

# Strategic Plan



The University of Texas at Austin  
College of Natural Sciences

## Fall 2023 Update and Key Priorities

The University of Texas at Austin's College of Natural Sciences aims to become the world's highest-impact public research university for science, mathematics and computing. To review the strategic plan commitments towards reaching this goal, please visit [cns.utexas.edu/about-the-college/strategic-plan](https://cns.utexas.edu/about-the-college/strategic-plan)

## What We've Done this Year

### ✓ Staff training & development

The college's new senior training coordinator has built programs to better prepare staff for future growth opportunities, as well as be more effective in their current roles. More than 30 professional development courses and workshops served more than 70 CNS employees in topics such as communication skills, productivity, leadership, teamwork and self-development, while another 60 new staff benefited from a monthly orientation offering. An inaugural cohort of 12 managers from all organizational levels across the college participated in the semester-long CNS LEAD program aimed at developing supervisors' understanding and practice of fundamental management principles in the context of current challenges.

### ✓ Faculty leadership development

Now in its second cohort, Emerging Leaders, comprised of faculty mid-career professors from every department in the college, formed and met throughout the year with college and campus leaders and one another to discuss issues ranging from the University to free speech to implications of AI. Newly promoted faculty had their milestone celebrated at the Associate to Partner retreat, where they engaged with university and state leaders, as well as guest faculty, to explore ideas around service, research collaborations, teaching, administration and entrepreneurship over a weekend in the fall.

### ✓ Co-enrollment with Austin Community College

Two programs exist now at a small scale and will continue, including the planned biotechnology training program and the STEM teacher preparation offering. Additionally, new partnerships with the ACC Army/Marines Software Factory are considering new ways to bring high-demand workforce training to active-duty soldiers via our online master's programs in computing, data science, and artificial intelligence.

### ✓ Donor support for students

Students of limited financial means have benefited from record fundraising over the last year. Hundreds of undergraduates additionally benefited from philanthropic support that allowed them to engage in research, internships or study experiences abroad, including through the summer.

### ✓ New Equations author series

Hosting interesting and engaging authors continues to be a focus, as we develop as a listening and learning community. This year as part of our Texas Science Festival, we hosted the 2022 MacArthur Fellow, botanist and author Robin Wall Kimmerer whose wisdom rests with both scientific and indigenous knowledge.

### ✓ Faculty fellowship programs

A number of fellowship programs are underway. Eight faculty fellows from different departments and tracks received training through Consultations to Improve Teaching Excellence and conducted 50 consultations with CNS colleagues outside of their departments. Early Career Faculty Fellows and recruitment efforts have led to the selection and mentorship of promising newly minted Ph.D.s for potential positions within four departments. Finally, to help diversify the perspectives and voices in the dean's office while providing opportunities for faculty to gain new experiences with leadership and receive compensation for contributions that help to advance key college priorities, a new college faculty fellows program has launched. These fellows are working on problems that need extra attention, specifically initiatives related to education technology and micro credentials for undergraduates (badging), to help the college assess needs for specific teaching tools with the technology in CNS classrooms and develop the governance for the college to create micro credentials, including related to biotechnology.

### ✓ Texas Field Station Network

The college announced the largest-ever gift from Winn Family Foundation to support this initiative and hired a field station network manager within the network's administrative base, the Biodiversity Center. Since 2021, when the Wildflower Center joined the network alongside Stengl Lost Pines and Brackenridge Field Lab, the UT Marine Science Institute, White Family Outdoor Learning Center, McDonald Observatory and a planned Hill Country Field Station have been added. This has given Texas one of the most ambitious and largest networks of field stations in the central United States to pinpoint critical insights into environmental changes over time and weigh resource considerations in Texas.

### ✓ Texas Science Festival & science communication

The 2023 event took place Feb. 21 – March 4 as a free, public event featuring talks from notable authors and dozens of UT faculty, science outreach staff and friends of the college. The event attracted thousands to campus for live events and involved more than 18,000 people in free online programming. The college also collaborated with professional science-communication trainers to offer three in-depth, day-long workshops to 57 faculty, graduate students and postdoctoral scientists.

### ✓ New efforts in public engagement

Having established a role for a new college assistant director for community engagement, new monthly gatherings of outreach staff are underway to ensure resource-sharing and awareness among units working with the public. The University's Wildflower Center deepened its research connections with the main campus; the McDonald Observatory began outreach to K-12 schools in preparation for two upcoming eclipses passing over Texas in the next year; and substantial investments were made in Texas Memorial Museum, which has now been renamed Texas Science and Natural History Museum.

