

M A X I M A

News and Highlights from the UTEP Department of Mathematical Sciences

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FALL 2025

FROM THE CHAIR (Dr. Cristina Mariani)

Dear Alumni and Friends:

I hope you and your families are doing well! I am very happy to write to you again, and report about another great year for our Department of Mathematical Sciences. I am delighted to welcome four newly hired faculty: Assistant Professors Dr. Neda Mohammadi Jouzdani and Dr. Adel Ahmadi Nadi (hires that will support our Data Science and Statistics programs), Assistant Professor Dr. Nikola Milicevic (a hire that will support our Applied Math, Computational Science, and Data Science programs), and Associate Professor Dr. Mingao Yuan (a hire that will support our Data Science and Statistics programs, thanks to the Regents' Research Excellence Program, the largest state-funded research program in UTEP history).

In Fall 2023, the Data Science PhD program (the first PhD program in the Department, launched in Spring 2021) yielded its first cohort of graduates, that was followed by eight additional students, for a total of 11 Ph.D. graduates in less than five years (see story on page 4). The undergraduate course SCI 1301 (Data Science and Society) launched in 2023 is now offered regularly in spring semesters with an enrollment of 50 students.

The Department continues to grow, and in the last 5 years has generated nearly 300 peer reviewed publications and books, and \$34 million in grants. The Department had a strong and meaningful presence in the second annual El Paso Science Festival (see story on page 2) and record representation in the UTEP/NMSU workshop (see story on page 3). Our faculty and students continue to benefit from the interaction and advice of our College of Science Advisory Board Members such as Ron Hagquist (see story on page 3).

All of these milestone achievements are possible only with hard work of our faculty and staff, (Continued on page 4)

IN THIS ISSUE ...

[Chair's Column](#)

[Guthrie Retirement Reception Held](#)

[Department Helps 2nd El Paso Science Festival](#)

[As Seen On TV: Math in the Public Eye](#)

[PNNL Selects UTEP Students for Biology AI Workshop](#)

[Record Participation in UTEP-NMSU Workshop](#)

[Hagquist Engages Data Science Students and Faculty](#)

[Dr. Lesser Elected ASA Fellow](#)

[Data Science Ph.D. Program Continues to Thrive](#)

[Faculty Participate in PNNL Workshop](#)

[Retirement Roundup](#)

[Student News](#)

[Alumni News](#)

[UTEP, EPCC Host Teaching Workshop on AI](#)

[Inflection Points](#)

GUTHRIE RETIREMENT RECEPTION HELD

Four days into his retirement after 51 years of UTEP service, Dr. Joe Guthrie (along with his spouse Dr. Louise Guthrie) was honored at a reception hosted by the Department at the El Paso Natural Gas Conference Center. Attended by many department colleagues as well as special guests such as College of Science Interim Dean Dr. Elizabeth Walsh, the reception included a surprise tribute [song](#) written and performed by Dr. Larry Lesser.



Photo by Dr. F. Ansari



Photo by Dr. M.C. Mariani

DEPARTMENT HELPS WITH 2ND EL PASO SCIENCE FESTIVAL

Department faculty and students helped the second El Paso Science Festival captivate over 10,400 attendees at the El Paso Convention Center during April 5-6, 2025, with a 94.5% satisfaction rate across the event. Presenters and exhibitors spanning academia, private companies, nonprofits, and government agencies let the general public delve hands-on into science, technology, engineering and mathematics through 142 exhibits, as well as 9 main stage presentations, 10 speaker sessions, and two science trailers.

Descriptions of our department's exhibits include:

