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# 2025 TSUS ANNUAL RESEARCH REPORT

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## About TSUS

Research operations at the Texas State University System's four-year universities serve as catalysts for discovery and innovation. As part of a fast-growing system, Lamar University, Sam Houston State University, Sul Ross State University, and Texas State University are advancing new ideas and discoveries that address today's scientific, environmental, and societal challenges.

These institutions build on strong foundations of academic excellence in teaching, research, and service. They are focused on fostering environments of creativity and collaboration where student scholars, faculty researchers, and industry partners generate solutions-oriented research aligned with the needs of a 21st century economy.



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FY24 Total Research Expenditures: **\$196.6m**

## Expenditures by Source (FY24)

● Institutional ● Federal (Grants) ● State (Grants) ● Private (Grants)



Total: **\$196.6m**

Proposals Submitted

FY 19 **876** → FY 24 **1,072**

**+22%**

Funding Awarded

FY 19 **\$70.3m** → FY 24 **\$125.6m**

**+79%**

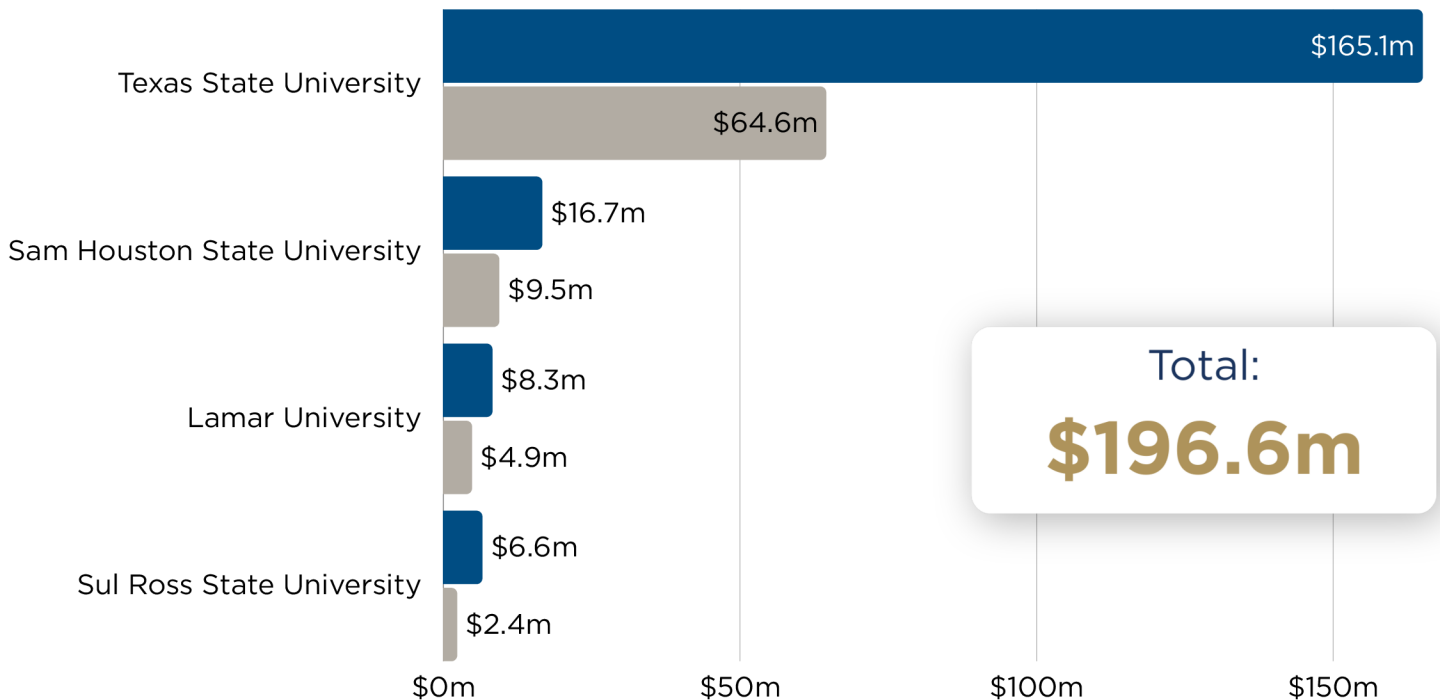
Research Expenditures

FY 19 **\$81.2m** → FY 24 **\$196.6m**

**+142%**

## Research Expenditures by University

● 2024 ● 2019



Note: FY 2024 data from most recent HERD and THECB data source.

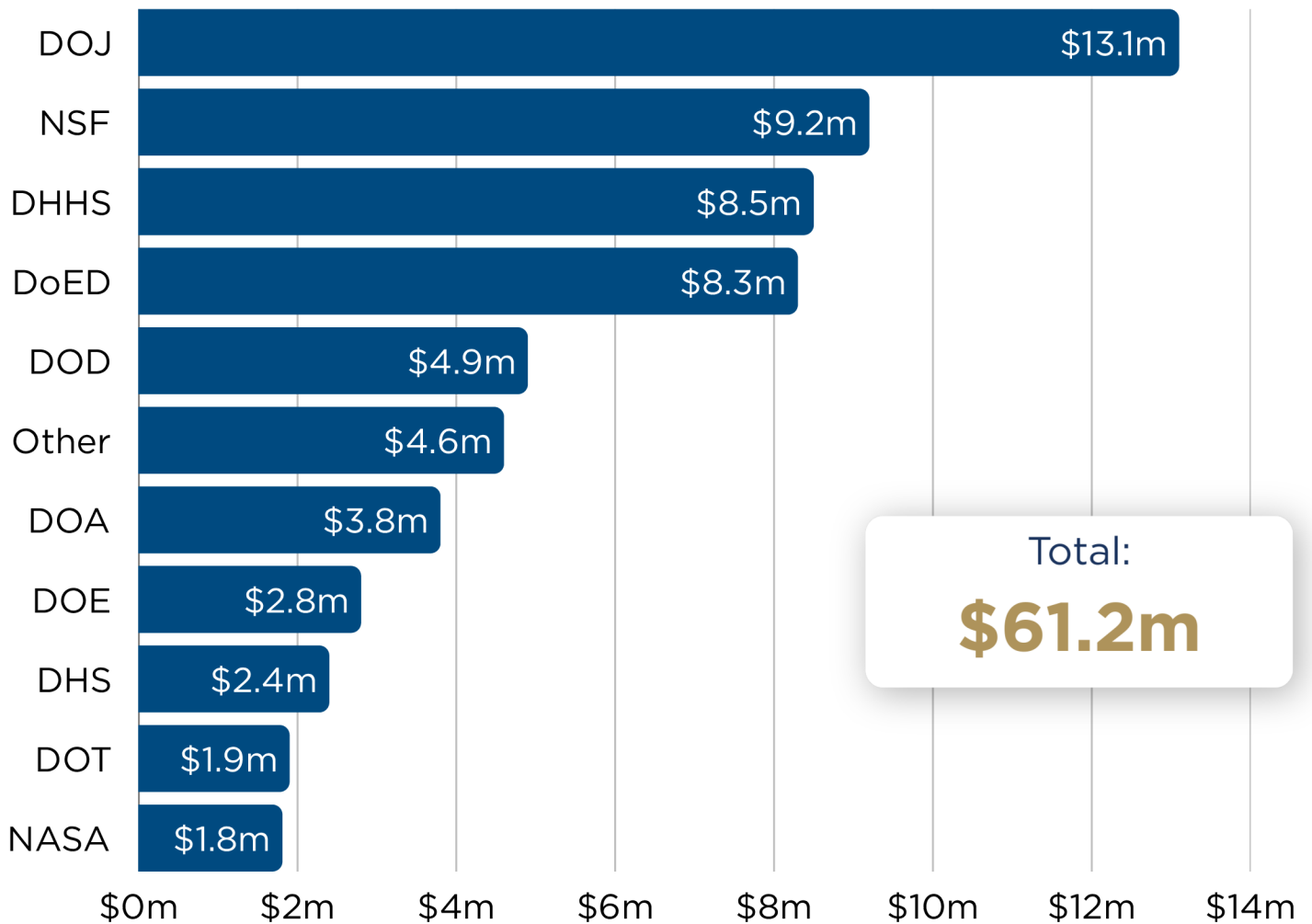


## FY24 Federal Research Funds by Federal Agency (Over \$1.0m)

**Department of Justice**  
**\$13.1m**

**National Science Foundation**  
**\$9.2m**

**Department of Health & Human Services**  
**\$8.5m**



Note: National Science Foundation (NSF), National Aeronautics and Space Administration (NASA), Dept. of Transportation (DOT), Dept. of Justice (DOJ), Dept. of Homeland Security (DHS), Dept. of Health and Human Services (DHHS), Dept. of Energy (DOE), Dept. of Education (DoED), Dept. of Defense (DOD), Dept. of Agriculture (DOA)

Note: FY 2024 data from most recent HERD and THECB data source.



