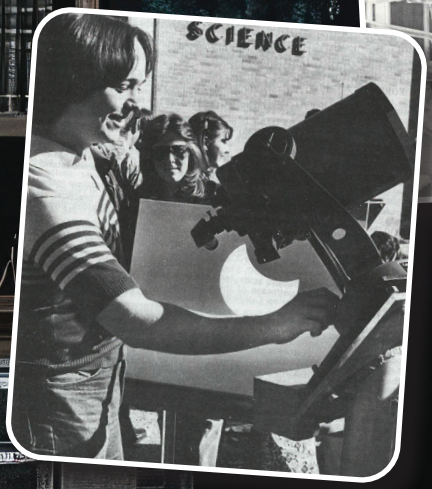
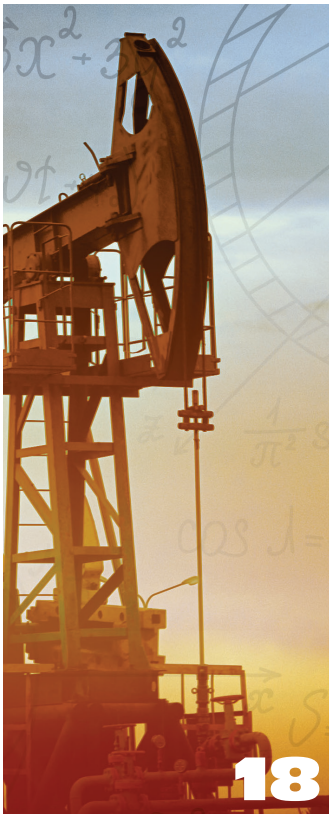
Maverick SCIENCE

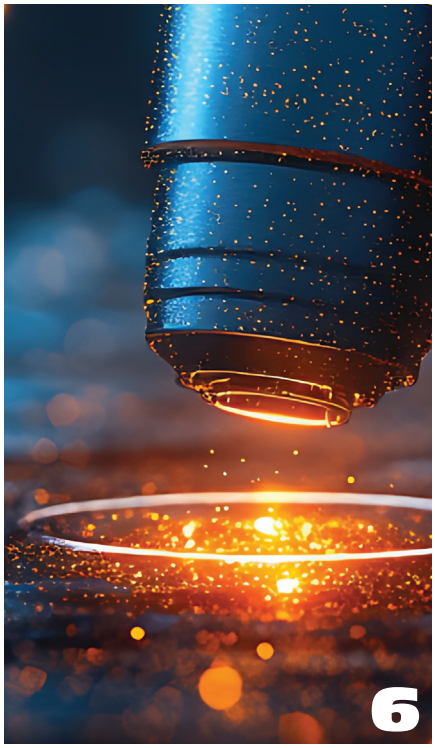
THE UNIVERSITY OF TEXAS AT ARLINGTON / 2026

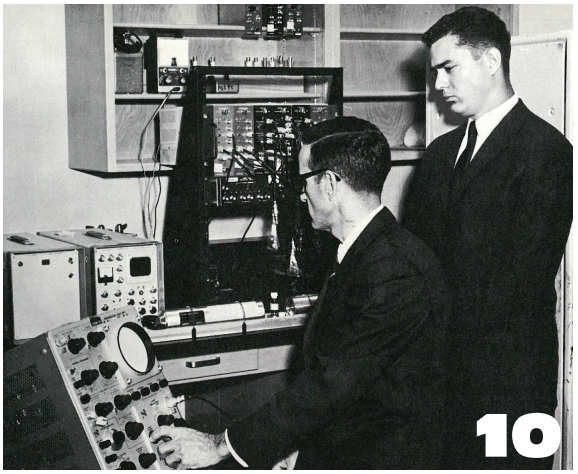


Celebrating 60 years

In This Issue







Maverick SCIENCE

COLLEGE OF SCIENCE

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60 YEARS

UTA College of Science

Facts & Figures

The college offers **55** degree programs, including **19** at the graduate level.

Fall 2025 enrollment topped **4,300**, a **10.3%** increase over the previous year.

The college has more than **25,000** alumni, the majority of whom live in the Dallas–Fort Worth Metroplex.

The UTA Planetarium—one of the **largest** and **best** in Texas—educates and entertains more than **50,000** visitors and K-12 students each year.

The Amphibian and Reptile Diversity Research Center has the **largest** herpetological research collection in Texas and one of the largest in the world, with more than **200,000** specimens.

The college occupies more than **630,000** square feet of educational and research space on campus.

NOTE FROM THE Dean

WELCOME TO THE NEW EDITION OF *MAVERICK SCIENCE* MAGAZINE. The College of Science is proud to celebrate its 60th anniversary in 2025-26! It is with profound pride that we celebrate six decades of progress, and we look forward with excitement to the opportunities that lie ahead as we continue advancing science together.

The college is committed to building a collaborative ecosystem that unites disciplines and translates ideas into impact. Interdisciplinary initiatives spark transformative research and prepare students to think creatively across domains—where innovation truly happens. By empowering our diverse student body, we fulfill our promise to transform lives and strengthen the scientific workforce that fuels our state and nation.

The rapid integration of artificial intelligence and data science into every discipline calls for a fundamental reimagining of how science is taught and learned. The college will lead this transformation by embedding AI literacy, computational reasoning, and data-driven problem-solving throughout the curriculum, from introductory undergraduate courses to advanced graduate programs. As your dean, I am committed to ensuring that as the world changes, so do we—by leveraging data analytics, automation, and AI tools to enhance research productivity, student learning, and decision-making. This includes developing clear ethical guidelines, having ongoing dialogue, and spearheading efforts to understand AI and the way it impacts our students, faculty, staff, and all areas of our college in this rapidly changing climate. With this change, we are steadfast about creating a culture of excellence and collaboration at all center and department levels.

The College of Science is deeply rooted in North Texas, yet its reach extends globally. Through expanded STEM education and community engagement programs, the college serves as a vital bridge between discovery, education, and real-world impact.

Our college stands strong—in research that matters, in teaching that inspires, in learning experiences that open doors, and in outreach that serves. As we look to the future, we reflect on where we have come from, the advancements we have made, the Maverick Scientists we have developed and supported, and the plans we have for the next 60 years. Simply put, we will move science forward through innovation, discovery, and a commitment to you, Maverick Scientists.

I hope you enjoy this edition of *Maverick Science*. Thank you for celebrating the college's 60 bold years together.

Regards,

MORTEZA KHALEDI, DEAN

College of Science Strategic Plan

THE ROAD AHEAD IS Bright

Vision

Empowering Discovery Without Boundaries
To lead in foundational and interdisciplinary science that expands knowledge, fuels innovation, and translates ideas into real-world impact.

Educating Future Innovators in an AI-Driven World
To inspire, prepare, and empower a diverse array of students to thrive as creative problem-solvers and ethical leaders in a rapidly changing, data- and AI-driven global landscape.

Science in Service of Society: From Local Roots to Global Reach
To be a trusted source of knowledge and innovation, extending the Maverick spirit of discovery from North Texas to the world through research, education, and community engagement.

Strategic Priorities

Transform Education and Student Success for the AI Era
Reimagine curricula and learning experiences to integrate AI, data science, and computational literacy across all disciplines, while enhancing student success, inclusion, mentoring, experiential learning, and career pathways.

Advance Research and Interdisciplinary Innovation
Grow the research enterprise and strengthen cross-disciplinary clusters that address grand challenges in health, environment, climate, data, and sustainability through faculty excellence, infrastructure, and strategic collaborations.

Engage Communities and Partners for Societal Impact
Deepen relationships with industry, health care, K–12, and government partners to drive workforce development, innovation, and broad societal impact.

Operational Imperatives

Invest in People, Infrastructure, and Digital Capacity
Recruit and retain top faculty and staff, expand research facilities, modernize learning spaces, and leverage data analytics, automation, and AI tools to enhance research productivity, student learning, and decision-making.

Foster a Collaborative, High-Performing, and Visible College
Promote a culture of excellence by streamlining operations, incentivizing teamwork across departments and centers, and strengthening communication and identity through strategic branding, storytelling, and recognition of faculty, student, and alumni achievements.

