

MAXIMA

MAXIMA: News and Highlights from the Department of Mathematical Sciences

The University of Texas at El Paso <http://math.utep.edu> <http://facebook.com/utep.math> FALL 2020

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!

First, the Texas Higher Education Coordinating Board approved our proposal for a Data Science Ph.D. in July 2020, after a very successful (virtual) site visit in April 2020. The Ph.D. in Data Science will prepare and train individuals who can immediately obtain positions in business and industry that use data to guide decision-making. The establishment of this program at UTEP will create a pipeline of data science professionals in the region and will be a unique and valuable contribution to data science education, both regionally and nationally. Very remarkably, this is the first Ph.D. program housed in the Department (see story on right). The implementation of the Data Analytics Lab will be a great complement to our Data Science Ph.D., helping students to develop professional skills, and providing them with practical experience and work opportunities. I am delighted to welcome Assistant Professor Dr. **Abhijit Mandal**, a hire that will support our Data Science programs.

Second, the American Mathematical Society (AMS) meeting that was scheduled to take place on the UTEP campus in September 2020 was instead held virtually. It was the first time that an AMS meeting was scheduled to be hosted at UTEP and the first time that the AMS hosted a virtual meeting, so the AMS and UTEP made history together. Plenty of wonderful mathematics was discussed in the 203 presentations. We received many positive comments from the participants who enjoyed this vibrant meeting, the first one after the lockdown as all the meetings that were scheduled in spring 2020 were canceled. Remarkably, we saw the opportunity that a virtual meeting gives to many people who otherwise would be unable to attend (see story on right). The AMS has approved our request for rescheduling our on-campus AMS meeting to September 2022.

I am also proud to report you that our faculty and staff did an outstanding job adapting to the pandemic, moving all instruction and colloquia online for the rest of 2020, and going the extra mile to support our students. We had a stellar increase in enrollment during summer 2020, and we began the fall semester with the same enrollment that we had in fall 2019.

The Department continues to grow, with the last five years yielding nearly 350 peer-reviewed publications and \$35 million in grants, and UTEP continues to be ranked in the top ten by *Diverse: Issues in Higher Education* for Mathematics and Statistics degrees conferred to Hispanic students at the undergraduate level, and was ranked second at the master's level. *continued on page 4*

In This Issue ...

- **Chair's Column**
- **Ph.D. Program Launching**
- **First AMS meeting**
- **Dr. Guthrie's Service Award**
- **ASA Honorees**
- **CoS Honorees**
- **Noyce Scholars**
- **Dr. Boaler's Visit**
- **Dr. Lesser Interviewed**
- **Inflection Points**
- **Alumni News**

DEPARTMENT LAUNCHING ITS FIRST Ph.D. PROGRAM: DATA SCIENCE!

The Texas Higher Education Coordinating Board approved in July a new doctoral degree in data science that UTEP will "soft launch" with some initial (virtual) courses during the spring 2021 semester and fully launch (along with a new computer lab) with the fall 2021 semester. This is UTEP's 23rd doctoral program and is the first one housed completely in the Department of Mathematical Sciences and will serve as a University hub for data science-related projects.

Program director Dr. Amy Wagler says that when the idea of this program was bounced off of community stakeholders four years ago, "the response was pretty consistent across most organizations which was, we have a need for data science, but we don't really have access. We realized at that point that there was an urgent need to produce a pipeline for data science professionals in our region to fulfill an industry. That was a big part of the drive to offer this as an option for students while also addressing a big need in our community. We can create this kind of homegrown talent." *continued on page 4*

UTEP HOSTING ITS FIRST AMS MEETING

The American Mathematical Society (AMS) held its first-ever virtual conference when it held the Fall Central Sectional Meeting September 12-13, 2020. While this had originally (pre-pandemic) been slated to be the first-ever AMS meeting on UTEP's physical campus, most of the program of this historic event remained the same with half of the 16 AMS special sessions co-organized by at least one faculty member from our department: www.ams.org/meetings/sectional/2274_program.html.