## Research Highlight

### Strengthening Institutions Program

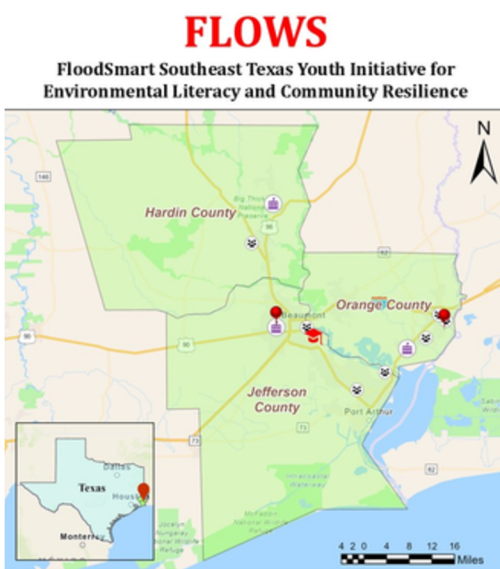
Dr. Mamta Singh, Associate Professor of Curriculum and Instruction, secured a grant from the Department of Education under Title III, Part A, to launch a transformative initiative aimed at boosting student success and equity. This \$1.9 million project will establish a centralized student services and advising office designed to improve accessibility and outcomes for minority and underserved students, with a strong focus on STEM programs. Through six strategic objectives, including increasing STEM enrollment and graduation rates, providing culturally responsive professional development, and personalized mentoring plans, the initiative will create streamlined processes for academic advising, student success, and retention. By investing in staff and faculty training, data-driven decision-making, and outreach programs, Lamar University is paving the way for a more inclusive and innovative educational experience.



## Research Highlight

### FloodSmart Southeast Texas Youth Initiative

Dr. Thinesh Selvaratnam, Associate Professor of Civil Engineering, received \$678k from the National Academies of Sciences, Engineering, and Medicine's Gulf Research Program to launch the FloodSmart Youth Initiative (FLOWS). This groundbreaking three-year program is designed to empower Southeast Texas students to tackle stormwater flooding challenges in their communities. Through hands-on STEM learning, civic engagement, and the construction of rain gardens using Low Impact Development principles, FLOWS equips youth with the knowledge and skills to build resilience against climate change impacts. Partnering with local schools and community organizations, the initiative will create outdoor learning spaces, train over 300 students and 20 teachers, and develop scalable educational tools for long-term sustainability. By fostering environmental stewardship and problem-solving, FLOWS positions students as change agents driving a more resilient future for the Golden Triangle region.





## Research Highlight

### Southeast Texas Flood Coordination Study



Dr. Nick Brake, Professor and Chair of Civil & Environmental Engineering, received \$328k from the Texas General Land Office’s Coastal Management Program to upgrade 34 flood monitoring systems with commercial-grade sensors equipped with rain gauges, cameras, and temperature tracking—dramatically improving forecasting accuracy for agencies like the National Weather Service and TxDOT. By hosting real-time data on a public dashboard and providing hands-on training for local stakeholders, the project furthers Lamar University’s goal of driving innovation in coastal resiliency and safeguarding vulnerable communities. These efforts, part of the Texas Coastal Resiliency Master Plan, ensure smarter alerts and a safer future for Southeast Texas.

## Research Highlight

### Exploration of an Accurate and Efficient Reliability Modeling Technique for Semiconductor Packages

The National Science Foundation awarded Dr. Sushil Doranga, Assistant Professor of Mechanical Engineering, \$199k for a project to pioneer next-generation reliability modeling for semiconductor packages to be used in harsh environments like automotive, railroad, and aerospace systems. This research introduces a transformative hybrid approach that combines accelerated testing, nano-indentation experiments, and advanced nonlinear dynamic modeling to predict long-term performance more accurately and cost-effectively.

By addressing critical gaps in current fatigue models and incorporating nonlinearity, the project aligns with the CHIPS Act of 2022 and strengthens U.S. leadership in semiconductor innovation. Beyond technical breakthroughs, the initiative will mentor students, launch a course-based research experience, and create widely accessible educational resources, ensuring a skilled workforce for the future.





FY24 Total Research Expenditures: **\$8.3m**

## Expenditures by Source (FY24)

● Institutional ● Federal (Grants) ● State (Grants) ● Private (Grants)

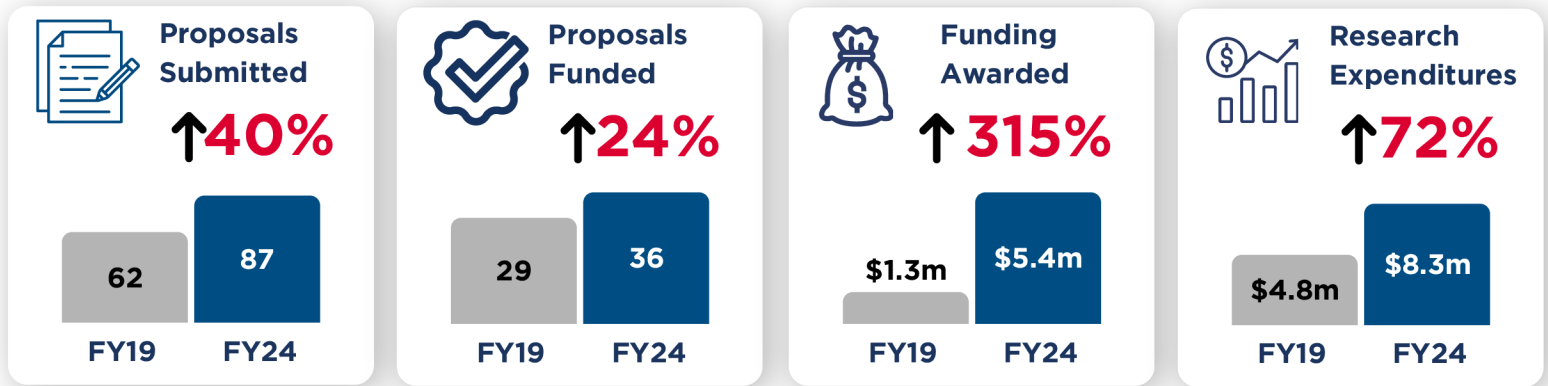


## Research Spending Categories (FY24)

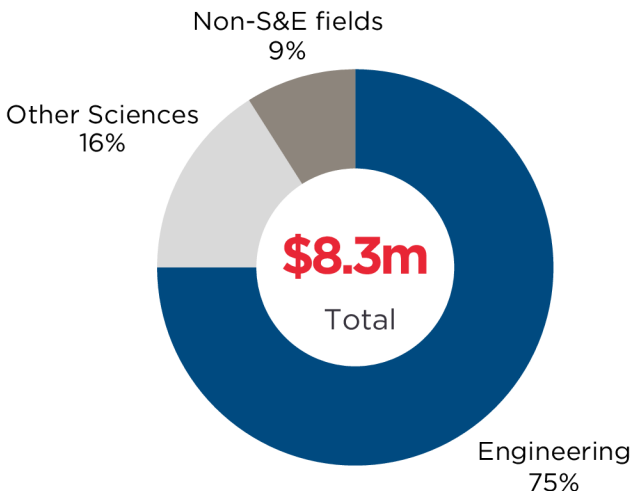
● Salaries ● Other Direct ● Indirect



## Research Growth (FY19-FY24)



## Fields of Research (FY24)



### Research Portfolio Snapshot

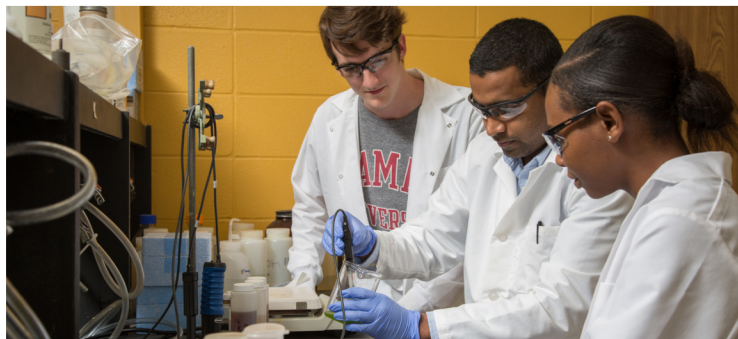
- Engineering dominates the research portfolio, accounting for 75% of total expenditures
- Other sciences provide complementary strength (16% combined)
- Non-S&E fields represent a growing share (9%), supporting interdisciplinary work

Note: FY 2024 data from most recent HERD and THECB data source.