Diversify and Grow Sustainable Funding
Expand external research support, industry partnerships, and philanthropic and endowed funds to sustain long-term innovation and strategic priorities.

Faculty Awards

College of Science faculty members have regularly been honored for their teaching, research, and service, and the past year has been no exception. The following faculty received significant awards and recognition in 2024-25.

DANIEL ARMSTRONG

Robert A. Welch Distinguished Professor, Chemistry & Biochemistry

Dr. Armstrong received the 2025 Pittcon Analytical Chemistry Award for his fundamental studies and evolutionary approaches for stereochemical analysis, development and characterization of ionic liquids, and mechanistic studies in diverse areas of analytical chemistry.

COLIN CAMERON

Professor of Research, Chemistry & Biochemistry

Dr. Cameron was named a 2025 senior member of the National Academy of Inventors for outstanding achievements in invention and innovation and for commitment to advancing technology for the benefit of society.

PURNENDU "SANDY" DASGUPTA

Hamish Small Chair in Ion Analysis, Chemistry & Biochemistry

Dr. Dasgupta received the 2025 Philip J. Wyatt Award in Analytical Chemistry from the American Chemical Society for his contributions to novel analytical instrumentation and for demonstrating their utility to improve health and nutrition.

RASIKA DIAS

Distinguished Professor, Chemistry & Biochemistry

Dr. Dias was named a 2025 fellow of the Royal Society of Chemistry for his outstanding contributions to the advancement of chemical sciences. He was also named a 2025 senior member of the National Academy of Inventors.

KAYUNTA JOHNSON-WINTERS

Associate Professor, Chemistry & Biochemistry

Dr. Johnson-Winters was named a 2025 fellow of the American Society for Biochemistry and Molecular Biology for her contributions to the two fields and her efforts to support junior faculty, women in science, and student mentorship.

BENJAMIN JONES

Associate Professor, Physics

Dr. Jones received the 2025 International Committee for Future Accelerators Early Career Researcher Instrumentation Award for his outstanding contributions to neutrino physics and detectors using noble gases.

J. PING LIU

Professor, Physics

Dr. Liu received the 2025 Hill Prize in Physical Sciences for pioneering new ways to design magnets that power high-tech devices. The prize recognizes groundbreaking innovations with the potential for real-world impact.

KAREN JO MATSLER

Master Teacher in Science, UTeach Arlington

Dr. Matsler received the 2025 Melba Newell Phillips Medal from the American Association of Physics Teachers for her extensive contributions to physics education and her tireless efforts to support educators nationwide.

YUAN BO PENG

Professor, Psychology

Dr. Peng received the 2024 Chinese Institute of Engineers/USA-DFW Individual Outstanding Community Service Award for exemplary service in his role as director of the UTA Fort Worth Regional Science and Engineering Fair.

Betting Big on Data Science

Data scientists are an increasingly hot commodity across industries. The UTA College of Science is rising to meet the moment.

As the need for data scientists has grown rapidly in seemingly every field over the past decade, so too has the need for comprehensive degree programs to train students for data science jobs. The UTA College of Science has answered the call with spectacular results.

The college began offering undergraduate data science courses in fall 2018. A bachelor's degree program was launched in 2021 with 19 students. In fall 2025, the program enrolled 199 majors and 51 minors.

In fall 2023, the college launched an MS degree in applied statistics and data science (MS-ASDS). The first cohort included 66 students, the largest first-year enrollment for any new master's program at UTA. In fall 2025, the program enrolled 121 students.

In spring 2024 the college launched the Division of Data Science (DDS) to organize, provide infrastructure support, and facilitate growth in instructional and research programs involving data science. DDS serves as a catalyst to foster interdisciplinary learning and research.

"The story of the college's data science program is one of rapid and necessary institutional expansion," says Sherry Wang, Jenkins-Garrett Professor of Statistics and Data Science and DDS director for research. "The growth from the first courses in 2018 to a full academic pipeline demonstrates remarkable momentum."

To further strengthen its academic profile, DDS is developing a PhD program. It was unanimously approved by the UTA Graduate Assembly in October 2024 and received formal approval from the UT System Board of Regents in August 2025. Final approval could come within the next year.

At the undergraduate level, the college's program is unique, as it pairs a bachelor's degree in data science (BSDS) with a concentration in a student's chosen science discipline. It also includes two semesters of capstone research. Designed as an interdisciplinary program with eight concentrations across the college, it has become one of UTA's fastest growing programs.

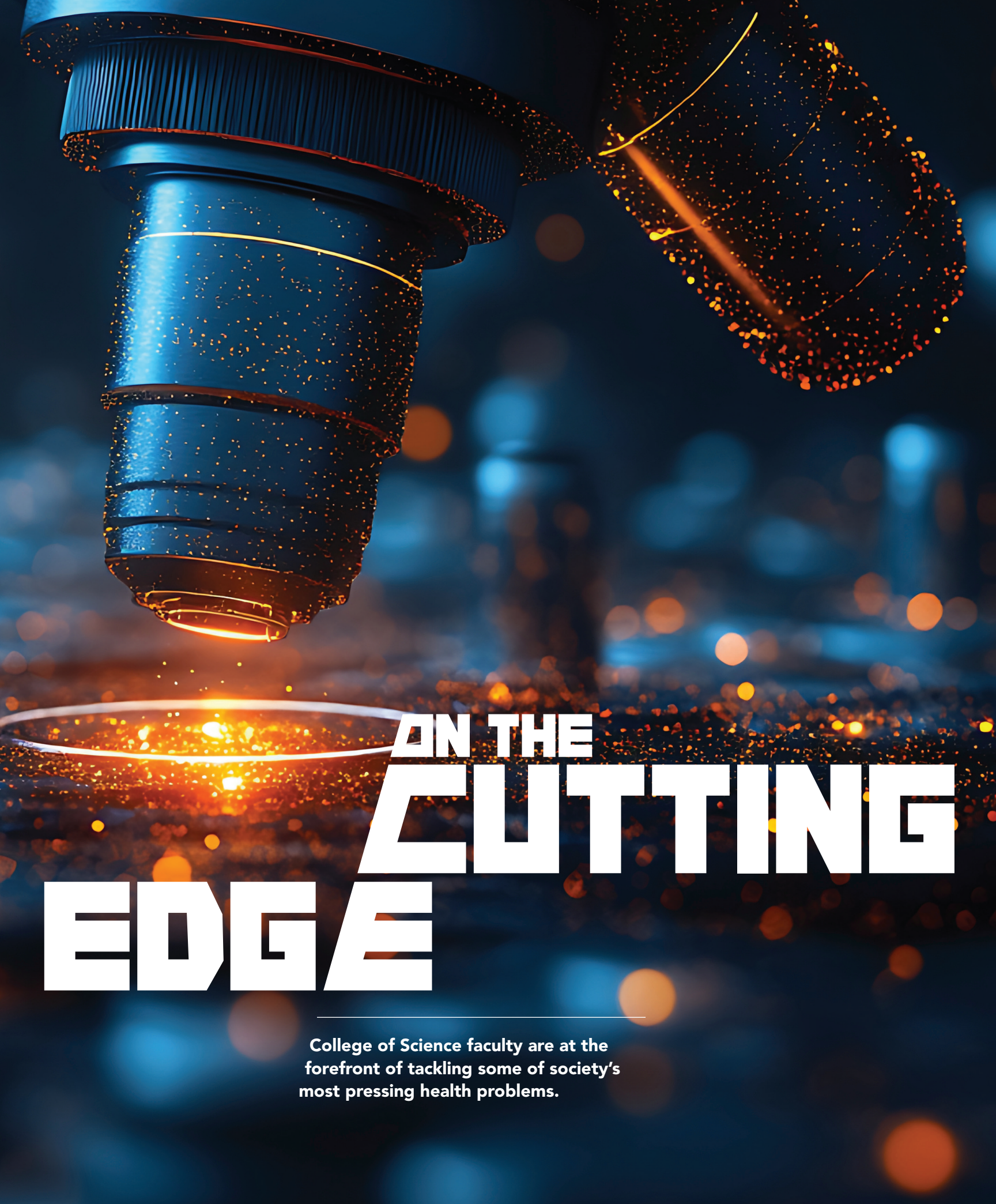
"Today, the program offers over 12 specialized core and elective courses in data science and statistics each semester, allowing students to plan flexible schedules and graduate on time," says Shan Sun-Mitchell, professor of mathematics and DDS director of academic programs.