The meeting was well-received and well attended, with about 400 attendees and over 200 presentations. The virtual format enhanced participation by making it easy for speakers based in many states and several countries to readily contribute to the program. Also, the AMS approved a request for UTEP to be able to host the September 2022 meeting on its physical campus. Organizers of 2022 special sessions have requested a 'hybrid' format that includes virtual talks to allow broader participation.



Dr. Joe Guthrie and UTEP president Dr. Heather Wilson at 2020 Service Awards ceremony. Photo: University Communications

GUTHRIE LAUDED FOR SERVICE

Dr. Joe Guthrie received a standing ovation at the 2020 UTEP Service Awards ceremony for his 45 years of service at UTEP, one of the very longest tenures in the department's history. Dr. Guthrie currently serves the department as an Associate Chair, the head of the MaRCS tutoring center, and the Director of the Graduate Program in Mathematics, where his hard work on recruitment and retention led to a dramatic increase in the number of graduate students.



UTEP HAS TWO OF 12 ASA HONOREES

In celebration of Hispanic Heritage Month 2020, the American Statistical Association recognized a dozen individuals from the Hispanic community who have contributed tremendously to the field. The honorees (with photos linked to their bios) are listed at magazine.amstat.org/blog/2020/09/01/hhm/ and include our recently-deceased long-time professor Dr. Joan Staniswalis and our alumna Dr. Brisa N. Sánchez (M.S., Statistics, 2001; B.S., Mathematics, 2000). This summer, Dr. Sánchez was also one of 57 ASA members named an ASA Fellow for their professional contributions, leadership, and commitment to the field of statistical science.



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

Fall 2019:

Mathematics - **Alan Salcedo Gomez** (undergraduate and CoS Banner Bearer for Math and Physics)

Statistics - **Richard Okine** (graduate)

Spring 2020:

Mathematics - **Neetu Acharya** (senior)

Mathematics - **Abigail Chaidez** (undergraduate and MaST/NSF Noyce Scholar)

MAT in Mathematics - **Estefania Muñoz-Ribot**

Mathematics - **Enrique Salcido** (graduate student)

FULL 'STEM' AHEAD FOR OUR NOYCE SCHOLARS!

Senior mathematical sciences majors Mariah La Rosa and Abigail Chaidez are among the 8-person inaugural UTEP cohort of the NSF-funded Noyce Scholars two-year program created to encourage more STEM-interested college students to become (better) middle or high school teachers.

In its first (2019-20) year, the cohort focused on Project-Based Learning (PBL), a student-centered instructional method where students actively engage in real-world and personally meaningful tasks, as well as how to use tools for online learning. In the current (second) year, the cohort's activities include helping teach classes to Austin High School students, developing data-intensive PBL units studying childhood obesity in the area, and implementing PBL instruction online.

UTEP, in partnership with the El Paso Independent School District (EPISD), launched the program with the funding of a five-year, \$1.2 million grant (PI: Dr. Amy Wagler) from the National Science Foundation's (NSF) Robert Noyce Teacher Scholarship Program and with the support of the New Tech Network, a national nonprofit that promotes an alternative way to teach in public schools that is informed by both theory and practice.

The program recruits students and prepares them for teacher certification through rigorous courses, research, activities and field-based training that will enable them to be effective educators for many years. The program is yielding research insight about PBL units for dual-language settings, and on the value of professional support networks as the Noyce Scholars transition from pre-service instructors to in-service teachers.

A second two-year cohort of nine undergraduates generally majoring in a STEM field and minoring in secondary STEM education launched in fall 2020. As with the first cohort, accepted students receive mentoring, access to graduate courses, NSF workshops, access to research equipment, a student-teacher assignment in the one-year Miner Teacher Residency program, as well as scholarship support of up to \$10,000/year. In return, Noyce Scholars agree to teach at a high-need campus for two years after graduation.

As Mariah La Rosa shared, "The Noyce program means so much to me because it has opened so many doors for me. Not only am I surrounded by peers that share the same major and goals as me, but I also have mentors guiding me every step of the way. In addition, I am learning on what it means to be an effective teacher. I believe that if it was not for this program, I would not be prepared to start my career as a mathematics teacher. I am truly blessed to be a Noyce Scholar."