## University Research Centers

- Center for Advances in Port Management
- Center for Advances in Water and Air Quality
- Center for Data, AI, and Cybersecurity
- Center for Midstream Management and Science
- Center for Resiliency
- Small Business Development Center - LU
- Texas Air Research Center
- Texas Hazardous Waste Research Center
- Texas Manufacturing Assistance Center - SE Texas



## Funding Sources

- Alana's Foundation
- American Chemical Society
- American Institute of Physics
- American Society for the Prevention of Cruelty to Animals
- BASF
- City of Beaumont
- Entergy
- Gene Haas Foundation
- Halliburton Foundation, Inc.
- Jefferson County Tax Assessor
- Mathematical Association of America
- Modern Language Association
- National Collegiate Athletic Association
- National Science Foundation
- NuEnergy Partners, LP
- Octavo Systems, LLC
- Pipeline Research Council International
- Texas A&M University
- Texas Commission on Environmental Quality
- Texas Department of Transportation
- Texas General Land Office
- Texas Higher Education Coordinating Board
- Texas Instruments
- Texas Workforce Commission
- TEXO Foundation
- The Welch Foundation
- University of California San Diego
- University of Houston
- University of North Texas
- University of Texas
- University of Texas - Arlington
- U.S. Department of Agriculture
- U.S. Department of Education
- U.S. Department of Energy
- U.S. Department of Health and Human Services
- U.S. Department of Transportation
- U.S. Navy

## Research Highlight

# Notable Awards from Federal Agencies

### NASA (\$2.2m)

- **FARMGO (PIs: Xu & Gilliland, Environmental & Geosciences):** \$1.2M from NASA's MUREP Earth Systems Science Research program. Develops an AI-powered agricultural decision tool (web or mobile app) using NASA climate and soil-moisture data to help farmers in Texas and Arizona plan sustainable crop production in the face of climate change.
- **MagGAN (PI: Jiang):** AI tool that reconstructs solar magnetic fields from historical NASA data (Solar Cycle 23), improving space weather forecasting and the prediction of solar eruptions such as flares and coronal mass ejections.

### NSF (\$3.6m)

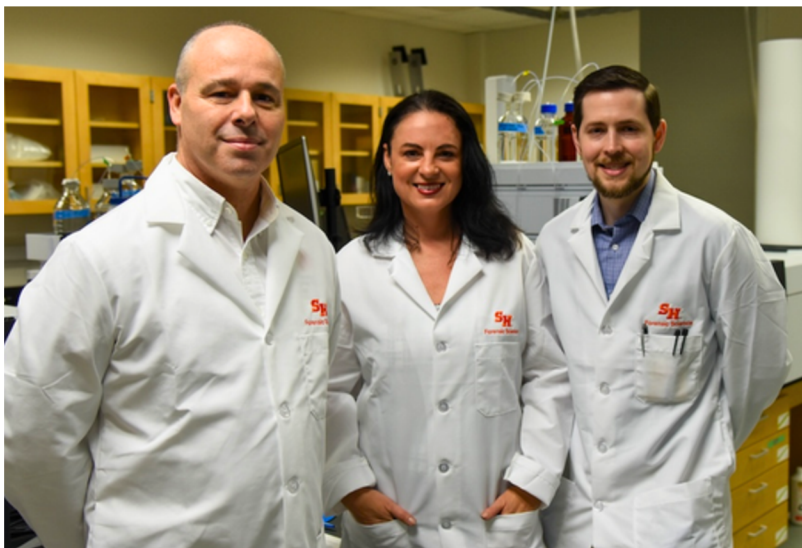
- **SMART Chemistry S-STEM (\$2M, PI: Villalta-Cerdas):** Scholarships, mentoring, and research training for academically talented, low-income undergraduate and master's students in chemistry. Leverages SHSU's designation as a Hispanic-Serving Institution to build a diverse, research-ready workforce.
- **IGE Program (\$1M, STEM Center, PI: Harper):** Innovations in Graduate Education award supporting a new model for improving STEM graduate student success, retention, and career readiness at a regional R2 institution.
- **PRIMES (\$376K, PI: Martone, Mathematics & Statistics):** Supports theoretical mathematics research in geometry, topology, and dynamics, and establishes an experimental mathematics research lab for aspiring student researchers.
- **CISE MSI Research Development (\$200K, PI: Liu, Chemistry):** Collaborative research on multimodal sensing-based security mechanisms for IoT systems.

### National Institute of Justice (NIJ) (\$1.5m)

- **Forensic Science Research Suite:** A set of projects focused on improving evidence analysis and reliability, including studies on how cleaning methods affect biomolecules in bone, advances in tape adhesive analysis, and refined models for estimating postmortem intervals.

### NIH SBIR/STTR (\$250K)

- **Bilingual mental health mobile app:** Culturally inclusive, AI-powered app to screen migrant workers for depression and connect them to mental health providers by location and language preference.



SHSU CJ Department of Forensic Science Awarded Three NIJ Research Grants

## Research Highlight

# Notable Awards from Federal Agencies

### DOE (\$8.2m)

- **Applied Biomedical Sciences M.S. (\$5M, COM, PI: Dean Mohr):** Five-year award to develop a graduate program integrating health technology, regulatory affairs, AI, and machine learning. Developed in collaboration with regional industry partners; positions SHSU as a leader in healthcare research and workforce development.
- **TRIO Student Support Services (\$2.8M, PI: Stuckey, College of Education):** Two awards supporting tutoring, advising, graduate school guidance, and financial literacy counseling for first-generation, low-income, and students with disabilities.
- **American History & Civics Education (\$1.2M, PI: Strunc, School of Teaching & Learning):** Project 250' provides professional development for K-12 teachers on American political traditions, constitutional principles, and foundational civic texts.

### USDA(\$775K)

- **Plant Protection Act Awards (\$400K+, Texas Invasive Species Institute):** Multiple awards supporting detection, mitigation, and eradication of invasive plants and pests. Projects use GIS mapping, extensive fieldwork, and educational outreach to protect Texas crops, forests, and ecosystems from economically damaging species.
- **Specialty Crop Block Grant (\$63K, PI: Aboohamidi, Agricultural Sciences):** Applied research and outreach for small-scale farmers on microgreens production, marketing, and nutritional value.

### HRSA (\$6m)

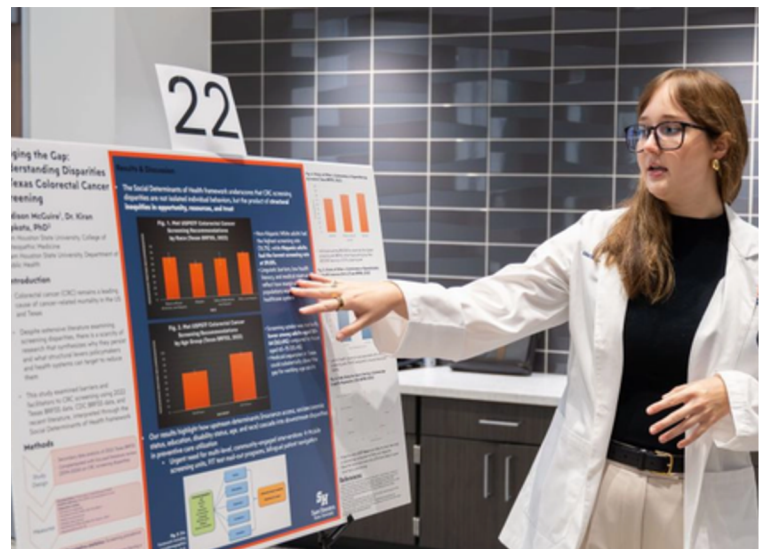
- **College of Osteopathic Medicine:** Community-based residency programs to train physicians in primary care and behavioral health settings in underserved areas. IBN Sina Foundation and Tri-County Behavioral Healthcare have been conditionally awarded funding to launch and expand programs at rural hospitals and mental health clinics. Anticipated to be one of the largest single awards in SHSU history.

### DoD Office of Naval Research (\$348K)

- **PI: Williams, Chemistry:** Construction and testing of an Aqueous Vacuum Cavitation Cleaning System.

### NIH SBIR/STTR (\$250K)

- **Bilingual mental health mobile app:** Culturally inclusive, AI-powered app to screen migrant workers for depression and connect them to mental health providers by location and language preference.



SHSU-COM hosted its fifth annual Student Research Day, highlighting the depth of student-led research and scholarship across the college.

## Research Highlight

# Notable Awards from State Agencies & Private Sector

### State Agencies & THECB

- **Nursing Innovation Grant (\$1m, THECB):** Expands the Shared Nurse Academic Practice Partnership Initiative (SNAPPI) over two years to new healthcare and university partners across Texas, addressing the state's nursing workforce shortage.
- **Graduate Medical Education (\$500K, THECB, PI: Holmes, COM):** Expands the Rural Family Medicine Residency program; six medical residents now supported.
- **Masters in Public Health (\$400K, THECB, PI: Joshi, COM):** Establishes an updated and expanded MPH program.
- **Neches River Rose Mallow Study (\$275K, TX Parks & Wildlife, PI: Pascarella, Biological Sciences):** Ecological research on the federally threatened native plant across natural and outplanted populations.
- **TX Department of Agriculture (\$63K, PI: Aboohamidi):** Improving production and marketing of specialty crops for small-scale farmers.

### Criminal Justice & Public Safety

- **School Safety & Equity (\$750K, TX Governor's Office, CARES Center):** Collaborative study with Texas State University's Texas School Safety Center on equity in school safety and the needs of students with disabilities.
- **HIDTA (\$371K, Office of National Drug Control Policy):** Continuation of SHSU's role as administrative agent for the Houston-area High Intensity Drug Trafficking Areas program, coordinating with the Southern District of Texas U.S. Attorney's Office.
- **Project Safe Neighborhoods (\$105K, TX Governor's Office):** Annual continuation grant evaluating PSN implementation in the Southern District of Texas.