The MS-ASDS is an 18-month program that includes a capstone research project in which students apply data science to real-world problems. They get a solid foundation in applied statistics through the program, which sets it apart from most other data science master's programs, and they get the chance to collaborate with numerous industry partners from around Dallas–Fort Worth.

In 2024, the BSDS program added a fast-track pathway to the MS-ASDS, allowing top undergraduates to begin graduate coursework early.

The master's program is expanding to include seven concentrations within the college and a geographic information system (GIS) concentration under the College of Architecture, Planning, and Public Affairs. These new tracks will allow students to specialize in various science disciplines while integrating advanced GIS and spatial analytics training. Overall, the program's expansion will strengthen interdisciplinary collaboration and broaden career opportunities for students across scientific fields.

With in-demand degree programs and the addition of more soon, the College of Science is leading the way in providing the comprehensive training students need for jobs in the ever-expanding field of data science.



ON THE CUTTING EDGE

College of Science faculty are at the forefront of tackling some of society's most pressing health problems.

The number of serious health issues facing societies around the world seems never-ending, and the challenge in treating and curing them is daunting. Chronic conditions like diabetes and heart disease kill millions of people each year. Climate change and pollution further complicate the global health landscape by contributing to respiratory illnesses, waterborne diseases, and food insecurity.

In the face of these complex and evolving problems, scientific research stands as the most powerful tool we have to understand, prevent, and treat health issues effectively. Scientific research not only leads to medical breakthroughs, but also influences public health policies and interventions that can improve outcomes at the macro level.

In the College of Science, faculty from every department are involved in vigorous research into topics that affect human health. Through innovative and collaborative projects supported by funding from state, federal, and international agencies, our faculty and their students are making significant contributions to the collective effort to find cures and solutions to some of the most difficult global health challenges. These are just a few of many examples of the groundbreaking work happening in College of Science laboratories that is propelling UTA to the forefront of health science research.

COLLEGE OF SCIENCE BREAKTHROUGHS

Controlling Cholesterol By Blocking Enzymes

SUBHRANGSU MANDAL, professor of chemistry and biochemistry, studies human gene regulation, epigenetics, and disease. In a recent study, he and his lab team identified a new enzyme that can be switched off to help the body maintain healthy cholesterol levels. This is a significant development that could lead to new treatments for diseases that affect millions of Americans.

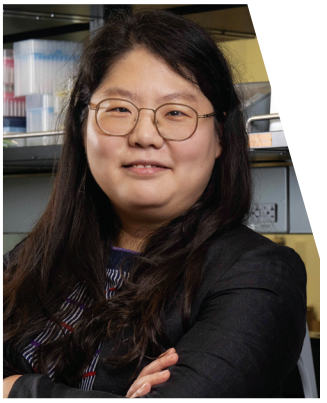
"We found that by blocking the enzyme IDO1, we are able to control the inflammation in immune cells called macrophages," Dr. Mandal says. "Inflammation is linked to so many conditions—everything from heart disease to cancer to diabetes to dementia. By better understanding IDO1 and how to block it, we have the potential to better control inflammation and restore proper cholesterol processing, stopping many of these diseases in their tracks."

Inflammation is crucial in helping the body fight infections and heal injuries. But when it becomes abnormal due to stress, injury, or infection, it can damage cells and increase the risk of serious diseases. During these periods, white blood cells called macrophages can't absorb cholesterol properly, which can lead to chronic disease.

Mandal and his team found that IDO1 becomes activated during inflammation, producing a substance called kynurenine that interferes with how macrophages process cholesterol. But when IDO1 is blocked, macrophages regain their ability to absorb cholesterol. This suggests that reducing IDO1 activity could offer a new way to help prevent heart disease by keeping cholesterol levels in check.

The researchers also found that nitric oxide synthase (NOS), another enzyme linked to inflammation, worsens the effects of IDO1. They believe that inhibiting NOS could provide another potential therapy for managing cholesterol problems driven by inflammation.

Studying Microplastics in Water Supplies



Microplastics making their way into drinking water are a real threat to health and the environment. **UN-JUNG KIM**, an assistant professor of earth and environmental sciences whose research focuses on environmental chemicals and persistent toxic substances, coauthored a recent study that found that while most wastewater treatment facilities greatly reduce microplastic particles, complete removal remains impossible with today's technology.

Manufacturers find plastic ideal for use in nearly every consumer good because it's inexpensive to produce yet lightweight and sturdy. But when a plastic item reaches the end of its useful life, it never truly disappears. Instead, it breaks down into smaller and smaller pieces, called microplastics, that end up in our soil and water.

"As a result, many microplastics are being reintroduced into the environment, likely transporting other residual harmful pollutants in wastewater," Dr. Kim says. "These microplastics and organic pollutants exist in trace levels, but we can get exposure through simple actions like drinking water, doing laundry, or watering plants, leading to potential long-term serious human health impacts such as cardiovascular disease and cancer."

Kim is also leading a yearlong study of how microplastics may impact the health of aging adults, particularly in relation to brain function and bone and muscle health. The project will explore how factors such as smoking, alcohol use, and socioeconomic status may compound the long-term health effects of microplastic exposure.

Clearing Dead Cells During Stress

PIYA GHOSE, an assistant professor of biology and developmental cell biologist, published a study with graduate students Aladin Elkhalil and Alec Whited that revealed a novel strategy for how the body cleans out dead cells during stress and showed unexpected roles for well-known stress-response genes. This could help scientists better understand diseases affecting the immune system, brain, and metabolism.

"The body is constantly creating new cells and removing old cells once they die," Elkhalil says. "This removal of dead cells is just as important as creating new ones because if the body is unable to rid itself of dead cells, it can lead to various health problems."

For the study, the team used *C. elegans*, a tiny, transparent roundworm that is widely utilized in genetic research because its transparent body allows scientists to observe cell behavior, including how cells die. Dr. Ghose and her students took advantage of these unique features in several innovative ways.

They examined stress-response genes—many of which have human counterparts—in a new context: how they help remove dying cells. Using gene-editing technology tools, they manipulated these genes to identify a specific stress-response pathway that activates to help in the removal of dying cells.

Understanding Memory and Aging

HUNTER BALL, an associate professor of psychology whose research focuses on memory, attention, and cognitive aging, is uncovering why memory lapses happen in older adults and how simple strategies can help prevent them. Memory lapses like missing appointments, forgetting tasks, or misplacing important items are among the most common challenges faced by older adults.

Dr. Ball studies prospective memory, or the ability to remember to carry out future intentions, along with working memory, episodic memory, and metamemory. His work shows how age-related changes in these systems shape everyday forgetfulness and how "cognitive offloading"—using reminders, notes, or other external aids—can reduce the mental burden that leads to missed tasks.

"As adults age, changes in memory can make daily life more difficult," Ball says. "But small supports, like setting a phone reminder, can dramatically improve follow-through and help maintain independence."

A recent National Institutes of Health-funded project from Ball's lab demonstrated how external reminders can eliminate age-related declines in prospective memory under demanding conditions, pointing to low-cost, highly practical solutions for real-world cognitive challenges.

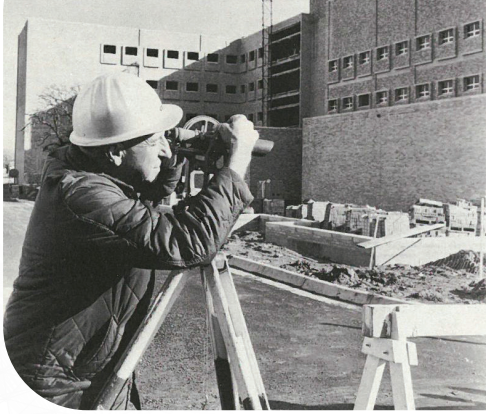
Using Predictive Modeling to Treat Disease

SUVRA PAL, an associate professor of mathematics who studies statistics, is working to develop advanced predictive models designed to improve disease treatment by predicting whether or not a patient can be cured. These models could potentially transform how doctors treat cancer and other serious illnesses.