- “Mathematics, (Super)computers, and Earthquakes” (Dr. Kenneth Duru and his students Amir Husen, Imran, Abdullah Al, Nate Mcnair, Prakash Mishra, Raymond Obeng, Jose Perez Becerra, Sanjana Rahman, Joshua Sackey, Jason Sanchez, and Augustine Twumasi): How do faults slip? This presentation describes how earthquakes (and fault slips) can be modelled by mathematics and how the mathematical models are solved numerically using (super)computers. Experience demonstrations and access to simple Python computer codes to solve a 1D earthquake model that couples frictional fault failure to linear elastic solids.
- “Statistics and Data Science Fun Zone” (Drs. Abhijit Mandal, Ritwik Bhattacharya, Rene Gutierrez-Marquez, Feng Yu, and Nilotpall Sanyal, assisted by Martha Delgado and Bhattacharya's data science MS students, David Amakye and Micheal Obuobi): College and secondary students and their families engaged with mathematically- and statistically-inspired challenges using card tricks, board games, puzzles, and interactive simulations, including estimating a best-fit line for a dataset, transforming 2D images into 3D models, and discovering how statistics inform product reliability and warranty decisions. Props and small prizes added to the excitement for participants. “AntibioQuest: A Turn-based Game on Antibiotic Resistance” Dr. Anass Bouchnita and graduate students from the CPS and Data Science programs (Solomon Amoo, Giri Atanu, Eti Nyamekeh Baffoe, Luis Davila, Ophelia Frimpong, Juan Garcia, Luisa Gracia, Evans Etrue Howard, Michael Opoku, Francis Owusu-Dampare, Romasa Qasim, Randhal Ramirez Orozco, and Salvador Rodarte) developed and presented the educational turn-based video game *Antibioquest*, where visitors step into the shoes of a doctor treating a patient with *Helicobacter* infections using antibiotics while grappling with bacterial strain diversity and the looming threat of resistance.
- “Ironing Out the Details”: Bioinformatics students (Yesenia Juarez, Sai Bhumika Battagiri, Sri Harsha Kathi, Marrika Crown, Yoshitha Evuri, Melanie Sosa, Victor Rodriguez Torres, Jaime Gutierrez Portillo, Ricardo Ruiseco, Ramya Ailuri, and Umme Tania) led by Dr. Jonathon E. Mohl shared how computers, mathematics and statistics play a role in understanding how proteins function. They used small chemistry model sets to set the stage for the importance of using computers to visualize the complexity of large 3-dimensional protein structures. (More photos on page 10)



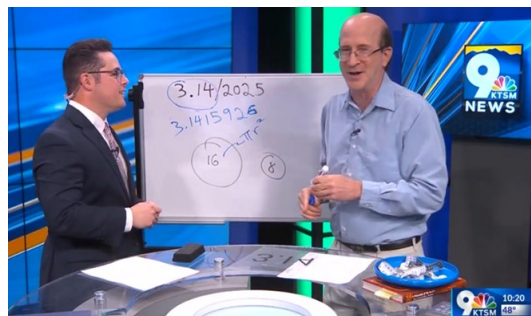
Enrique Gomez (Co-Chair of El Paso Science Festival, Retired IBM Executive and UTEP Gold Nugget), Dr. Maria C. Mariani (Chair Department of Mathematical Sciences), Dr. Juan Ferret (Co-Chair of El Paso Science Festival, Executive Director PSI). Photo courtesy of Dr. Maria Pia Beccar Varela

AS SEEN ON TV: MATH IN THE PUBLIC EYE

When UTEP's Media Relations office relays requests for faculty to discuss mathematics on TV, the Mathematical Sciences Department answers the call with expertise and engagement. Distinguished Senior Lecturer Tuesday Johnson, who has taught for the department since 2003, was tapped for a [November 2024 KFOX-TV/CBS4 feature](#) on the 50-year anniversary of the Rubik's Cube.

What made Johnson's feature especially novel and engaging was that rather than just being a static talking head, she played the role of on-the-scene reporter, taking the camera crew's long microphone covered by a furry windscreen out to Leech Grove to learn what UTEP students knew about the cube. As Johnson notes, “The interview style is like my general lecture videos. I try to meet people where they are so that they can better understand the material.” This reporting was complemented by some footage of Johnson at the conference room markerboard sharing graph theory applications and the cube's interesting origin as an instructional tool by Hungarian architect Erno Rubik. Johnson has long-time interests in mathematics history, puzzles, and outreach.

Another recent example was Pi Day 2025 when Dr. Larry Lesser made a pre-dawn drive to the NBC-affiliate KTSM-TV studios to record 10 minutes' worth (half of it live!) of material spread over the course of that day's news programs, sharing insights and fun facts about pi, its digits, pi songs, and real-world connections to hat size and [pizza](#)! Dr. Lesser's experience with media outreach includes [Pi Day](#), the [lottery](#), six math episodes of a children's educational show on PBS-affiliate KCOS-TV, and writing scripts for five math episodes of a program for NPR-affiliate KTEP-FM.