### Private Foundations & Industry

- **American Chemical Society / Welch Foundation (\$280K, PIs: Hinze & Haines, Chemistry):** Research equipment and student research project support.
- **HEB/Charles E. Butt Foundation (\$70K, PI: Brittain, School of Teaching & Learning):** Development of an AI-based program to improve preparation of new teachers.
- **National Pork Board (\$50K, PI: Gonzalez, Kinesiology):** Clinical research on the effects of high-protein diets on the performance and recovery of firefighters.
- **IAMSE Education Grant (\$5K, PI: Nelson, COM):** Voice-based AI chatbot for medical student communication training using simulated patient encounters.



Sam Houston Museum Celebrates Texas Archeology Month with Clay and Collaboration

## Strategic Priorities

# Research Clusters & Strategic Investment

### Strategic Goals

**\$50 million** in annual external awards by FY2030

**\$20 million** in annual research expenditures from federal and private source by FY2030

## Four Research Clusters



### Security, Defense & Resiliency

*Cybersecurity, infrastructure protection, critical resilience, and defense technologies*

**Key assets:** High-Performance Computing cluster, Security Operations Center, E-Tech Annex, CITE facility, PhD programs in Criminal Justice and Computer Science



### The Forensic Sciences

*Anthropological, psychological, chemical, microbial, molecular, cyber, and digital forensics*

**Key assets:** Southeast Texas Applied Forensic Science facility, SOC, Microscopy Lab, Texas Research Institute for Environmental Studies, PhD programs in Forensic Science and Psychology



### Biomedical & Health Sciences

*Physical health, mental health, public health, allied health, kinesiology, and nursing*

**Key assets:** College of Osteopathic Medicine (COM), SHSU Rural Education Center (SHREC), Counseling programs, Vivarium, Microscopy Lab; MPH and Doctor of Physical Therapy programs



### Education & Training

*Research training, evidence-based pedagogy, extended reality (VR/AR), and transitional services*

**Key assets:** STEM Center, Garrett Center for Learning and Engagement, Gibbs Ranch, College of Nursing, COM, SHREC

## Investment Priorities

- Personnel
- PI Incentives
- Travel & Agency Engagement
- Technical Writing Support
- Research Center Development
- Public-Private Partnerships

## FY24 Total Research Expenditures: **\$16.7m**

### Expenditures by Source (FY24)

● Institutional ● Federal (Grants) ● State/Private (Grants)

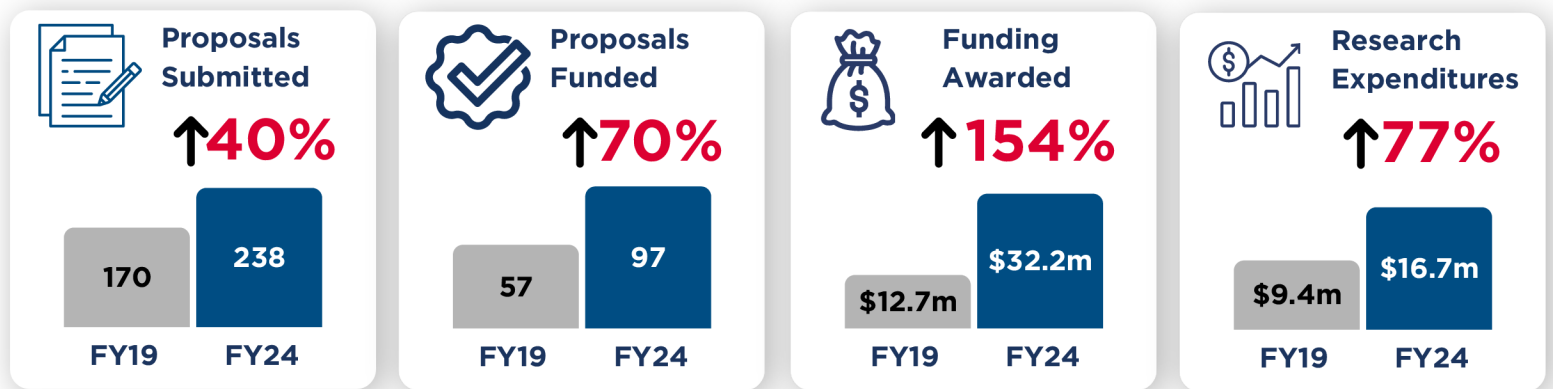


### Research Spending Categories (FY24)

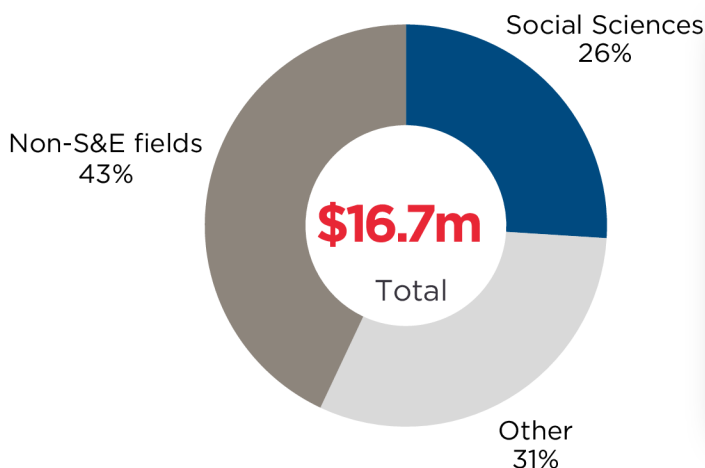
● Salaries ● Other Direct ● Indirect



### Research Growth (FY19-FY24)



### Fields of Research (FY24)



### Research Portfolio Snapshot

- Non-S&E fields represent the largest share of research activity (43%)
- Social sciences (26%) and life sciences (21%) together form a strong applied research core
- Scientific research areas, including computing and physical sciences, provide targeted support across disciplines

Note: FY 2024 data from most recent HERD and THECB data source.

## University Research Centers

- Center for the Study of Disasters & Emergency Management (CDEM)
- Center for Multicultural Rural Development
- Center for Innovation, Technology, & Entrepreneurship (CITE)
- Center for Assessment, Research, and Educational Safety (CARES)
- Center for Research Excellence and Innovation
- COM Medical Artificial Intelligence Institute
- Cyber Forensics Intelligence Center (CFIC)
- Institute for Homeland Security (IHS)
- Crimes victims' Institute (CVI)
- Institute for Forensic Research, Training, and Innovation (IFRTI)
- Southeast Texas Applied Forensic Science (STAFS) Facility
- Gibson D. Lewis Center for Business and Economic Development
- Texas Invasive Species Institute (TISI)
- Center for Advancing Neuro-Design for Learning Environments (CANDLE)
- Strategic Education and Research Vision for Excellence (SERVE) Center



## Funding Sources

- American Chemical Society (ACS)
- American Mathematical Society
- American Psychological Foundation
- American Society of Trace Evidence Examiners (ASTEE)
- Arizona State University
- Arnold Ventures
- Back to the Roots
- Bureau of Justice Assistance
- Cancer Prevention & Research Institute of Texas (CPRIT)
- Charles and Lynn Schusterman Family Philanthropies
- Charles Butt Foundation
- Colorado State University
- Deans for Impact
- Donaghue Foundation
- Educause
- Energy
- Florida International University
- Forensic Sciences Foundation
- Forward Edge AI, Inc.
- Georgia Southern University Research and Service Foundation Inc.
- George Mason University
- Health Resources & Services Administration (HRSA)
- Houston Community College
- Houston Endowment
- Houston ISD
- Huntsville Memorial Hospital
- Institute of Museum and Library Services
- Joint Admission Medical Program Council

## Funding Sources (cont.)

- Justice Forward
- Lamar University
- Marion County Adult Post-Adjudicatory Prison  
Diversion Drug Court
- Massachusetts General Hospital
- National Academies of Science (NAS)
- National Aeronautics and Space Administration  
(NASA)
- National Board of Osteopathic Medical Examiners
- National Institute for Student Success
- National Institute of Justice
- National Institutes of Health (NIH)
- National Science Foundation (NSF)
- National Security Agency (NSA)
- Oak Ridge Associated Universities (ORAU)
- Office of National Drug Control Policy
- Office of Naval Research (ONR)
- Office of the Texas Comptroller
- Purdue University Northwest
- Quanta Systems
- Russell Sage Foundation
- Small Business Administration
- Society of Developmental Biology
- State of Texas
- State of Texas Office of the Governor
- Texas A&M AgriLife Research
- Texas A&M University-College Station
- Texas Department of Agriculture
- Texas Department of Public Safety
- Texas Education Agency
- Texas General Land Office
- Texas Higher Education Coordinating Board  
(THECB)
- Texas International Education Consortium
- Texas Parks & Wildlife Department
- Texas State Library and Archives Commission
- Texas State University
- Texas State University System
- Texas Workforce Commission
- The Nemours Foundation
- The Powell Foundation
- The Welch Foundation
- TLL Temple Foundation
- United States Air Force
- United States Army
- US Army War College
- United States Department of Agriculture (USDA)
- United States Department of Defense (DOD)
- United States Department of Education (DOED)
- United States Department of Homeland Security  
(DHS)
- United States Department of Justice (DOJ)
- United States Department of State
- United States Embassy
- United States Small Business Administration
- University of Arkansas
- University of Houston
- University of Maryland
- University of Minnesota
- University of Minnesota Press
- University of Missouri
- University of North Texas Health Science Center
- University of Oklahoma
- University of South Alabama
- VentureWell