The project aims to improve the accuracy of predicting whether a patient is likely to be clinically cured—particularly when the disease is detected early—by using cutting-edge statistical methods and artificial intelligence, including machine learning.

Using these techniques, researchers analyze large sets of patient data to identify patterns and trends that aren't obvious to the human eye. By training algorithms to recognize which factors are linked to long-term survival or a cure, the models can offer more personalized and accurate predictions for patients.

"Traditionally, models have focused on survival outcomes, but they haven't been able to predict an actual cure," Dr. Pal says. "Our models aim to do both: estimate the probability that a patient will be cured and, if not, predict their long-term survival."



6 Decades of Pushing Science Forward

From humble beginnings to record-setting research, the College of Science looks back on 60 years of scientific impact.

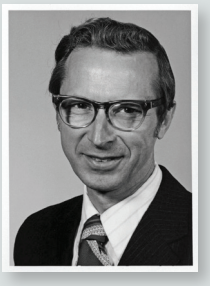
1965

The state legislature transfers Arlington State College (renamed UTA in 1967) from the Texas A&M System to the **University of Texas System**, and an organizational restructuring splits the School of Arts and Sciences into schools of Science, Business Administration, and Liberal Arts. Allen Herndon serves as interim dean of the schools of Science and Liberal Arts for the 1965-66 academic year. The schools are renamed colleges in 1973.

1966

Maxwell Scarlett becomes the first African American graduate of ASC, earning a BS in biology. He would go on to a long and distinguished career as a Fort Worth physician specializing in emergency medicine. He was a tireless supporter of the college and of UTA, and he received the UTA Distinguished Alumni Award in 2005.

The School of Science names **Peter Girardot** its first dean. He was a nationally recognized researcher in inorganic chemistry who was a group leader in the physics division of the Manhattan Project at the University of Chicago in 1944-45. He serves as dean until 1973, then returns full-time to research and teaching until retiring in 2000.



1966-70

The college establishes **master's programs** and begins expanding its research portfolio, with faculty applying for grants and creating laboratories to conduct research. Doctoral programs are added beginning in the early 1970s.

The **Business Administration and Life Sciences Building** opens (business moved into its own new building a few years later). It has classroom and lab spaces for biology and psychology and is home to the dean's office and the Science Learning Center.



With the start of the fall 2025 semester came a significant milestone for the UTA College of Science: 60 years of learning, innovation, and discovery. In six decades, the college has advanced the boundaries of scientific knowledge while producing generations of scientists who have gone on to be leaders and innovators in their fields.

When UTA, then named Arlington State College, left the Texas A&M System and joined the University of Texas System in summer 1965, the University's academic structure was reorganized and the School of Arts and Sciences was divided into schools of Science, Liberal Arts, and Business Administration.

In fall 1965, the brand-new School of Science had 2,143 students, 92 faculty members, and no graduate-level programs. By fall 2025, the College of Science had 4,334 students, 212 faculty members, and a robust array of graduate degree offerings in every department.

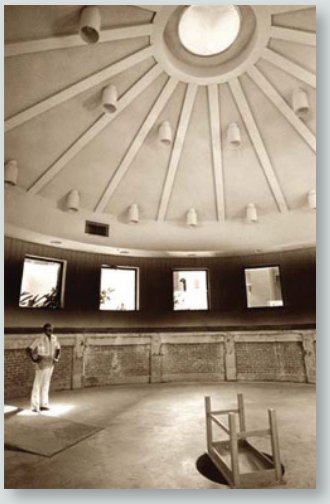
Through the hard work and dedication of its faculty, staff, students, and alumni, the College of Science stands today as a key part of a dynamic Carnegie R-1 research university. The college is known for academic excellence, rigorous research, and record of discovering answers to some of the most challenging issues facing society.

"Sixty years is a tremendous milestone and a chance for us to look back on how we started, reflect on where we are now, and also think about where we want the College of Science to go in the next 60 years," Dean Morteza Khaledi says. "The successes we have had and the strong reputation we enjoy today are due to the hard work and efforts of all those who helped build the college and those who continue to help it grow today."

Prior to 1965, teaching was the college's primary function, with a small number of faculty involved in

1975

The **Department of Psychology** moves from the College of Liberal Arts to the College of Science, making UTA one of the few universities at the time with psychology as a science discipline.



1981

After years of campaigning by physics professors **Ulrich Herrmann** and **Cecil Thompson**, the University converts the Roundhouse into a planetarium, the first on campus. The Roundhouse, built in 1928 next to what was then the Science Building (now Preston Hall), was originally used for livestock viewing and served in various other capacities over the years. It is still used for astronomy classes today.

1987

Congress approves initial funding to build the **Superconducting Super Collider**, a 54-mile-long particle collider near Waxahachie, Texas. Budget overruns eventually lead to Congress killing the project in 1993, but it helps spur the hiring of particle physics faculty, which leads to a growing international reputation for that research program. UTA physicists are among those involved in the discovery of the elusive Higgs boson particle in 2012.

1996

The **Chemistry Research Building** (CRB) opens, providing much-needed chemistry lab and office space and freeing up more room in Science Hall for physics lab space. The CRB is renamed the W.A. Baker Chemistry Research Building in April 2005 for William "Bill" Baker, a professor of chemistry and longtime administrator at UTA.

"We're very excited as we look ahead and try to imagine what the next 60 years will bring."

research. Once the School of Science was formed, it immediately began working to add master's programs and hire new faculty. The number of faculty who were involved in research grew steadily, and through grants from corporations and government agencies, the college's labs and scientific equipment did, too.

In 1966, mathematics and physics became the first college departments to offer master's degrees. Psychology, which was part of the College of Liberal Arts until 1975, also started a master's program in 1966. Biology and chemistry added master's degrees in 1968, and geology (renamed the Department of Earth and Environmental Sciences in 2007) did so in 1970.

UTA wanted to add doctoral programs in the late 1960s but was rebuffed by the state's Coordinating Board for Higher Education Programs because it wanted to limit the availability of similar PhD programs at different schools in the same geographical area. However, through the dedicated efforts of administrators and faculty, UTA successfully argued that there was a need for additional doctoral programs.

In 1971, psychology started a PhD program, followed by mathematics in 1974. Doctor of Science (DSc) degrees were created in chemistry and physics in the early 1980s. These were changed to traditional Doctor of Philosophy degrees in the 1990s, when biology and geology also began offering them.

From those humble beginnings, the college has grown into a research powerhouse, with annual research expenditures totaling a record $31.9 million in 2024. In the past five years, the college has been awarded $141 million to fund research and continue pushing science forward.

Science thrives in the hands of those willing to do

2004

The Department of Biology moves its extensive collection of snake, lizard, and frog specimens to the new **Amphibian and Reptile Diversity Research Center**. William Pyburn started the collection in 1956, and Jonathan Campbell became curator in 1982. It's one of the world's largest collections, with more than 200,000 specimens from 90 countries, including some found nowhere else.

2006

The **Chemistry and Physics Building** opens, with lab space for chemistry and physics faculty, teaching labs, and the state-of-the-art UTA Planetarium, which features a 60-foot-tall dome and the latest in digital projection technology.

2009-10

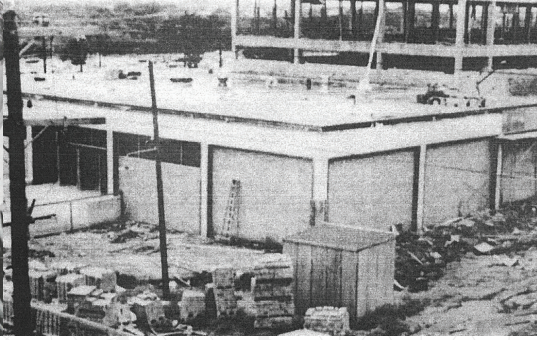
The college hires **Pamela Jansma**, a geoscience professor and expert in microplate tectonics and strain partitioning, as dean. She is the first woman to lead the college, serving as dean until 2014.