(Editor's note: this story was adapted and enhanced from the UTEP Newsfeed story by Daniel Perez)

UTEP HOSTS DR. JO BOALER

World-renowned researcher and author Dr. Jo Boaler, the Nomellini-Olivier Professor of Mathematics Education at Stanford University, came to UTEP in January to give the Fessinger-Springer lecture. Her talk, "Limitless: Learn, Lead, and Live without Barriers," discussed brain research about how people learn mathematics and other topics. About 75 people attended and most stayed for lively discussions at the reception.

Her two-day visit also included being interviewed for an episode of KTEP-FM's [Science Studio](#), giving a STEM education research seminar to about 25 people, a dinner meeting with UTEP/EPCC Teachers Teaching Teachers (TTT) professional development organizers, and one-on-one meetings with several faculty in our department.

One strand of Boaler's presentation is the "growth mindset" perspective, under which students believe their intelligence is not "fixed" and therefore that they can achieve success with persistence. Boaler's visit quickly had impact, with that topic being featured at the annual TTT workshop as well as in individual research work. More information about Boaler's current project is at www.youcubed.org, which also includes information about her books.

The Fessinger-Springer Lectureship Fund is a UTEP College of Science fund endowed in 1969 for inviting (usually once a year) distinguished members of the scientific community to give a lecture and interact with university faculty, alumni, students, and guests.



Dr. Jo Boaler gives featured talk at UTEP



UTEP host Dr. Art Duval with Dr. Jo Boaler



Partial view of audience at Dr. Boaler's talk

ASA JOURNAL INTERVIEWS DR. LESSER

The *Journal of Statistics Education* (JSE) [interviewed](#) Dr. Larry Lesser in its spring 2020 issue as part of its series on prominent statistics educators.

Lesser, winner of a UT System Regents' Outstanding Teaching Award and UTEP's most recent recipient of the Minnie Stevens Piper Professor Award, is one of the first 25 people worldwide, and the first from a Texas institution, to be included in the series. "I've been interviewed in various venues about specific projects, but it was very meaningful to have the most widely read journal in my field interview me extensively about the whole of my career," said Lesser, who added that he loved mentioning that UTEP had achieved Carnegie R1 status and the math department's launching in 2021 of a new doctoral program in data science.

Interviewer Allan Rossman said the series aims "to provide a glimpse into the mindset of individuals who have played important roles in the development of statistics education, to give a sense for what went on during important times in that development, and to allow for considering future directions that statistics education might take. Another goal ... is to help JSE readers recognize what dedicated, wise, humble, often quite humorous, and generally terrific people have shaped this discipline." JSE is an international refereed open-access journal published by Taylor & Francis for the American Statistical Association, the world's largest community of statisticians and the nation's second-oldest continuously operating professional association of any field.

(taken from the UTEP Newsfeed story by Daniel Perez)



Photo: University Communications

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

Courses are in four primary areas; data science theory, data science application, mathematical applications, and computing. Coursework starts with the prerequisite course: Introduction to Data Science Collaboration. The 67-hour program includes 16 hours of required courses, 24 hours of electives, 6 hours for the dissertation, and 21 hours for residency or collaborative research work with existing partnerships. The program will be supported by a new data analytics computer lab in Bell Hall and the pandemic has accelerated the capacity of the program to deliver coursework in online or hybrid form.

UTEP and community partnerships will sustain the program in order to fund student research, provide student salaries and engage students in experiential learning. The program, which was guided by recommendations from the National Academy of Sciences and the American Statistical Association, will develop the University's capacity in this field as well as generate interdisciplinary and interinstitutional opportunities for data science research collaborations. The program was made possible through the efforts and unwavering support of the College of Science, as well as noted UTEP alumni and members of the College of Science Advisory Board such as UTEP Distinguished Alumnus Allen Gilmer and College of Science Gold Nugget Awardee Dr. Frank Hsu.