## Research Highlight

# Tracking the Impact of Aoudad Management on Mule Deer and Aoudad Behavior



Interactions between non-native aoudad or barbary sheep (*Ammotragus lervia*) and native mule deer (*Odocoileus hemionus*) in West Texas are poorly understood. Still, high numbers of aoudad are thought to increase competition for food and habitat. To better understand these dynamics, we study how reducing aoudad populations through aerial gunning might influence the movements of both species. In April 2023, we captured and GPS-collared 40 aoudad and 40 mule deer in the Chinati and Quitman Mountains of the Trans-Pecos. We then removed over 7,000 aoudad from the Chinati Mountains during targeted operations in August 2024 and June 2025.



Using GPS locations, we estimated how each species used space every month and examined how their range sizes changed after the removals. Our models showed that aoudad responded strongly but temporarily to population reductions. Immediately after aerial gunning, aoudad reduced their monthly range sizes by about 28%. However, this effect faded over time, and their ranges returned to pre-treatment sizes within roughly 8 months. There was also considerable variation among individuals in how quickly they returned to normal movement patterns. Mule deer did not show significant changes in space use, and neither species abandoned the treated area.

Overall, these results indicate that aoudad tend to move less following aerial gunning. Still, the effect is short-lived, and removal efforts did not push either species out of the landscape. This offers important insight for land managers by showing that large-scale aoudad removals can alter movement behavior without displacing native wildlife.



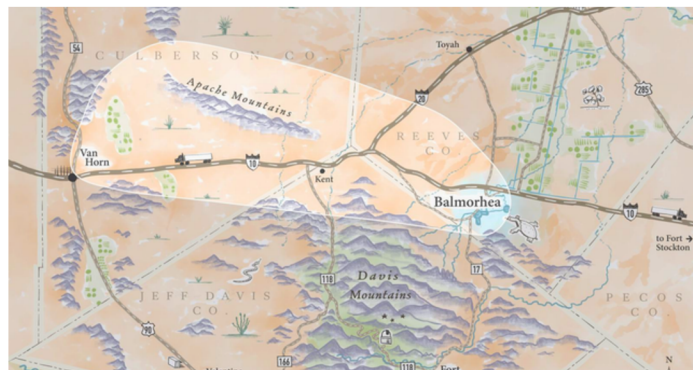
## Research Highlight

# The San Solomon Springs Collaborative and Groundwater Monitoring

The San Solomon Springs Collaborative and Groundwater Monitoring Network Roughly 30 percent of the springs in Texas have disappeared. Among those that remain, the San Solomon Spring is one of six distinct springs located near Balmorhea in southwestern Reeves County, Texas. These springs are vital for the iconic pool at Balmorhea State Park as well as the community of Balmorhea. The San Solomon Springs Collaborative brings together researchers, landowners, community members, nonprofits, and groundwater districts for a focused and locally driven effort to sustain the springs that feed Balmorhea.

For decades researchers from public, private, and academic sectors have studied the origins and behavior of these desert springs. Scientists agree that the springs are generally in decline and increasingly vulnerable. Groundwater sampling shows how water moves toward Balmorhea from the Apache and Davis Mountains, but many questions remain including: What are the sources of this water? Where does it recharge and reside underground? How long can it sustain the springs we see today?

Through the Meadows Research Institute for West Texas Water at Sul Ross State University, a regional groundwater monitoring network is being established to collect aquifer level data that can be analyzed over time to help answer these questions and lead to solutions with a pro-active approach to protecting this important shared groundwater resource. By working with local landowners and Groundwater Conservation Districts, researchers at the Institute are gaining valuable information that can assist in stakeholder decisions, as well as providing quality training opportunities for graduate students.



**Photo 1.** Balmorhea. Since it was created in 1968, Balmorhea State Park has been an important cultural, social, economic, and ecological resources for Texans.

**Photo 2.** Kevin in the field. Dr. Kevin Urbanczyk, Senior Research Scientist at the newly formed Meadows Research Institute for West Texas Water installs monitoring equipment on a well to better understand groundwater and connections to the are springs.

**Photo 3.** Map of monitoring network The watershed and recharge zone surrounding San Solomon Springs are critical to the to long term sustainability of Balmorhea State Park

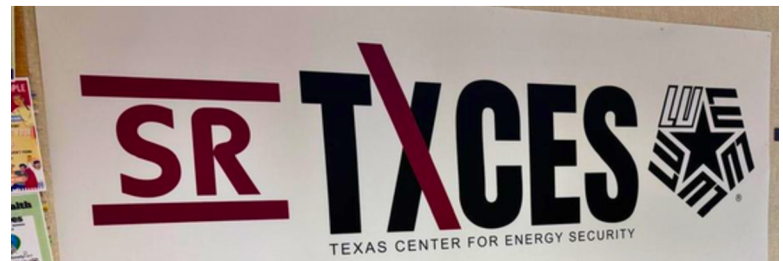
## Research Highlight

### Midstream Critical Manufacturing Industry Cybersecurity Hub

The Midstream Critical Manufacturing Industry Cybersecurity Hub is a collaborative project between Sul Ross State University (SRSU) and Lamar University (LU), supported by the U.S. Department of Energy (DOE), with the shared goal of strengthening the cyber security and cyber-forensics capacity of the nation's midstream energy infrastructure.

Through coordinated research, education, and outreach efforts, the project focuses on building advanced facilities and capabilities within the Texas State University System, expanding academic and workforce training programs, and increasing cybersecurity awareness. As part of this initiative, interdisciplinary teams from both universities are developing virtual and physical test beds to enable real-time data collection and simulation of Industrial Control Systems (ICS) and Cyber-Physical Systems (CPS) environments.

Data generated from these testbeds will support machine learning and data analytics research aimed at improving threat detection and response techniques for midstream operational technologies. In addition, the project is creating comprehensive training modules in engineering, computer science, cybersecurity, cyber-forensics, and criminal justice to strengthen workforce development and support educational outreach for K-12, undergraduate, and graduate learners.



*The 3rd Cyber Investigation Camp in the Era of AI & Robotics from July 8-10. The Camp brought 20 students together for immersive learning in cybersecurity, cyberlaw, crypto investigations, and drone forensics. Hosted in the SRSU Digital Forensics & Cybersecurity Lab (MAB 204), the camp was part of DOE's Midstream Industry Cybersecurity Grant initiatives*

## Research Highlight

### Center for Big Bend Studies

Since 2019, the Center for Big Bend Studies (CBBS) at Sul Ross State University has been working at a rockshelter south of Marfa, Texas in collaboration with the Odyssey Archaeological Research Program at the University of Kansas (KU). This year, the discovery of a 6500-year-old weapon kit from within the rockshelter made national news. The kit includes multiple components of an atlatl and dart weapon throwing system (e.g., foreshafts, atlatl throwing stick, spear main shaft fragments), a straight flying boomerang, a string of marine shell beads, plaited mats, sandals, a folded pronghorn hide, and other artifacts. This is among the oldest weapon kit found in North America and is a significant archaeological discovery.

Erika Blecha, an archaeologist at the CBBS and a PhD candidate with honors at KU, is further analyzing the weapon kit and the context in which it was found for her dissertation research. Her research will shed more light on the environmental history of the rockshelter and deep human history of the Trans-Pecos region of Texas.



**Photo 1.** The 6500-year-old weapon kit and a sandal and pronghorn hide (right) found in a rockshelter south of Marfa, Texas.

**Photo 2.** Overview of the cave portion of the rockshelter where the weapon kit was located.

**Photo 3.** Odyssey archaeologist Chris Hord, and CBBS Senior Research Scientist Bryon Schroeder at the location where the weapon kit was discovered.