UTeach Arlington, which allows students to earn a science and mathematics secondary teacher certification along with a science degree, launches with financial support from ExxonMobil, Texas Instruments, the Texas Education Agency, National Math and Science Initiative, and the UTeach Institute. More than 360 students have graduated from the program to date.

2012

The college opens the **Shimadzu Center for Advanced Analytical Chemistry** with a donation of nearly $3 million in equipment from Shimadzu Scientific Instruments. The company goes on to donate an additional $7.5 million—the largest philanthropic gift in UTA history at the time—to create the Shimadzu Institute for Research Technologies.



the research, and UTA is at the forefront of making sure that undergraduate students get their chance to be a part of scientific advancement. Faculty members across each department have undergraduates in their labs, providing students with hands-on experience that prepares them to be leaders in their fields. In the College of Science, we empower students to believe in themselves. Given the tools to explore and opportunities to grow, they don't just learn—they flourish. That is what it means to be a Maverick Scientist.

While science classes were taught at UTA from its earliest days as Arlington College in 1895, it wasn't until 1928—when the school's name had been changed to North Texas Agricultural College—that a building dedicated to science was constructed on campus. Today, UTA has seven buildings devoted entirely or partially to the College of Science.

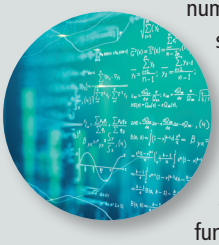
In 60 years, 10 people have held the title of College of Science dean, interim dean, or acting dean. Peter Girardot was the first, serving from 1967-73. He was followed by William Meacham (1973-74), Howard Arnott (1974-90), Peter Rosen (1990-96), Verne Cox (1996-98), Neal Smatresk (1998-2004), Paul Paulus (2004-09), Pamela Jansma (2009-14), James Grover (2014-15), and Dr. Khaledi, who has served since 2015. The steady leadership of this group and their staffs have guided the college to ever-greater heights.

"When I look at the college, I feel a great sense of pride and tremendous gratitude to all those who came before and contributed to the achievements and successes the college has had," Khaledi says. "We're very excited as we look ahead and try to imagine what the next 60 years will bring."

This milestone is not just a celebration of time, but of the people whose passion and persistence made every discovery possible. As we look ahead, this legacy becomes our launchpad—one that propels us toward new discoveries, new partnerships, and the collective vision to push science forward every chance we get. Here's to 60 more years!

2013

The **Department of Mathematics** receives the American Mathematical Society Award for an exemplary program or achievement in a mathematics department. The department is recognized for doubling its number of graduate students over five years, increasing the number of minority and female students, and securing two funded fellowships, the GK-12 program and the Graduate Assistance in Areas of National Need.



2018

The **Science & Engineering Innovation & Research Building** opens, providing a dynamic, state-of-the-art space for collaborative, interdisciplinary research. Twelve research neighborhoods bring together teams from a wide range of disciplines to work in close proximity, allowing for a freer exchange of ideas.

The college begins offering **courses in data science**, which is followed by the creation of a bachelor's degree program in 2021 and a master's in applied science and data science in 2023.

2023

A major expansion and **renovation project of the Life Sciences Building** begins. Scheduled to be completed in fall 2027, the building will feature 87,000 square feet of new space for a total of 142,000 square feet, with state-of-the-art classrooms, research and teaching labs, and ample spaces for student engagement.

2024

The college launches the **Division of Data Science** as an umbrella to organize, provide infrastructure support, and facilitate growth in instructional and research programs involving data science. The main mission of DDS is to promote, foster, and advance education and research programs in different disciplines in the college through data-driven approaches.

GIVING STUDENT RESEARCH

UTA's undergraduate research programs allow students like Michelle Hayunga, Luis Taylor, and Oreoluwa Adeleke to fulfill their childhood dreams and make an impact on the world.

Conducting research offers undergraduate students a unique opportunity to go beyond traditional classroom learning and actively engage with the process of discovery. It allows them to apply theoretical concepts to real-world problems, deepening their understanding of their field and helping them develop critical-thinking, analytical, and problem-solving skills. It cultivates intellectual curiosity and encourages a more proactive, self-directed approach to learning.

As a Carnegie R-1 research institution, The University of Texas at Arlington is a strong proponent of providing research opportunities for undergraduate students. Expanding and incorporating undergraduate research experiences across disciplines to prepare students for graduate programs is a key piece of the University's strategic plan, *UTA 2030*.

UTA offers several programs aimed at facilitating undergraduate research. These include the McNair Scholars program, which prepares underrepresented and first-generation university juniors and seniors for doctoral education; the Undergraduate Research Assistant Program (UGRAP) and Undergraduate Research Opportunity Program (UROP), which engage students with innovative faculty and professional development; and the inSTEM program, which is designed to inspire the next generation of great scientists by creating connections and developing skills that help students overcome barriers to success.

Many College of Science undergraduate students are taking advantage of the chance to become involved in research by participating in these programs and by working in the labs of faculty. Here are three of their stories.

A BOOST

MICHELLE HAYUNGA

Growing up, Michelle Hayunga aspired to be a chemist because that's what her older brother wanted to be. When she was finally able to take the subject in school, she fell in love with it, confirming her desire to make chemistry her career.

Hayunga, a senior chemistry major from San Diego, California, said she knew from the time she started college that she wanted to pursue a PhD and be involved in research. She has Crohn's disease, a chronic inflammatory bowel condition, and the experience of living with it has influenced her to work to find better treatments or cures for its debilitating effects.

"Since so much about Crohn's is still unknown, it sparked my interest in wanting to understand diseases better and contribute to research that could make a difference," she says. "Getting involved in research at UTA felt like the right step toward that goal."

After taking a quantitative chemistry class taught by Saiful Chowdhury, Hayunga talked with him about her interest in Crohn's disease, and Dr. Chowdhury invited her to join his lab.

"Working in Dr. Chowdhury's lab has let me take what I learn in class and actually apply it, while also picking up skills with proteomics and mass spectrometry," she says. "It's given me confidence toward going into graduate school since I already know what it's like to do hands-on research and think through problems independently."

Hayunga learned about the McNair Scholars program from Kearra Greer, special programs coordinator for the UTA Office of Undergraduate Research, and became one of the 23 members of its summer 2025 cohort.

Through the program, she attended several conferences and a graduate school boot camp and completed a summer research project.

"The McNair program has been one of the best things to happen to me," she says. "They've been my second family. The support from the program and the people in my cohort means so much to me."

In Chowdhury's lab, Hayunga is working with a colon epithelial cell line (cultured cells derived from epithelial tissues) to study how it responds under inflammatory conditions.

"A key part of my project focuses on the surfaceome, since changes at the cell surface are critical for signaling and communication," she says. "I also use cross-linking approaches to study interactions, which allows us to capture a clearer picture of how these responses develop at the cellular level."

Hayunga is applying to doctoral programs in

biochemistry research. She encourages any UTA undergraduate students curious about research to apply for the McNair Scholars program.

"McNair is a great opportunity if you're interested in research and thinking about graduate school," she says. "It provides mentorship, research experience, and guidance on how to navigate the grad school application process. The program does a really good job of helping you figure out your path, and you also meet a community of like-minded students. You make a lot of new friends along the way. Honestly, I encourage everyone I know who's interested in research to apply."

LUIS TAYLOR

Luis Taylor, a senior physics major from Coppell, knew he wanted to get involved in research as soon as he arrived at UTA, and he took a proactive approach. As a result, he's been working in the lab of Ben Jones, associate professor of physics, since his freshman year.

"I started out by emailing many professors in the department during my first semester of my freshman year until Dr. Jones responded to me with an opportunity to come work with him," Taylor says. "I believed that research was the surest way to gain experience in the field while simultaneously cultivating my passion toward physics."

