later, associate and then associate emeritus) professor for the UTEP Mathematical Sciences Department, which he chaired for a year. His mathematical research achievements include discovery of an internal characterization of topological spaces which are closed images of metric spaces, construction of a consistent example of a quotient space of a separable metric space which is not stratifiable; construction of open-compact image of metric space with no point-countable closed quasibase. In 1991, he received a Master Teacher award from his alma mater, Midland Lutheran College.

In 2003, Dr. Foged began volunteering as a math coach for a local middle school and high school, leading his math team to many local and statewide victories. He also dedicated his time to train math coaches from across the city, touching countless students with his passion for mathematics. For decades, he served as an undergraduate advisor in the department as well as the director of the UTEP high school mathematics contest until retiring (and becoming an associate professor emeritus) in 2020. Dr. Foged is survived by his wife Fan Chen as well as children Leif, Grace, and Faith, who are all establishing a fund for the Dr. Foged memorial math scholarship.

adapted from obituaries or information supplied by the family



From the Chair *(from page 1)*

As you know from [MAXIMA 2018](#) and [2019](#), the UTEP Data Science and Informatics Gift Fund was established by UTEP Distinguished Engineer Allen Gilmer and Math Department alumnus Frank Hsu, Ph.D., Clavius Distinguished Professor of Science at Fordham University in New York, a 2019 UTEP Gold Nugget Awardee, and a founding father of Big Data. The Professor Eugene Alan Dean Memorial Endowed Scholarship has been recently established, and Ron Hagquist and Yvonne Lanelli have recently established the Hagquist-Lanelli Student Success Scholarship, and the Hagquist-Martinez Student Excellence that is already supporting one of our Data Science Ph.D. students (see stories on page 1).

Please take the opportunity to increase the impact on student success and contributions to our field as well as to society. I encourage you to make your contributions to the UTEP Data Science and Informatics Gift Fund, the Dean Scholarship Fund, our other Scholarship funds benefitting our students, that are listed on page 7. Your donation will be of great help to support the recently launched Ph.D. program, and our other programs, as well as our Excellence Fund that supports student travel to meetings and other items not covered by our budget. There are numerous existing funds available for additional support, or you can easily establish your own fund or endowment by contacting Annaelisa Holguin, Senior Director, College of Science Liaison, aholguin33@utep.edu. As a former student, you will always be part of our heritage, and you can be part of our future by participating and collaborating in any of the many possible ways. Feel free to contact us with your ideas at mathdept@utep.edu, 915-747-5761.

Finally, I thank our Dean, Dr. Kirken, for helping the College and the Department achieve excellence in research and teaching to support the new strategic plan for America's leading Hispanic-Serving University, and help UTEP become one of the most successful Hispanic-Serving Institutions to receive the R1 designation by the Carnegie Classification of Institutions of Higher Education.

Stay safe and Go Miners!

SPOUSE OF LONG-TIME PROFESSOR ENABLES SPECIAL EXHIBIT

The current Centennial Museum exhibit *Ties to Home: The Kimonos of Kitty Huntley* was made possible when kimonos were donated to UTEP upon the death of Mrs. Kitty Huntley, whose husband Lawrence (Larry) Huntley taught in our department from 1964-1990. The exhibit involved collaboration with faculty from the Theatre and Dance, History, and Political Science departments and it is open through February 2022.

Honoring Professor Huntley's spirit of service to his students Kitty established the Lawrence "Larry" Huntley and Katsuko "Kitty" Huntley Endowed Scholarship after his 2005 death and willed \$500,000 to that same fund after her 2015 death (see story in [2016 MAXIMA](#)). The fund provides annual scholarships to UTEP undergraduate mathematics students.



Photos: María Barraza

MAXIMA Staff

Editor: Larry Lesser

Assistant Editor: Art Duval

Typesetting, MAXIMA logo: María Barraza



INFLECTION POINTS



(See math.utep.edu for other accomplishments too numerous to list!)