FY24 Total Research Expenditures: **\$6.5m**

## Expenditures by Source (FY24)

● Institutional ● Federal (Grants) ● State/Private/Other (Grants)

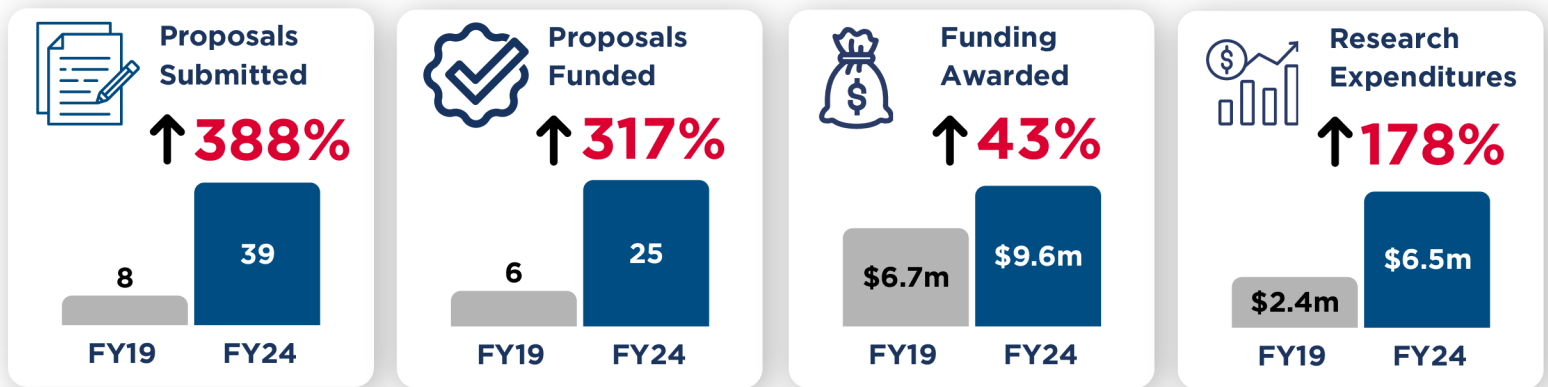


## Research Spending Categories (FY24)

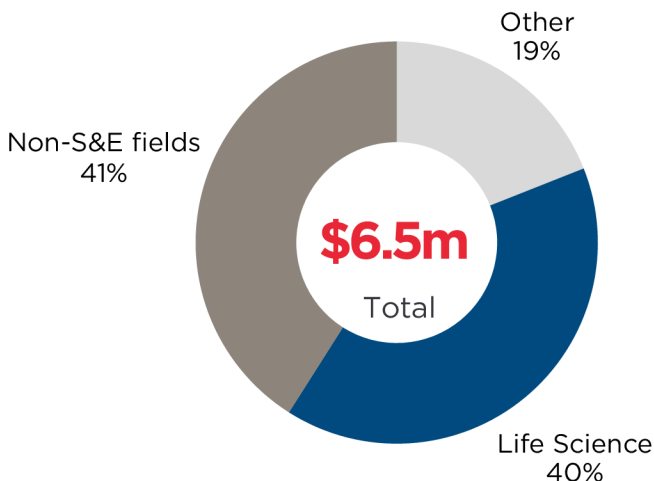
● Salaries ● Other Direct ● Indirect



## Research Growth (FY19-FY24)



## Fields of Research (FY24)



### Research Portfolio Snapshot

- Life sciences (40%) and non-S&E fields (41%) together anchor the research portfolio
- Computing and geosciences provide targeted support for environmental and regional research

Note: FY 2024 data from most recent HERD and THECB data source.

## University Research Centers

- Borderlands Research Institute
- Center for Big Bend Studies
- Rio Grande Research Center
- La Frontera Research Initiative for STEM Education
- West Texas Water Research Center
- Center for Land Stewardship Stakeholder Engagement



## Funding Sources

- Apache Corporation
- Boot Ranch
- Borderlands Research Foundation
- Brewster County HOT Funds
- Brown Foundation, Inc.
- Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville
- Conoco-Phillips
- Coypu Foundation
- Cross Timbers Quail Coalition
- Dallas Safari Club Foundation
- Dixon Water Foundation
- El Paso Chapter of Safari Club International
- H.E.B.
- Horizon Foundation
- Houston Livestock Show and Rodeo
- Houston Quail Coalition
- Houston Safari Club Foundation
- Humanities Texas
- James A. "Buddy" Davidson Charitable Foundation
- John L. Nau, III Foundation
- Jorgensen Foundation
- Lykes Brothers, Inc.
- Family Foundation
- Mitchell Foundation
- National Fish and Wildlife Foundation
- National Park Foundation
- National Science Foundation
- Nine Point Mesa Ranch
- Orr Family Foundation
- Park Cities Quail
- Permian Basin Area Foundation
- Permian Basin Quail Coalition
- Pevehouse Family Foundation
- Potts Sibley Foundation
- Presidio County Underground Water Conservation District
- Rio Grande Joint Venture
- Roper Technologies, Inc.
- San Antonio Livestock Exposition
- Science Mill
- Shelburne Foundation
- Solar Eclipse Across America
- Southwest Border Protection
- Stewards of the Wild & the Austin Chapter of Stewards of the Wild

## Funding Sources

- Still Water Foundation
- Summerlee Foundation
- Texas Bighorn Society
- Texas Department of Transportation
- Texas Historical Foundation
- Texas Ornithological Society
- Texas Parks and Wildlife Department
- Texas Parks and Wildlife Foundation
- Tides Foundation
- Trans-Pecos Bird Conservation
- U.S. Customs and Border Protection
- U.S. Department of Agriculture-Grazing Land Conservation Initiative
- U.S. Department of Agriculture-Natural Resource Conservation Service
- U.S. Department of Education
- U.S. Fish and Wildlife Service
- U.S. National Park Service
- Wayne and JoAnn Moore Foundation
- Welder Wildlife Foundation
- West Texas Chapter of Safari Club International
- West Texas National Bank
- Wild Sheep Foundation



Photo: Elianna Goodwin

## Research Highlight

# Major Federal Awards Across Disciplines

In FY24, Texas State University secured several major awards for a wide range of impactful research and programmatic initiatives. Among the largest, Dr. Todd Ahlman (Center for Archaeological Studies) received \$11,327,801 from the U.S. Department of Defense to support the Fort Knox Air Quality Program for environmental monitoring and regulatory compliance to protect both ecological systems and public health. Dr. Apan Qasem (Computer Science) and colleagues were awarded \$2,646,259 from the National Science Foundation for the STEM-CLEAR initiative designed to improve STEM education outcomes through cross-disciplinary, evidence-based practices. Additional notable awards included \$581,246 to Dr. Maria del Mar Huertas Pau (Biology) from the National Institutes of Health for research on fish to better understand molecules that transfer from mothers to help train babies' immune systems and improve developmental outcomes.



## Research Highlight

### Programs Advancing Public Safety

Researchers secured large-scale funding for programs with statewide and national societal benefits. Dr. Pete Blair (ALERT) received \$10,958,667 from the U.S. Department of Justice for the PASS Program to enhance preparedness for active shooter situations through training and resource development. Dr. Karim Muci-Kuchler (Ingram School of Engineering) was awarded \$2,499,310 from the National Science Foundation for the SEED program that supports scholarships and experiential learning in engineering. Additional large awards included \$2,417,943 to Theadora Whalen (Texas Justice Court Training Center) for the Justice Court initiative, \$2,344,515 to John Curnutt (ALERT) for the Active Shooter Incident Management (ASIM) program, and \$2,000,000 to Dr. Robert Mace (Meadows Center for Water and the Environment) from NOAA for climate resilience work providing actionable local data for Texans. Dr. Sangchul Hwang was also awarded \$3,500,000 from the Department of Energy to remediate environmental contaminants.



## Research Highlight

### Growth in Innovation & Commercialization

Innovation, Commercialization, and Engagement (IC&E) grew and gained momentum in FY24. Invention disclosures rose by 73%, patent applications filed grew by 137%, and patents issued tripled compared to the previous year. License income also saw a notable 30% increase, reaching \$150,633 in FY24. Overall totals for FY24 included 19 invention disclosures, 19 patent applications filed, and 3 patents issued.

Together, FY24 yielded large-scale, high-impact initiatives at Texas State that spanned water research, public safety, health, entrepreneurial potential, and educational excellence.



## Strategic Priorities

# Research Clusters & Strategic Investment

### Strategic Goals

**\$300 million** investment in research over the next five years

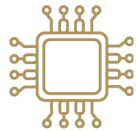
**153% growth** in research & development over the next five years

## Five Research Clusters



### Water & the Environment

*Leading the nation as the preeminent water research university*



### Semiconductors

*Accelerating chip design and manufacturing in the United States*



### Aging & Dementia

*Transforming critical care with breakthroughs in aging and healthcare*



### Artificial Intelligence

*Advancing transformative AI research for real-world applications*



### Digital Humanities

*Exploring human stories and expression through technology*

## Strategic Investment

# \$6.31B+

### Texas University Fund (TUF)

Texans approved the establishment of the Texas University Fund (TUF), currently at **\$6.31 billion**, signaling a strong statewide commitment to research growth and innovation. Through this investment, TXST is positioned to expand research capacity, recruit distinguished faculty, and accelerate transformative impact.