The first project he worked on in Jones' lab involved optimizing an evaporative magnetic cooling beam simulation for the Project 8 Experiment (Project 8's goal is to measure the mass of the neutrino, the extremely abundant elementary particle that has almost no mass). He also worked on building an external cavity diode laser and improving it for laser thermometry of an atomic lithium beamline. He is now working on tests for a correlation function, which measures the relationship between photons in a light source over a time delay.

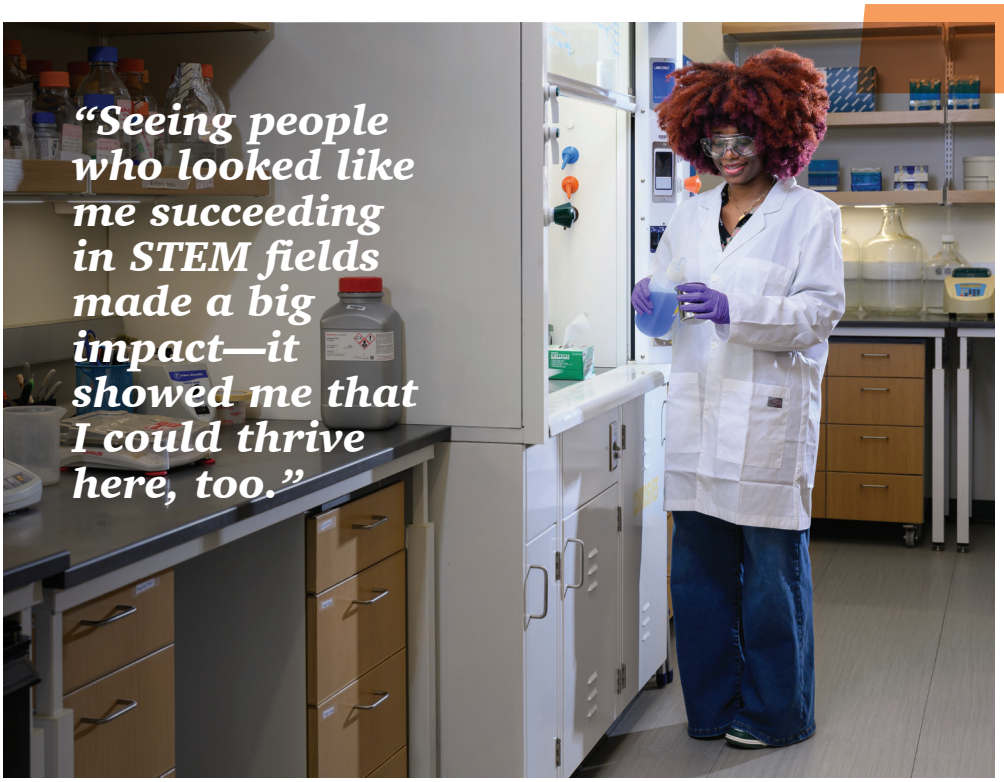
A fellow lab member told Taylor about the McNair Scholars program, and he was selected for the summer 2025 cohort. He said it has enhanced and expanded his research portfolio and will help him in his transition to graduate school. He will graduate in May 2026 and is currently applying to doctoral programs.

"The McNair Scholars program has been extremely helpful when it comes to preparing me for graduate school by hosting weekly graduate school workshops and retreats," Taylor says. "It gave me an opportunity to conduct research in the summer, along with many opportunities to present my research at different conferences."

He highly recommends the McNair Scholars program to students looking for a way to get involved in research.

"I would say the McNair Scholars program is the surest way to guarantee a research position at UTA because you are obligated to do a summer of research for the program, which they will help you with along the way," he says.

OREOLUWA ADELEKE



Oreoluwa Adeleke chose UTA because of the strong reputation of its science programs and the unique opportunities it offers undergraduates, including involvement in research.

Adeleke, a senior biochemistry major with minors in psychology, biology, and data science, was born in Dublin, Ireland, and lived in Nigeria and Amsterdam before her family moved to Mansfield. The diverse and supportive campus community was another factor in her selecting UTA.

"Seeing people who looked like me succeeding in STEM fields made a big impact—it showed me that I could thrive here, too," she says. "I knew that UTA would allow me to grow academically while also connecting with programs like UROP and inSTEM, which encourage students to stay in STEM by offering opportunities for academic, professional, and personal growth."

Adeleke knew from an early age that she wanted to become a doctor, and she loved studying biology, chemistry, and neuroscience. She chose to major in biochemistry because it ties all her interests together perfectly, challenges her, and pushes her to think beyond her comfort zone.

She learned about the Office of Undergraduate Research (OUR) and its programs through professors, recommendations from upperclassmen, and the College of Science's annual Ready, Set, Research event. In fall 2023, she joined UROP, which she said gave her both the foundation and the confidence to take the all-important first step into the field.

"Being part of UROP has truly been a transformative experience," Adeleke says. "At first, I felt overwhelmed and unsure of where to begin. Thankfully, I received guidance and support right away. The UROP staff have been incredible in making sure I get the most out of the program."

Adeleke received help from OUR connecting with a research mentor, and after a short tryout period, she joined the lab of Kayunta Johnson-Winters, associate professor of chemistry and OUR director.

"In Dr. Johnson-Winters' lab, we study enzymes that depend on a unique cofactor called F42—enzymes that play key roles in everything from tuberculosis pathways and folate biosynthesis to antibiotic production and energy metabolism," she says. "I get to dive into the hands-on side of this research—purifying proteins, measuring enzyme reactions, and even using crystallography to see these enzymes in three dimensions."

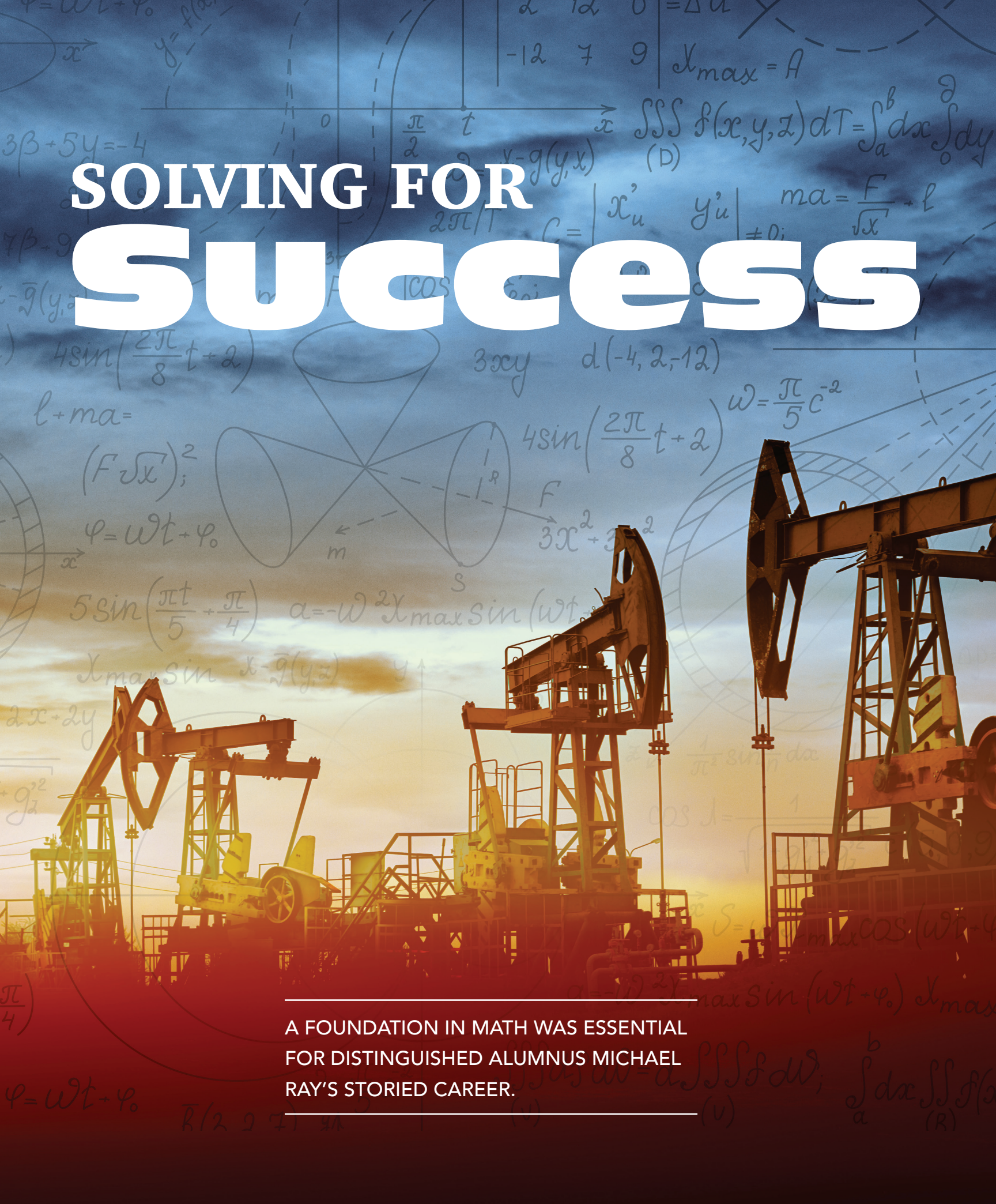
Adeleke, who will graduate in May 2026, plans to attend medical school and is interested in MD/PhD programs where she can combine clinical practice with research, particularly in the field of neuroscience. She said she would encourage any student who wants to become involved in research but isn't sure where to start to apply to UROP, inSTEM, or one of the other programs UTA offers.

