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.

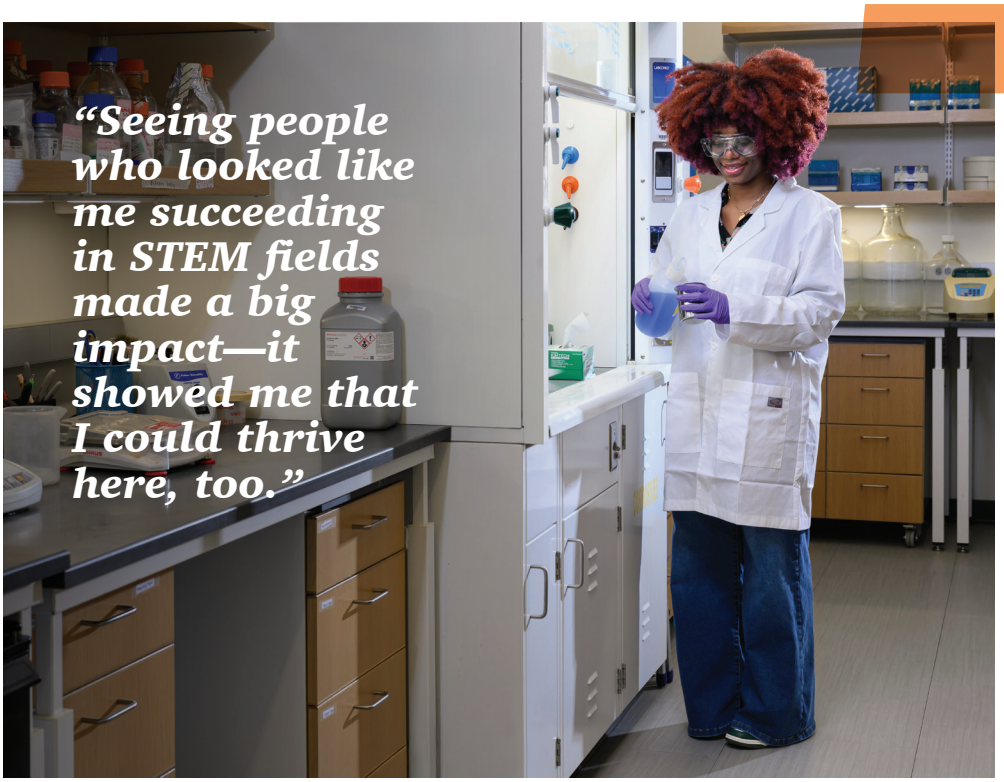
A fellow lab member told Taylor about the McNair Scholars program, and he was selected for the summer 2025 cohort. He said it has enhanced and expanded his research portfolio and will help him in his transition to graduate school. He will graduate in May 2026 and is currently applying to doctoral programs.

"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."