PNNL SELECTS STUDENTS FOR BIOLOGY AI WORKSHOP

The Pacific Northwest National Laboratory (PNNL) hosted a national AI in Biology workshop this summer. PNNL selected 24 students/post-docs to bring to the event in Richland WA, including 3 from UTEP: bioinformatics master's student Maria Jimenez Velasco, computational sciences Ph.D. student Amanda Bataycan, and data science Ph.D. student Yifan Wang. The students were taught about AI and its applications to biology through both theoretical and practical approaches. The workshop also helped students grow their professional networks as they toured the facilities and worked on projects together.

RECORD PARTICIPATION IN UTEP-NMSU WORKSHOP

UTEP hosted the [32nd edition](#) of the semi-annual UTEP/NMSU workshop on mathematics, computer science, and computational sciences in November 2024, continuing a tradition of alternating hosting that began in 2007. Organized locally by Drs. Ming-Ying Leung and Jon Mohl, this edition featured a day of faculty and student lightning talks, poster sessions, lunch, and an invited talk from Oak Ridge National Laboratory's Dr. Eirik Endeve. The lineup included a record number (18) of presentations by our department faculty. On November 2, 2025, UTEP hosted the [34th edition](#) of the workshop, yielding yet another record number of presentations by our department's faculty and students (28) and a record number of total participants (114).



Drs. M.C. Mariani, M.Y. Leung, M. P. Beccar Varela and Data Science Ph.D. student R. Isaac. Courtesy of Dr. J. Harding, NMSU



Drs. J. Harding, M. P. Beccar Varela, Data Science Ph.D. student R. Isaac and Drs. M.C. Mariani and T. Wang, NMSU. Courtesy of Dr. M.Y. Leung.

HAGQUIST ENGAGES DATA SCIENCE STUDENTS AND FACULTY

Ron Hagquist, College of Science Advisory Board member, gave two talks for faculty and Data Science Ph.D. students on April 4. The dynamic interaction included Q&A and valuable advice for students on topics such as preparing for job interviews. During Homecoming 2025, Hagquist again presented for faculty and students at UTEP as well as speaking about Data Science at UTEP at the Da Vinci School. Hagquist is presently planning to turn this latter talk into a professional video that can be distributed to the schools.

Courtesy of Dr. Maria C. Mariani



College of Science Advisory Board Member, Ron Hagquist, speaking to faculty and Data Science Ph.D. students on April 4, 2025. Photos courtesy Dr. Maria C. Mariani



Faculty and Data Science Ph.D. students who attended on April 4, 2025.

DR. LESSER ELECTED ASA FELLOW

Dr. Larry Lesser, Professor of Mathematical Sciences and UTEP Distinguished Teaching Professor, was recognized at the 2025 Joint Statistical Meetings as an elected Fellow of the American Statistical Association (ASA), the world's largest community of statisticians and data scientists with 16,000+ members spanning 90+ nations.

Since 1931, the ASA Fellow designation has recognized exceptional disciplinary contributions and commitment to advancing the field. Each year, the ASA Committee on Fellows may elect as fellows no more than one-third of 1% of the ASA membership. The committee's rubric includes research, consulting, administration, professional service, teaching and mentoring. Nominees must have made outstanding contributions to statistical science in research, education, industry, government, or service to the ASA and the broader profession. The other ASA Fellows in UTEP's history were Joan Staniswalis (2001), Javier Rojo (1998), and Eugene Schuster (1991). Lesser states, "Election by my peers as an ASA Fellow is deeply meaningful and humbling validation. I'm grateful for the many ways UTEP has sparked my work, ranging from statistics education research on/with emerging bilingual learners to dissertation committee service in our Data Science Ph.D. program."



Lesser receiving the ASA Fellows Award from ASA President Ji-Hyun Lee on stage at the 2025 Joint Statistical Meetings; photo courtesy of ASA's Eric Sampson

FACULTY PARTICIPATE IN PNNL WORKSHOP

Five Department faculty (Drs. Bouchnita, Leung, Mandal, Mohl, and Sanyal) participated this August at the "UTEP-PNNL Life Sciences PI Workshop" at UTEP's Interdisciplinary Research Building. This 2-day workshop strengthened the research partnership between UTEP and Pacific Northwest National Laboratory (PNNL) and identified areas of new and continued collaboration.