"You don't need prior experience, just curiosity and a willingness to learn," she says. "These programs provide structure, mentorship, and resources that make research exciting, approachable, and rewarding."

Adeleke says research has helped her in ways that reach far beyond the lab environment.

"Research has taught me to think critically, manage complex projects, and communicate my findings clearly—skills that are valuable in any career path," she says. "Most importantly, it has allowed me to discover my passion for science and explore areas of STEM I hadn't considered before. Beyond the technical skills, it has helped me build meaningful relationships with faculty mentors and peers, which has been just as impactful as the research itself."

SOLVING FOR Success



A FOUNDATION IN MATH WAS ESSENTIAL FOR DISTINGUISHED ALUMNUS MICHAEL RAY'S STORIED CAREER.

While some students might be intimidated by math or have a hard time seeing the potential benefits of a math degree, Michael Ray says a math background can serve them extremely well—as it did him. Dr. Ray earned three degrees in mathematics from The University of Texas at Arlington, and that education helped him forge a long and distinguished career in the oil and gas industry.

"Mathematicians can perform in a broad range of environments, and math is the most broadly employable of the STEM areas," he says. "Whatever the future holds when you graduate, there will be jobs that need your skills in problem-solving and abstract thinking."

Ray earned bachelor's, master's, and doctoral degrees from UTA. An internship at Mobil led to a full-time job and a 36-year career with the company, which merged with Exxon in 1999. He started in research and development and received numerous promotions, completing his career as a distinguished science advisor in 2017. His mathematical knowledge definitely came in handy, he says.

"Math can be intimidating, and you will no doubt be challenged along the way, but everything worth doing has hard parts, or seems so at the time," he says. "A math degree teaches you to see connections others don't. You are able to extract essential characteristics because you are able to abstract the problems."

Ray was born in Fort Worth and grew up in nearby Benbrook. He graduated from Western Hills High School, taking summer school after his junior year so he could finish a year early. His older brother was attending UTA and studying physics, a subject Ray also enjoyed.

"I really wanted to learn how to program computers—this was still the era where you used slide rules," he says. "High schools had no computers."

Triple UTA alum Michael Ray.

Michael Ray and Professor Rangachary Kannan in the late 1970s.

"A math degree teaches you to see connections others don't. You are able to extract essential characteristics because you are able to abstract the problems."

He enrolled at UTA as a physics major in fall 1973, less than a month after his 17th birthday. In the early 1970s, job options for physics majors were limited. Realizing this, Ray switched majors to mathematics after his second year.

"Mathematics was something I always enjoyed. Being able to formulate problems and solve them was challenging but very rewarding," he says.

His classes kept him busy, but he found time to join the Fencing Club, where he practiced the saber. Fencing was something that interested him in high school, but Western Hills didn't have a team.

"At UTA we competed against other schools, and it was fun," he says. "I loved fencing saber but boy, was I lousy."

During his last two years as an undergraduate, Ray worked as an intern at Electronic Data Systems, where he learned assembler language programming for IBM 360/370 computers.

"Math and computing were so appealing," he says. "I decided I wanted to work in numerical solutions—back to that formulating and solving problems I loved so much, but now on a grander scale."

He received a BS in mathematics in 1976, and after being advised to think about graduate school by math Professor Rangachary Kannan, he enrolled in UTA's master's program. Dr. Kannan became his faculty advisor.

"He was a wonderful teacher and mentor. That's not to say he was easy," Ray says of Kannan, who later served as department chair from 1996 until he died of Hodgkin's lymphoma in 2000.

In his graduate school days, when he wasn't studying or doing research, Ray enjoyed playing racquetball and intramural broomball. He also liked meeting friends for a beer or a glass of wine at Dry Gulch, an on-campus bar located in the basement of the University Center that closed in 1992. He spent

many evenings in the campus computer lab, in the days when computer technology was rudimentary.

"There was a group of us that worked late at night," he says. "This was the era of punch cards. No online editors. It wasn't unusual for us all to be there well past midnight on a Friday night."

Ray earned an MA in mathematics in 1978 and began working on his PhD under Kannan. His dissertation focused on a class of solvers for a particular type of partial differential equation. In 1979, during the early days of the Space Shuttle program, he got an internship with NASA where he migrated code from flight simulators to desktop computers for use during the astronauts' flight training.

In 1980, math Professor Mike Lord suggested to Ray that he apply for an internship at Mobil. If Dr. Lord hadn't done that, Ray says, he would've never considered going to work in the oil and gas industry.

Instead, Ray got the internship, which became a full-time job when he completed his PhD in 1981. At Mobil and later ExxonMobil, his job titles included director of the Physics and Mathematical Sciences Division, science laboratory director, division manager, manager of strategic research and of basin analysis, and senior research mathematician. In 2009, he was named a fellow of the Society for Industrial and Applied Mathematics for his significant contributions to geophysical computation.

Michael Ray and his wife, Wanda.

Ray and his wife, Wanda, met in 1983 and married two years later. They have long been strong advocates for education. In 2008, they established the Michael B. and Wanda G. Ray Scholarship for Graduate Studies at UTA.

"We wanted to help another generation pursue their dreams," he says. "Unless you have rich parents, you can feel like giving up because there are too many things stacked against you. You know the cost, but the benefits are a bit harder to see. Our country needs more scientific literacy and more people with advanced degrees in the STEM areas."

Ray served on the College of Science Advisory Council from 2017-24, including the last five years as chair. In 2019, his contributions to the University and to society were recognized with the UTA Distinguished Alumni Award.

"I was thrilled to be named as a recipient, but at the same time it was quite humbling to have been chosen," Ray says. "It was truly an honor I did not expect."

After retiring from ExxonMobil in 2017, Ray continued to advise on special projects. He is now fully retired, but since last year has been a member of the UT System Chancellor's Council Executive Committee, which serves as a strategic advisory group for the chancellor.

He encourages students to never stop learning and says UTA is the perfect starting point to help them realize their dreams—whether utilizing mathematics as he did or pursuing another STEM field.

"A lot of the innovations today occur at the intersection of disciplines," he says. "A degree in the sciences, and in particular mathematics, provides the type of education you need for a firm foundation to make those unexpected connections. UTA is a great school to get that foundation, with lots of opportunities to connect across a very diverse group of faculty and students and see things from multiple perspectives.

"Going into a STEM area means a lifetime of learning—true of all areas, but certainly more extensive in STEM," he adds. "What you learn is important, but even more important is learning how to learn."