### ✓ Mentorship efforts

Multiple efforts are underway to improve mentoring. Graduate students and postdoctoral scientists have helped to inform a new set of toolkits and supports, as well as an award program for faculty, related to mentoring in the college. With support from the dean's office, a group of faculty have teamed up with the Center for the Improvement of Mentored Experiences in Research (CIMER) to bring quality mentoring training experiences back to multiple departments within the college and knowledge of best practices in mentoring college-wide. Others will benefit from a partnership with STEM Muse, a STEM mentorship network whose best practice toolkit was originally developed by neuroscience students at UT Austin.

### ✓ Mental health & wellness resources

A new CNS Student Wellness Center has opened in PAI 3.04 where students can access services from non-academic coordinators, counselors in academic residence (CARE) and other wellness and support services. The college also piloted CNS Student Mental Health Ambassadors, a program that promotes healthy habits, reduces stigma and creates a culture of care in CNS.

### ✓ Comprehensive climate assessments

Systematic, standardized and centrally administered exit interviews for staff and faculty, along with a coordinated climate survey of all students, faculty and staff, each have provided information to help support continuous improvement efforts in the college over the last year. The data are helping to inform decisions on a range of topics, such as areas for professional development attention, awareness of broader trends that drive faculty or staff separations, what leads students to opt to leave the college and more.

### ✓ Academic technology studied

With help from a new faculty fellow, academic technology trainings and resources were offered to faculty. The college collaborated with the Office of Academic Technology, UT ITS and Academic Technology Council to conduct a comprehensive, nine-month evaluation of learning technologies. This learning technology adoption process strategically reviewed options and led to the selection of Ed Discussion, for which resources and training were shared with faculty.

### ✓ Strategic Research Initiatives

The college's new director of Strategic Research Initiatives (SRI) oversaw the first two cohorts of pilot grants and the first interdisciplinary projects linked to Texas Biologics. Spark Grants, another program overseen by SRI, attracted dozens of proposals, of which 11 were funded, and Catalyst Grants have resulted in interdisciplinary projects being funded. SRI also continued to provide oversight of the Stengl-Wyer Endowment distribution, supporting biodiversity research at field stations, with postdoctoral scholars, by faculty and with graduate and undergraduate researchers. The office acted as a key college liaison for the new UT Austin-Amazon Science Hub, and it supported faculty across disciplines in developing proposals, such as in physics and astronomy where the new Weinberg Institute is the focal point for theoretical physics at UT with an emphasis on cosmology and gravitational physics. To support broader impacts portions of research grant applications, SRI has been working with university partners to develop tools, workshops and coordinated cross-University planning.

### ✓ Culture change & teaching

The college restructured what was previously its Texas Institute for Discovery Education in Science (TIDES), creating in its place a dedicated Office of STEM Education Excellence (STEMx). The office acts as a hub for efforts to improve teaching and learning and works to advance a vision wherein all college instructors value undergraduate teaching as a joyful, scholarly part of their work and feel empowered to continually improve within a context of a transformative teaching and learning environment, equipping students with the STEM knowledge, skills and attitudes that will allow them to change the world. The new Pathways grants program, administered by STEMx, provides college funding for pilot initiatives and efforts related to teaching.

### ✓ New faculty teaching supports

All new faculty were invited to participate in the Mentoring for Success in Teaching program in its first year, and 15 of them engaged with the opportunity to connect with half a dozen more seasoned college faculty members with a history of teaching excellence. New faculty interacted with mentors in monthly full-cohort meetings, discussing teaching topics such as syllabus writing, defining learning outcomes, and effective student engagement strategies, and also in smaller groups, where there were opportunities for community building and conversation a few times over the semester. Professional track faculty could participate in both this program and in the New Faculty Network, and a new online resource hub for new faculty launched.

### ✓ Experiential research & invention

More than 1,600 student participants and peer mentors engage with the FRI and Inventors Program across nearly three dozen research streams and active projects. Our first FRI stream focused specifically on biotech career opportunities, Biomanufacturing, has connections to Austin Community College, local biotech companies and the Department of Defense's BioMADE initiative.