According to the Occupational Employment Statistics compiled by the U.S. Bureau of Labor Statistics, a doctorate in data science can be applied to an array of industries which includes, but is certainly not limited to, computer systems design, enterprise management, marketing, medical treatment options, scientific research and development services, aerospace product and parts manufacturing, securities, commodity contracts, and financial investment activities. The site reveals that the average salary of a data scientist is \$123,000 and that the demand for the profession is projected to increase by 16% in the next 8 years.

Data science is a combination of mathematical, statistical and computing skills that can be applied to find innovative uses for existing technology as well as invent and design new analytical approaches. "I think this is going to connect UTEP and highlight the resources that we have to do data intensive research. This is a field that's in extremely high demand and I think that it'll put UTEP on the map as a place where we are training high-level, competent professionals in data science. We have students who have talent in this area and just lacked opportunity," Wagler said.

For more information, contact Dr. Amy Wagler at awagler2@utep.edu or visit

www.utep.edu/science/math/academic-programs/graduate/datascience.html.

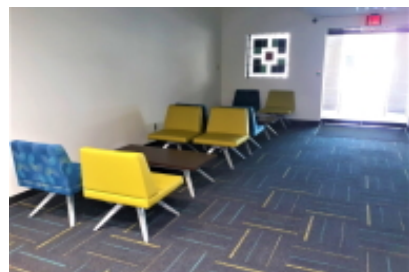
(Editor's note: this story was compiled from pieces in the *UTEP Prospector*, *El Paso Herald-Post*, *El Paso Inc.*, and *El Paso Times*)



The new Data Analytics computer lab ...



... will support the new Ph.D. program



New lobby of Data Analytics computer lab

From the Chair *(from page 1)*

All these achievements are possible only with hard work, the help of our dedicated staff, strong support from our administration and from generous Alumni and Friends.

As you know from *MAXIMA* 2018 and 2019, Mr. and Mrs. Allen Gilmer and Dr. Frank Hsu established the UTEP Data Science and Informatics Gift Fund. Gilmer is UTEP's Distinguished Alumnus, and Hsu is a departmental alumnus, Clavius Distinguished Professor of Science at Fordham University in New York, 2019 UTEP Gold Nugget awardee, and a founding father of Big Data. Please take the opportunity to increase the impact on student success and contributions to our field as well as society. I encourage you to make your contributions to the UTEP Data Science and Informatics Gift Fund. Your donation will be matched and will be of great help in launching the Ph.D. program. In addition, page 6 lists scholarship funds benefiting our students, and our Excellence Fund supports student travel to meetings, registrations for virtual 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 Audrey Price, Assistant Vice President of Asset Management and Development, 915-747-8522. As a former student, you will always be part of our legacy, 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 or 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 our population by receiving the R1 designation by the Carnegie Classification of Institutions of Higher Education. Stay safe and Go Miners!



INFLECTION POINTS



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

Dr. **Les Foged** retired in January after four decades of service as a faculty member in our department.

Dr. **Andrew Pownuk** participated in the 2020 HBCU/MI Summer Faculty Research Fellowship, a 10-week research collaboration with the CCDC Army Research Laboratory, sponsored by the U.S. Department of Defense.



ALUMNI NEWS



Dr. **Josephine Akosa** (M.S., Statistics, 2014) earned a Ph.D. in statistics from Oklahoma State University, then became a Visiting Assistant Professor at the University of Notre Dame, and gave a colloquium for our department on October 16.

W. Jeanne (Dalton) Bando (B.S., Mathematics, 1972) retired from Sandia National Laboratories in Albuquerque, NM after 31 years of service and then moved to Venice, FL.

Derrick Bonney (M.S., Statistics, 2020) has enrolled in the Statistics Ph.D. program at Washington State University.

Dr. **William Bulko** (B.S., Mathematics, 1981) earned a Master's and Ph.D. in Computer Science at The University of Texas at Austin. He worked at IBM for 23 years before leaving to pursue his first love, teaching. After a year at St. Edward's University, he is currently an Assistant Professor of Instruction in the Department of Computer Science at The University of Texas at Austin.