*The UTA Planetarium celebrates **20 YEARS** of inspiring awe in attendees both young and old.*

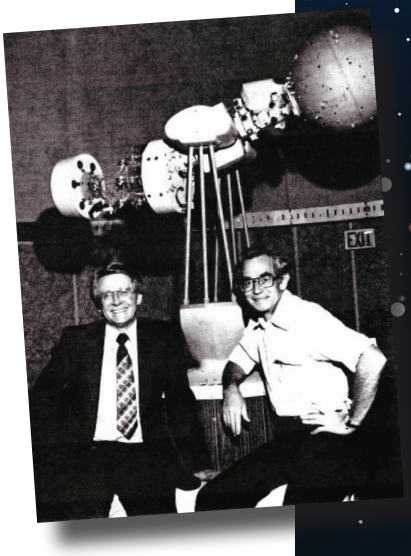
This year, the UTA Planetarium celebrates its 20th anniversary and marks two decades of bringing awe-inspiring views of the solar system, stars, and distant galaxies to audiences of all ages.

The UTA Planetarium is indisputably world-class. Levent Gurdemir, director since 2008, said that from the start, it has been a wonderful venue that helps connect UTA with the wider community.

"We are very fortunate to have a facility as beautiful as the Planetarium here at UTA," Gurdemir says. "The Planetarium is an excellent community outreach tool and has brought hundreds of thousands of visitors to campus. It's great to have a facility of this caliber to entertain and educate people about the wonders of space and the universe."

THE FIRST PLANETARIUM AT UTA

The UTA Planetarium was not the University's first. In 1975, physics professors Ulrich Herrmann and Cecil Thompson began a campaign to turn the Roundhouse—a 1928 building adjoining Preston Hall that was originally used for livestock viewing and has had multiple other uses over the years—into a planetarium. Six years passed before the funding could be obtained, but in 1981, the Roundhouse Planetarium opened for shows and astronomy classes.



UTA PLANETARIUM OPENED TO RAVE REVIEWS

A sparkling new planetarium debuted in 2006 with the opening of the Chemistry and Physics Building. The UTA Planetarium featured a 60-foot dome projection surface, a fully digital projection system, advanced digital software, and seating for 150 people. It was quickly hailed as one of the finest planetariums in the state of Texas and the surrounding region. A variety of programming and regular facility upgrades have only enhanced its reputation.

INSPIRING K-12 STUDENTS' INTEREST IN SCIENCE

The Planetarium began hosting field trips of students from area schools as soon as it opened, and their wide-eyed reactions to the venue sowed the seeds of STEM in many young minds. The Planetarium hosts around 30,000 K-12 students from around the DFW Metroplex annually. Since 2021, yearly grants from H-E-B Tournament of Champions Charitable Trust have helped pay for the cost of field trips for area schools with significant numbers of economically disadvantaged students.

THE LATEST IN DIGITAL TECHNOLOGY

When the Planetarium opened in 2006, it featured a Digistar 3 video projection system, the latest state-of-the-art technology available at the time. Since then, the Planetarium has had four technology upgrades and now features Digistar 7, which uses six high-resolution laser projectors to create an immersive 360-degree full-dome experience and has access to an array of astronomy and science databases. The most recent upgrade was made possible by a $50,000 gift from Women Inspiring Philanthropy, an Arlington organization dedicated to high-impact giving.

STARS AND PLANETS, PARTIES AND MUSIC

In addition to entertaining and educational programming for schoolchildren and the public, the Planetarium also offers special events, including private parties and holiday-themed programming. The latest addition to the Planetarium's lineup is a live concert series where visitors can enjoy performances from area musicians while surrounded by stars, planets, the universe, and other graphics in the Planetarium theater.

OBSERVING THE SKY IN REAL TIME

To further augment its educational and outreach abilities, in 2022 the Planetarium opened the UTA Observatory, located atop the Park Central Garage. The facility features a fully automated 16-inch LX200GPS Meade Schmidt-Cassegrain telescope with optical filters, which gives spectacular views of the moon and planets. The Observatory is open to the public for special viewing events, such as the annual International Observe the Moon Night.

GAME TIME

Science Search

O R D U B B B I O L O G Y R G M F F
C E E A J Y M E T R O P L E X N S T
Q S L X T D I S C O V E R F P D C C
G E A X R A U C H E M I S T R Y I C
R A B D L I F E S C I E N C E E E A
A R S R C O M M U N I T Y F A A N L
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T P M J T R G I L E A R N F T F T I
A I F L P H Y S I C S R D W Y U S N
Q B Y F M A T H E M A T I C S L W V

Word List

Alumni
Biology
Chemistry
Community
Data
Discover
Earth
Experience
Grants
Hands On
Innovate
Labs
Learn
Life Science
Mathematics
Metroplex
Physics
Research
Scientists
Sixty

Banking on Research

College of Science professors are earning major grants and awards for their work.

UTA PHYSICISTS were among the researchers worldwide recognized with the 2025 Breakthrough Prize in Fundamental Physics, one of science's most prestigious honors, for their contributions to the ATLAS Experiment. The **$1 million** award honors the team's groundbreaking work at the Large Hadron Collider at CERN, which led to the discovery of the Higgs boson, often called the "God particle" for its key role in explaining the existence of mass in the universe.

SAIFUL CHOWDHURY, associate professor of chemistry and biochemistry, received a **$1.8 million** grant from the National Institute of General Medical Sciences to study how the body's natural defense system can sometimes go wrong, and how that knowledge could lead to better treatments for disease.

PING LIU, professor of physics, was awarded a **$1.3 million** grant from the Department of Energy's Critical Materials Collaborative to develop a more efficient process for sourcing rare earth elements needed to produce high-performance magnets.

ALICIA ROGERS, assistant professor of biology, received a **$1.8 million** grant from the National Institute of General Medical Sciences to study the molecular processes that affect gene regulation to better understand how small RNA pathways impact human health, with the long-term goal of developing synthetic gene therapies to treat or prevent diseases such as cancer.

Physics Professors **YUE DENG**, **RAMON LOPEZ**, and **ALEX WEISS** received a **$1.5 million** grant from the National Science Foundation for a program to train the next generation of scientists in space weather. The grant will also help UTA create a space physics specialization for students pursuing a BS in physics.

SHERRY WANG, professor of statistics and data science, received a **$1.28 million** National Institutes of Health grant to develop AI models that can analyze massive complex biological datasets.

LOGAN WATTS, assistant professor of psychology, received a **$500,000** National Science Foundation grant to cultivate first-generation students' STEM creativity through mentorship and problem-solving training.

IN MEMORIAM

Verne Cox, 87, professor emeritus in psychology and interim College of Science dean (1996-98). Dr. Cox did influential research in brain systems involved in pain and food intake, as well as in prison overcrowding. He passed away Sept. 21, 2025.

Larry Heath, 87, professor emeritus in mathematics and associate department chair (1987-2000). Dr. Heath was instrumental in many curricular and instructional improvements in the Department of Mathematics. He passed away Aug. 26, 2025.

Roger Mellgren, 80, professor emeritus in psychology and department chair (1988-99). He did extensive research in animal learning and behavior, evolutionary psychology, foraging theory, and feeding behavior. Dr. Mellgren passed away March 13, 2025.

Michael Roner, 65, associate professor of biology. He was a beloved teacher and respected researcher in virology and immunology. Dr. Roner passed away Feb. 21, 2024.

Edwin Thomas Strom, 88, adjunct professor in chemistry. His research interests included polymer chemistry and physical organic chemistry. Over decades, he served in many roles in the American Chemical Society. Dr. Strom passed away Oct. 26, 2024.

THE UNIVERSITY OF TEXAS AT ARLINGTON

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PARDON OUR Progress

If you've been on campus in the past two years, you've likely seen the giant crane and the construction work going on outside of the Life Sciences Building. If you've been inside, you've certainly heard the sounds of drills and jackhammers. The building, which opened in 1970, is undergoing a major expansion and renovation project; when completed in 2027, it will add 87,800 square feet to its existing 142,000 square feet. The new Life Sciences Building will feature state-of-the-art research and teaching labs and classrooms, as well as plenty of student engagement spaces throughout the facility, making it one of the crown jewels of campus.