## Research Impact

- TXST ranks among the top 17% of research institutions nationally
- TXST generates an estimated \$7.7 billion economic impact across Texas
- TXST contributes \$3.2 billion annually to the Central Texas economy

## FY24 Total Research Expenditures: **\$165.0m**

### Expenditures by Source (FY24)

● Institutional ● Federal (Grants) ● State (Grants) ● Private (Grants)

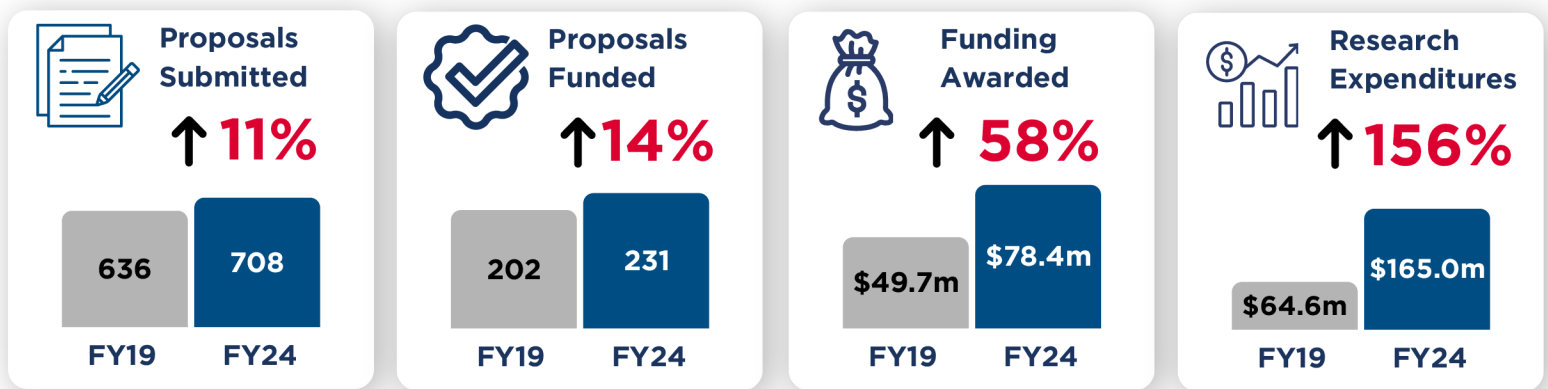


### Research Spending Categories (FY24)

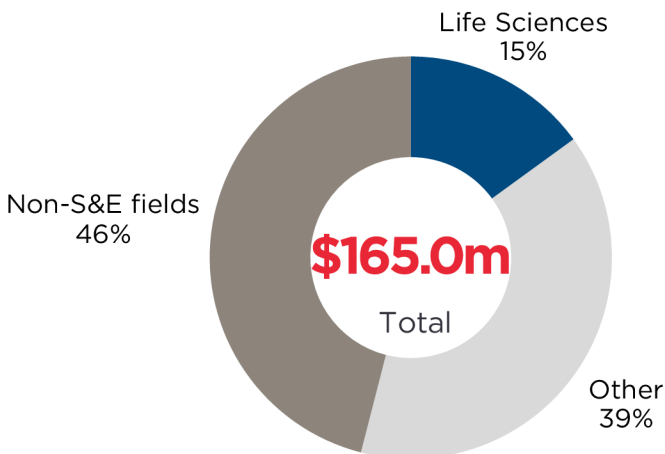
● Salaries ● Other Direct ● Indirect



### Research Growth (FY19-FY24)



### Fields of Research (FY24)



### Research Portfolio Snapshot

- Non-S&E fields represent the largest share of activity (46%), reflecting broad academic engagement
- Life sciences (15%) and engineering (9%) provide a strong foundation in applied and scientific research

## University Research Centers

- Advanced Law Enforcement Rapid Response Training (ALERRT) Center
- Center for Analytics and Data Science
- Core Research Operations
- Freeman Center
- Materials Applications Research Center (MARC)
- STAR Park
- Texas School Safety Center
- The Meadows Center for Water and the Environment
- Translational Health Research Center
- Institute for Molecular Life Sciences (IMLS)



## Funding Sources

- Academy of Pediatric Physical Therapy APTA
- American Academy of Forensic Sciences (AAFS)
- American Institute for Research AIR
- American Museum of Natural History Southwestern Research Station
- American Psychological Association APA
- American Psychological Foundation
- American Society for Clinical Laboratory Science Education & Research Fund Inc
- American Society for Engineering Education
- Atomera Incorporated
- Austin FC Austin Team CO LLC
- Battelle Savannah River Alliance LLC
- Braun & Gresham, Attorneys at Law
- CVS Health Foundation
- City of Georgetown, Texas
- City of Kenedy
- City of Kyle
- City of New Braunfels NB
- City of Pineland
- City of San Marcos, Texas
- Coastal Bend Bays and Estuaries Program
- Coca Cola Southwest Beverages LLC
- Communities Foundation of Texas
- Consumer Product Safety Commission
- Cooper Jones Active Minds Foundation
- Cullen Trust for Health Care
- Dell Technologies
- Don and Lillian Stokes Foundation
- Edwards Aquifer Authority
- Environmental Protection Agency
- Equality Texas Foundation
- Explore Austin
- Federal Aviation Administration
- Federal Emergency Management Agency FEMA
- Federal Highway Administration
- Ford Motor Company
- Future Search Trials FST
- Google LLC
- Greater Texas Foundation
- Health Resources and Services Administration
- Hogg Foundation for Mental Health
- Houston Advanced Research Center
- Howard Hughes Medical Institute

## Funding Sources (cont.)

- HSI-STEM Hub
- IBM Corporation
- Institute of Museum and Library Services
- Intel Corporation
- International City County Management Association
- James Avery Artisan Jewelry
- John Templeton Foundation
- JPMorgan Chase Foundation
- KDK Harm Reduction Research Center
- Kresge Foundation
- Lockheed Martin Corporation
- Lower Colorado River Authority
- Meadows Foundation
- Michael and Susan Dell Foundation
- Microsoft Corporation
- Motorola Solutions Foundation
- National Academies of Sciences Engineering and Medicine
- National Aeronautics and Space Administration
- National Association of School Psychologists
- National Endowment for the Arts
- National Endowment for the Humanities
- National Geographic Society
- National Institute of Food and Agriculture
- National Institute of Justice
- National Institute of Standards and Technology
- National Institutes of Health
- National Oceanic and Atmospheric Administration
- National Park Service
- National Science Foundation
- Nature Conservancy
- Novo Nordisk Foundation
- Office of Naval Research
- Oracle Corporation
- Patient Centered Outcomes Research Institute
- PepsiCo Foundation
- Pfizer Incorporated
- Phillips 66
- Presbyterian Healthcare Foundation
- Qualcomm Incorporated
- Robert Wood Johnson Foundation
- Ronald McDonald House Charities
- Samsung Electronics
- San Antonio Area Foundation
- San Antonio River Authority
- Shell Oil Company Foundation
- Siemens Foundation
- Society for Human Resource Management
- Southwest Research Institute
- SpaceX
- St. David's Foundation
- State Farm Insurance
- Susan G. Komen Foundation
- Texas A&M AgriLife Research
- Texas Commission on Environmental Quality
- Texas Department of Agriculture
- Texas Department of Criminal Justice
- Texas Department of Emergency Management
- Texas Department of Health and Human Services
- Texas Department of Public Safety
- Texas Education Agency
- Texas Health and Human Services Commission
- Texas Higher Education Coordinating Board
- Texas Instruments Foundation
- Texas Parks and Wildlife Department
- Texas State University Research Foundation
- The University of Texas System
- Toyota Motor North America
- Travis County Health Department

## Funding Sources (cont.)

- U.S. Department of Army Army Research Office
- U.S. Department of Defense
- U.S. Department of Education
- U.S. Department of Energy
- U.S. Department of Health and Human Services
- U.S. Department of Homeland Security
- U.S. Department of Justice
- U.S. Department of Labor
- U.S. Department of Navy Office of Naval Research
- U.S. Department of State
- U.S. Department of Transportation
- U.S. Department of Veterans Affairs
- United Health Foundation
- United States Department of Agriculture
- United States Geological Survey
- United States Small Business Administration
- United Way of Central Texas
- University Corporation for Atmospheric Research
- US Army Corps of Engineers
- US Department of Agriculture Forest Service
- Verizon Foundation
- Walmart Foundation
- Wells Fargo Foundation
- World Wildlife Fund



## Texas University Fund (TUF)

In 2023, the 88th Texas Legislature established the Texas University Fund (TUF) to support emerging research universities in advancing toward national competitiveness. This long-term investment is designed to accelerate research growth, faculty excellence, and innovation across the state.

**\$47.8m**

**Most Recent TUF Allocation (FY24)**

Texas State University is well positioned to benefit given its strong research momentum and expanding doctoral programs. TUF support enhances the university's ability to recruit faculty, strengthen infrastructure, and increase external funding, advancing its trajectory toward R1 status.