FROM THE CHAIR (from page 1)

the strong support from our Administration, and generous Alumni and Friends like you. As you know, over the last few years several gift funds have been established, including (1) the UTEP Data Science and Informatics Gift Fund (see story on p. 1 of *MAXIMA* 2018) 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, and a founding father of Big Data; (2) the Professor Eugene Alan Dean Memorial Endowed Scholarship; (3) the Hagquist-Lanelli Student Success Scholarship established by Ron Hagquist and Yvonne Lanelli; (4) the Hagquist-Martinez Student Excellence Fund; (5) the College of Science Excellence Gift Fund for Data Science established by Yvonne Lanelli; and (6) the recently-established Carmen and Agustin Flores Morales Student Excellence Endowment.

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 contribute to any of the scholarship funds benefitting our students, which are listed on page 8. Your donation will greatly help support our programs, including the recently-launched Ph.D. program in Data Science, and 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 there are many ways you can also be part of our future through your participation and collaboration. Please contact us with your ideas at mathdept@utep.edu or 915-747-5761. GO MINERS!

DATA SCIENCE PH.D. PROGRAM CONTINUES TO THRIVE

The Data Science Ph.D. program has been thriving since its January 2021 launch. The first five graduates (three from Fall 2023 and two from Summer 2024) are working as data scientists, actuaries, and biostatisticians in government and industry positions. They were joined as alumni in recent semesters by six more students (three in Spring 2025 and three in Summer 2025) for a total of 11 Ph.D. graduates in less than five years. Moreover, many of our students are also advancing toward graduation by having their candidacy approved (having completed all requirements except for dissertation).

We expect to continue this trend with seven more students presenting dissertation proposals in the Fall 2025 semester. For more information, contact program director Dr. Ori Rosen at orosen@utep.edu or associate director Dr. Azucena Zamora at azamora3@utep.edu or visit www.utep.edu/science/math/academic-programs/graduate/datascience.html.

RETIREMENT ROUNDUP: A CENTURY OF STELLAR SERVICE

Department faculty that retired from UTEP this August collectively served a century at UTEP: Drs. Guthrie (51 years), Khamsi (26), and Sha (23).

DR. MOHAMED AMINE KHAMSI

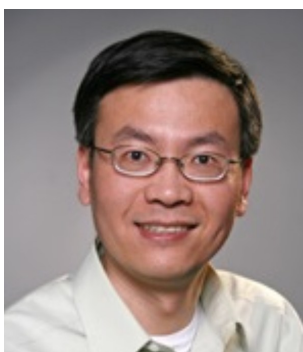
Dr. Khamsi's research in nonlinear analysis and fixed point theory has yielded over 150 papers and a citation-based [ranking](#) among the top 2% of scientists worldwide in his specialty area. Beyond this international research profile as an individual, Dr. Khamsi also played an important role in mentoring others and strengthening the department's research culture and forging international collaborations. His teaching contributions include developing UTEP's first online calculus course and co-creating 3 decades ago what was one of the web's most popular math websites - SOSMATH (now at <https://www.drkhamsi.com/sosmath/>), with free resources and discussion boards reviewing material from algebra to differential equations.



Photo courtesy Dr. Khamsi

DR. NAIJUN SHA

Dr. Sha's faculty position at UTEP brought him full circle, because his first degree in statistics was from UTEP's Statistics MS program! Sha's methodological research included Bayesian variable selection and inference in reliability theory and has appeared in journals such as *Journal of the American Statistical Association*, *Biometrics*, and *IEEE Transactions on Reliability*. He also has published applied research in the areas of genetics and cancer and was co-PI on several NSF or NIH grants. Dr. Sha also directed 2 PhD dissertations, 6 MS theses, and 1 undergraduate honors thesis. Sha also supported statistics students nationwide by co-chairing the 2006 StatFest conference.