### ✓ Machine learning + computational health & medicine

The Machine Learning Laboratory (MLL) and its NSF-funded counterpart, the Institute for the Foundations of Machine Learning, continued to advance the fundamentals of machine learning and to support machine-learning applications in a variety of fields across campus. More than 200 students and more than three dozen faculty members representing 10 departments attended an MLL-sponsored matching event to work together on research projects. MLL started new initiatives focused on medical imaging and also embarked on a "deep proteins" research project with groups across UT Austin and from Houston Methodist, aiming to identify and optimize therapeutic proteins to treat diseases.

## Where Our Sights Are Set Next

➔ **Expanding faculty onboarding:** A new process for onboarding faculty in the college is in development. In addition to a revamped orientation, the college faculty affairs office is supporting a multi-session onboarding program throughout the first year, with offerings for professional-track and for tenure-track faculty to have what they need for a strong start in research, teaching and service.

➔ **Outreach & public events:** Following a major overhaul, Texas Science and Natural History Museum reopens in September. In the fall Ruha Benjamin, whose work and books focus on race, technology, and data science, will be a featured speaker for an event to which college community members and alumni and friends will be invited. In 2024, the college is planning a series of outreach events culminating in a celebration of the rare total eclipse passing over many parts of Texas, including Austin.

➔ **Experiential learning reorganization:** The Office of Undergraduate Education has organized an Office of Experiential Learning with a director whose work pertains to overseeing the college's student community and engagement efforts in several domains, including Freshman Research Initiative, Inventors Program and various experiential learning offerings, including in work settings, study abroad, faculty labs, etc.

➔ **Data-informed educational decisions:** In partnership with enrollment analytics, the college is working to assess outcomes of its student success programs beyond retention and graduation rates; to better understand the impact of existing math, calculus and chemistry readiness initiatives; and to identify any gaps in supports or services for students entering the health professions.

- **Preparing students for college-level STEM Success:** K–12 teachers, schools and students are being encouraged to engage with the University via the STEM Starts website. Meanwhile, the college is playing a leadership role in an ambitious new initiative with the Texas Higher Education Coordinating Board to help students have essential college-readiness skills in mathematics. This work is bringing together UT faculty and faculty from community colleges and secondary schools to develop and deploy large-scale, effective digital course materials that aim to help students — from high school through the community college and undergraduate years — succeed in math.
- **Consultations to Improve Teaching Excellence:** Feedback from CITE fellows, faculty who received a consultation, and members of promotion committees is being used to improve and expand the program in 23/24, including increasing the number of fellows, adding a more robust calibration process, revising the summative report template and ensuring effective assessment is in place to determine its value to faculty, including in the promotion and tenure process.
- **Interdisciplinary majors linked to high-demand areas:** New degree plans for undergraduates are in development that will be some of the first interdisciplinary majors to cross departmental and college boundaries in years. These include a new credential in robotics, more comprehensive public health degree options with partners from across campus and two new degrees in computer science that are hybrid between computer science and biology and/or neuroscience.
- **AI-related education advances:** Given the importance of AI and its impact throughout the economy and society, the college, partnered with the University's [Good Systems](#) grand challenge, a large course available online that provides a broad introduction to the topic of AI for undergraduates, graduate students, faculty and staff. The goal is to help participants develop AI literacy, both technically and from the perspective of ethics and the humanities. To compliment the new robotics undergraduate credential, Texas Robotics is adding an additional new FRI stream. Meanwhile, in the spring, the University's new online Master's in Artificial Intelligence will welcome its first cohort of students.
- **New materials research:** The NSF selected UT Austin's Center for Dynamics and Control of Materials, an NSF MRSEC, for an additional six years of operation, with faculty from physics and chemistry holding leadership positions. The college is currently planning a major quantum materials initiative to complement in part the research happening within the MRSEC.
- **Building & space planning:** Lord Aeck Sargent architectural firm has been engaged to develop potential preliminary plans and cost estimates for two buildings in the college: Physics, Math and Astronomy (PMA) and Patterson Laboratories. Leaders have also been partnering closely with the University on plans for a Sweatt v. Painter exhibit and entrance that would transform Painter Hall. The Inventors Program is in the process of developing an area of Welch Hall as a rapid prototyping and design space, for program participants as well as other students across the college.
- **Internal funding & proposal support:** To reinvigorate the Catalyst Grants program, the college SRI office will enact changes in the upcoming year to increase the impact of these grants and encourage more applications. SRI also will continue supporting proposals, such as for a new Cosmic Frontier Center to explore the origins of the first stars, galaxies and black holes.