Doctoral Research Degrees Awarded

FY22 **49** → FY24 **75** **+53%**

*TUF Eligibility Threshold: 45 Doctoral Degrees (3-Year Avg)*



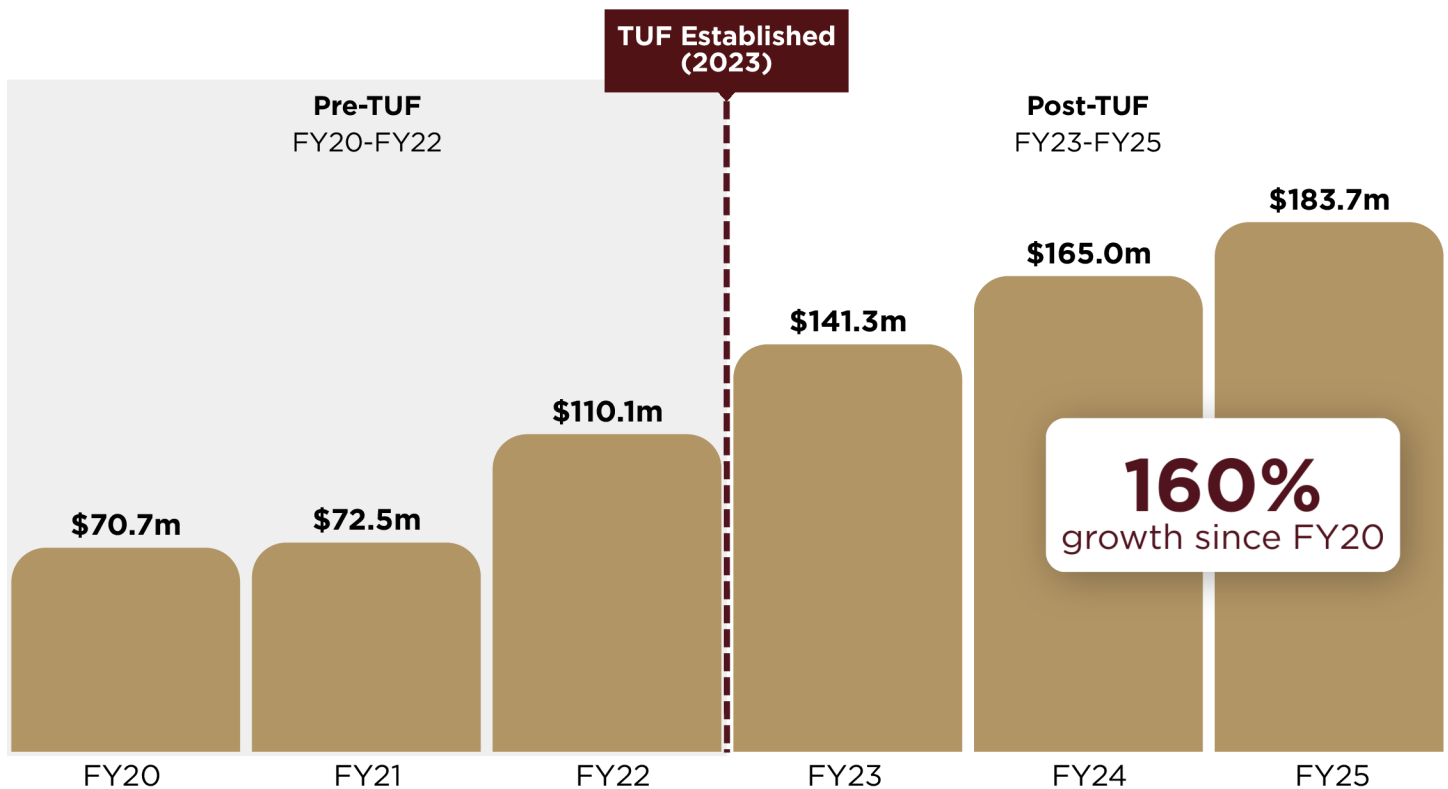
Research Expenditures (federal + private research)

FY22 **\$46.0m** → FY24 **\$55.7m** **+21%**

*TUF Eligibility Threshold: 3-year average ≥ \$20M*

## Research Expenditures & TUF Impact (FY20-FY25)

Research expenditures accelerated significantly following the establishment of TUF in 2023.



# Texas State University System



## Board of Regents



**Stephen Lee**  
Chairman



**Charlie Amato**  
Regent



**Duke Austin**  
Regent



**Sheila Faske**  
Regent



**Russell Gordy**  
Regent



**Tom Long**  
Regent



**William F. Scott**  
Regent



**Alan L. Tinsley**  
Regent



**John Weisman**  
Regent

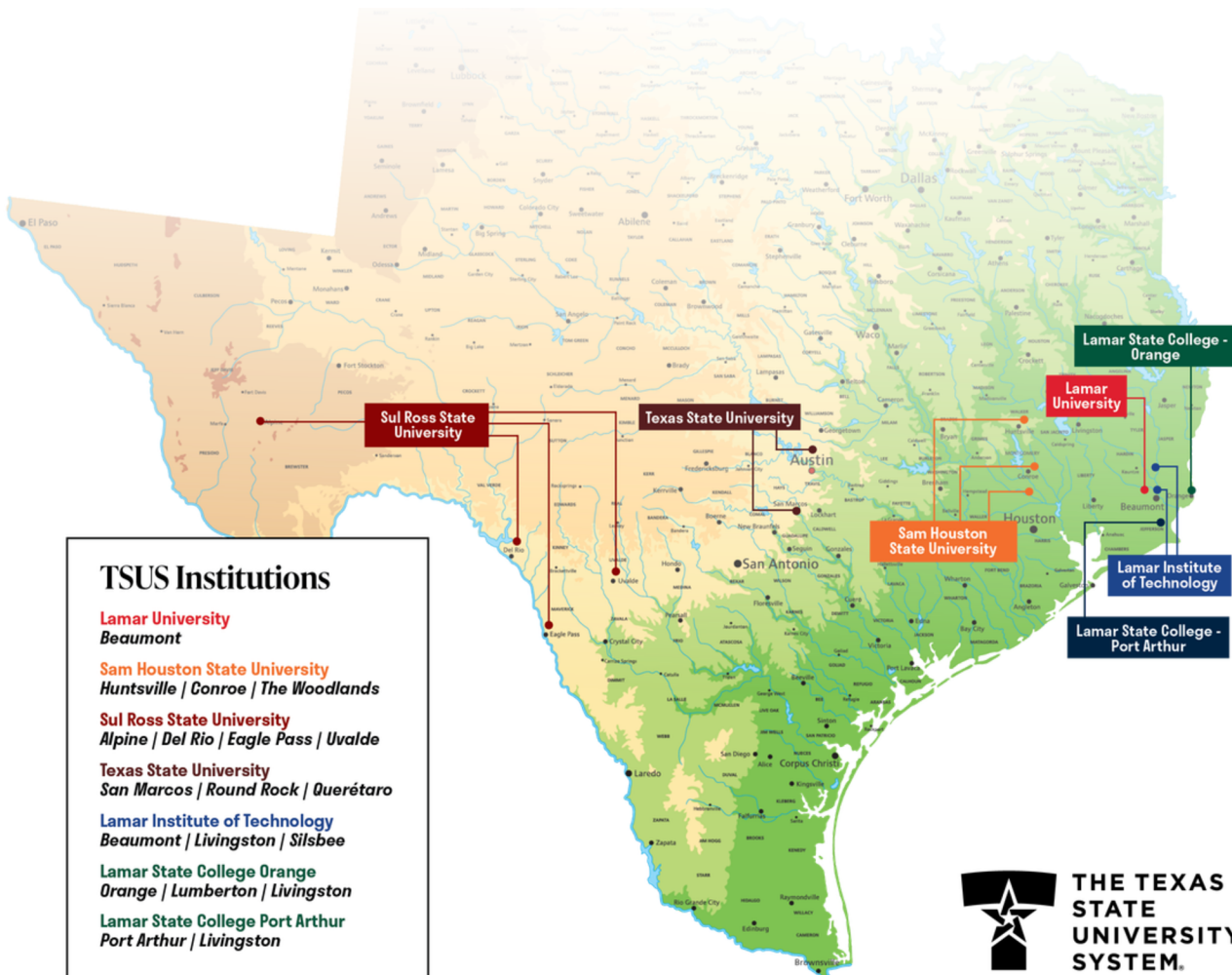


**Donovan Brown**  
Student Regent

## Chancellor



**Brian McCall, Ph.D.**





## TSUS Quick Facts

The Texas State University System (TSUS) is the third-largest university system in Texas and 21st nationally based on enrollment.

The System is based in Austin, Texas and is governed by a nine-member Board of Regents appointed by the Governor and led by a board-appointed Chancellor.

103,500 students (32% Hispanic, 18% African-American, and 34% Pell undergraduate students) are enrolled at TSUS's seven member institutions, a 43% increase since 2010.

The System awards nearly 24,000 degrees and credentials per year, a 59% increase since 2010.

Approximately 17,489 are employed across the system, including 4,489 faculty, 12,740 staff, and 268 administrators.

The System has a combined operating budget of approximately \$1.89 billion. TSUS receives 36% of its operating revenue from the state.

The System's endowment across all institutions has increased by 305% since 2010, to \$830 million.

TSUS's administrative office has the fewest employees and the smallest budget – by far – of any university system in Texas.

The System's administrative cost as a percentage of total operating revenue is 8.1%, down from 8.4% in 2010.