DR. JOE GUTHRIE

Dr. Guthrie conducted research in general topology and natural language processing and was the department's first holder of the Shigeko K. Chan Distinguished Professorship in Mathematical Sciences. In addition to his research, teaching, and graduate curriculum development, Guthrie served in a remarkable breadth of administrative roles, including: Department Chair, Associate Department Chair, Director of the MaRCS tutoring center, Director of the Developmental Math program, and Director of the Mathematics MS program. His lengthy tenure was recognized by President Wilson at the 2025 UTEP Service Awards ceremony (see photo) and at a department retirement reception (see page 1) this September.



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Student News

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

Spring 2025: College of Science Pre-Commencement:

Mathematics: Evelyn Lopez (undergraduate)

Mathematics: Frederick Amada (graduate)

Statistics and Data Science: Nicholas Tenkorang (graduate)

Data Science: Kelvin Ofori-Minta (doctoral)

Fall 2024 College of Science Pre-Commencement:

Mathematics: Tshering Eden (undergraduate)

MATM Mathematics: Kyle McConnell (graduate)

Statistics and Data Science: Tamim Alam (graduate)

UTEP, EPCC HOST TEACHING WORKSHOP ON AI

(Ivette Chuca and Kien Lim)

On April 26, the mathematics departments of UTEP and EPCC continued their [history of collaboration](#) by holding their ninth annual Teachers Teaching Teachers (TTT) workshop. This year's theme "AI: Friend or Foe?" focused on generative AI in mathematics education. The 28 attendees engaged in dynamic discussions and hands-on activities exploring potential educational benefits and challenges, as well as implications for assessment and ethics.

The TTT workshops originated from the goal to align mathematics courses for pre-service elementary and middle school teachers and to foster professional development supporting student-centered pedagogy. Since 2012, these workshops have promoted mutual respect, shared resources, and a more unified approach to teacher preparation. The intertwined destinies and communities UTEP and EPCC serve are reflected by the sentiment "Our students are your students are our students." Cengage and Pearson provided meals and this year's workshop committee members were UTEP's Kien Lim and Martha Delgado, and EPCC's Edith Aguirre, Fan Chen, Ivette Chuca, and Sandra Cuevas.

Photos courtesy of Ivette Chuca

2024 FALL COMMENCEMENT HONORS

Graduate Student Marshal of Students: Tamin Alam
(MS Statistics and Data Science)

Undergraduate Student Marshal of Students: Tshering Eden
(BS Mathematics, Concentration in Data Science)

STUDENT CHAPTERS/CLUBS

Latest news will be posted at https://www.utep.edu/science/math/forstudents/student_orgs.html

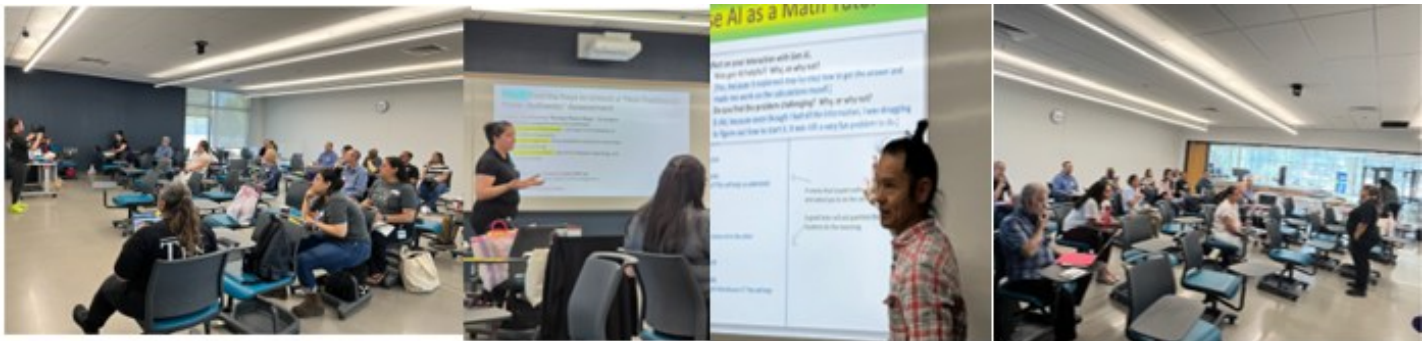


Alumni News

Samuel Maldonado (BS, Mathematical Sciences, 1975) was recognized as a Golden Grad celebrating a 50-year [reunion](#) during Homecoming 2025.