Dr. **David N. Iklé** (B.S., Mathematics, 1971) reports: "My very rewarding career in biomedical research was enabled by getting a solid foundation in mathematics at UTEP. After graduating UTEP, I went on to get an MS in Statistics at Colorado State University in 1975 and a Ph.D. in Biostatistics at the University of Colorado Health Sciences Center in 1980. Subsequently, I worked at the National Jewish Research Center, in Denver, CO, the City of Hope Cancer Center, in Duarte, CA, and Rho, Inc, in Chapel Hill, NC, collaborating as a biostatistician on clinical trials in asthma, allergy, oncology and organ transplantation. I retired in 2019 as a Principal Statistical Scientist at Rho, where I was PI and Data Coordinating Center Director for multiple NIH-funded multi-center clinical trials and observational studies in solid organ transplantation. My research focus was in developing non-invasive biomarkers predictive of outcomes and in testing new approaches to immunosuppression in pediatric and adult transplant recipients."

Dr. **Ana Paula Gonçalves Lionel** (B.S., Mathematics, 2006), who taught mathematics at El Paso High, obtained her Doctor of Physical Therapy degree from UTEP in December 2018. She applies math in this field in areas such as biomechanics, patient progress, and research. As a Physical Therapy student, she conducted a retrospective study entitled Effects of Corner Sitting on the Preterm Infant where she applied mathematics and statistical tests to determine research results. The poster presentation of the study earned 2nd place at the 2018 UTEP Graduate Student Research EXPO. Now, she works at Performance Republic in San Antonio, TX and keeps up with recent physical therapy publications and applies mathematical concepts when interpreting current studies.

Dr. **Mohamad Moussa** (M.S., Mathematics, 2015) followed his master's degree here with a Ph.D. in Mathematics in 2018 from the University of Arizona, then joined American Express as a senior engineer in data science and machine learning.

Dr. **Rei Sánchez-Arias** (M.S., Computational Science, 2011; Ph.D., Computational Science, 2013) received the 2020 Ablaze Excellence in Teaching Award at Florida Polytechnic University, where he is an Assistant Professor in Department of Data Science and Business Analytics. To learn more about his courses and research, please visit www.reisanar.com.

MAXIMA Staff

Editor: Larry Lesser

Asst. Editor: Art Duval

Typesetting, MAXIMA logo, uncredited

photos: María Barraza

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 (to be included in the department newsletter or website):

Donation Form

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

Online form at givingto.utep.edu/math

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

- | | |
|--|--|
| <input type="radio"/> UTEP Data Science and Informatics Gift Fund | <input type="radio"/> Mary L. Fisk Endowed Fund |
| <input type="radio"/> Black Jack Pershing Endowed Scholarship Fund | <input type="radio"/> Matthew and Wanda Diethelm/Coca-Cola Endowed Scholarship Fund |
| <input type="radio"/> C. H. Gladman Scholarship Fund | <input type="radio"/> Michael J. Shea Memorial Scholarship Fund |
| <input type="radio"/> Dr. Gavin G. Gregory Scholarship Fund | <input type="radio"/> Patrick David Kirkland Endowed Memorial Scholarship Fund |
| <input type="radio"/> Dr. Joan Georgette Staniswalis Memorial Student Excellence Endowment | <input type="radio"/> Professor Vladik A. (Chuck) Miculka - Greater Texas Foundation Removing Educational Barriers Endowed Scholarship |
| <input type="radio"/> Everett F. and Thelma Morris Endowed Scholarship Fund | <input type="radio"/> Thelma E. Morris Endowed Graduate Scholarship Fund |
| <input type="radio"/> Lawrence "Larry" and Katsuko "Kitty" Huntley Endowed Scholarship | |

or you may use _____ Mastercard _____ Visa _____ Discover

Name on Card: _____

Card Number: _____

Expiration Date: _____

Signature: _____

Please return to:

The University of Texas at El Paso
Department of Mathematical Sciences
Bell Hall 124
500 W. University Ave
El Paso, Texas 79968-0514