Dr. **María Barraza-Ríos** was promoted to Manager of Systems & Technical Support, for supporting the new Ph.D. program and the Department.

Dr. **Larry Lesser** co-chaired an [international math-and-religion speaker series](#) and an [international song-in-STEM conference](#), was on the organizing committee of USCOTS 2021, and gave an invited talk for the National Museum of Mathematics.

Dr. **Ori Rosen**, the appointed Graduate School Marshal for Spring 2021 Commencement, received a \$16K NIH grant in collaboration with Emory University to apply mathematical methods to sleep study data.

Dr. **Natasha Sharma** was awarded a \$125K NSF grant for “Numerical Methods and Adaptive Algorithms for Sixth-Order Phase Field Models” and gave on October 25 this year’s Peaceman Lecture, an annual series hosted by Rice University’s Department of Computational and Applied Mathematics showcasing rising stars in numerical mathematics.

Dr. **Xianyi Zeng** was awarded a \$245K LEAPS-MPS NSF grant for “Computational Methods For Many-physics Problems Involving Multi-material Flows”.



ALUMNI NEWS



Sathya Amarasekara (M.S., Statistics, 2014) started working as a Biostatistician at Duke Clinical Research Institute (DCRI) last year. Before that, he worked as a Statistician at Duke University School of Nursing. Sathay reports: “I am more involved in Clinical Trials and enjoy working at DCRI. I reap the benefits of the master’s program and the programming course I took from Dr. Wagler.”

Eric Anto (M.S., Statistics, 2021) a recipient of the Academic and Research Excellence Graduate Student Statistics Award, received offers with financial aid from several Ph.D. programs. He decided to attend the Population Health Science program with emphasis in Biostatistics (in a Graduate Research Assistantship position) at the University of Utah.

Roland Fiagbe (M.S., Statistics, 2021) received offers with financial aid from several Ph.D. programs. He decided to attend the Big Data Analytics Ph.D. program at the University of Central Florida with a Graduate Teaching Assistantship offer.

Dr. **Ann Quiroz Gates** (B.S., Mathematics, 1970) has been serving since August 2020 as UTEP’s vice provost for faculty affairs.

Wimarsha Jayanetti (M.S., Statistics, 2018) and her spouse **Dimuthu Fernando** (M.S., Statistics, 2018) are both graduating in Spring 2022 from Old Dominion University with Ph.D. degrees in Statistics. They are looking for jobs and working on publications to prepare for tenure track positions.

Dr. **John Appiah Kubi** (M.S., Statistics, 2013) secured a research post-doc at Virginia Tech and then a position as a tenure-track assistant professor of statistics at Grand Valley State University.

Diego Seira (B.S., Mathematics, 2018; M.S., Statistics, 2021) was awarded the prestigious NIH “Emerging Leaders in Data Science Fellowship” at the National Institute of Allergies and Infectious Diseases.

Dr. **Osei Tweneboah** (M.S., Mathematics, 2015; Ph.D., Computational Sciences, 2020), Outstanding Graduate Student in Mathematics 2015 and Outstanding CPS Ph.D. Student 2020, joined Ramapo College of New Jersey as an Assistant Professor of Data Science in 2020.

Dr. **Pei Wang** (M.S., Statistics, 2016) finished his dissertation at the University of Kentucky in July 2021. He joined the statistics department at Miami University as an assistant professor in August 2021.

Alumni Data Update Form - *Keep in touch!*

Online form at www.utep.edu/science/math/foralumni/

Name (please print): _____

Name while at UTEP, if different: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone Home: _____ Email Address: _____

Degree(s) and Major: _____ Year(s): _____

Employer: _____

Position/Title: _____

Let us know what you have been up to (and whether we have your permission to be included in the department newsletter, Facebook page or website):

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Online form at givingto.utep.edu/math

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| <input type="radio"/> Hagquist-Martínez Student Excellence | |
| <input type="radio"/> Lawrence "Larry" and Katsuko "Kitty" Huntley Endowed Scholarship | |

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