Joe H. Smith (1966) was honored during Homecoming Week 2025 at the College of Science Gold Nugget & Distinguished Alum Breakfast. Smith minored in mathematics and majored in physics, during the last year the two subjects were part of the same department!

Augustine Twumasi (MS, Mathematics, 2021) completed his PhD in the Computational Science Program in summer 2025, advised by Drs. Natasha Sharma (UTEP) and Zhengtao Gan (Arizona State University). He began a tenure-track position at University of Wisconsin-Stout, Department of Mathematics, Statistics and Computer Science in August 2025.



INFLECTION POINTS

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

Dr. **Art Duval** became a Professor Emeritus of Mathematical Sciences and is enjoying his retirement.

Dr. **Larry Lesser** won recognitions in international statistics education contests, gave an invited general audiences talk on the Birthday Problem at the National Museum of Mathematics, and an invited research webinar for the International Association for Statistical Education.

Dr. **Cristina Mariani** obtained as a co-PI a \$40K 2025-26 grant from the Institute for Strategic and Sustainable Resources titled “Machine learning for predicting groundwater quality and understanding controls on contaminants: A new approach for finding low-cost, safe drinking water sources.”

Dr. **Samantha Patterson** earned an Ed.D. in Educational Studies from the University of Northern Colorado in December 2024 for her dissertation *Exploring the Contents of Introductory Quantitative Methods Courses for Educational Doctoral Students*.

Dr. **Natasha Sharma** served as Graduate School Faculty Marshal at 2025 Spring Commencement and was appointed Associate Chair of the Department as of September 2025.

Dr. **Amy Wagler** (now Director of Research Computing and Data Science at NMSU) was UTEP’s winner of the 2025 Conference USA Faculty Achievement Award based on her UTEP career, which was mostly in our department (including service as Associate Chair).

Dr. **Son-Young Yi** served as University Faculty Marshal of Students at 2024 Fall Commencement.

DEPARTMENT DECEMBER POTLUCK RESUMES

Many faculty, staff, and graduate students contributed delicious dishes and attended the December Department potluck that resumed in 2024. Organized by Ms. Laura Olivas, Ms. Martha Delgado, Dr. Azucena Zamora, and Ms. Jackie Fiest, the lunch celebrated and culminated a very successful calendar year.



Photo Courtesy Dr. Maria C. Mariani

Donation Form

Yes, I want to support the Department of Mathematical Sciences!

[Online form](#)

Enclosed is my gift in the amount of \$_____ for:

**Funds benefiting only Mathematical Sciences majors
(Mathematics, Statistics, and Data Science):**

- UTEP Data Science and Informatics Gift Fund
- Mathematical Sciences Gift Fund
- C. H. Gladman Scholarship Fund
- CoS Excellence Gift Fund for Data Science
- Dr. Gavin G. Gregory Scholarship Fund
- Dr. Joan Georgette Staniswalis Memorial Student Excellence Endowment
- Hagquist-Lanelli Student Success Scholarship
- Hagquist-Martinez Student Excellence
- Lawrence "Larry" and Katsuko "Kitty" Huntley Endowed Scholarship
- Patrick David Kirkland Endowed Memorial Scholarship Fund
- Professor Eugene Alan Dean Memorial Endowed Scholarship

Funds benefiting Mathematical Sciences, Science, and/or Engineering majors:

- Black Jack Pershing Endowed Scholarship Fund
- Carmen and Agustin Flores Morales Student Excellence Endowment
- Everett F. and Thelma Morris Endowed Scholarship Fund
- Mary L. Fisk Endowed Fund
- Matthew and Wanda Diethelm/Coca-Cola Endowed Scholarship Fund
- Michael J. Shea Memorial Scholarship Fund
- Professor Vladik A. (Chuck) Miculka - Greater Texas Foundation Removing Educational Barriers Endowed Scholarship
- Thelma E. Morris Endowed Graduate Scholarship Fund

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

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Phone Home: _____ Email Address: _____

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

Employer: _____

Position/Title: _____

Let us know what you have been up to (and whether we have your permission to include the news in the department's newsletter, social media or website):

SCIENCE FESTIVAL (from page 2)



Photos Courtesy of Dr. Maria C. Mariani & Dr. Maria Pia Beccar Varela.