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INNOVATION, CREATIVITY DETERMINATION, DISCOVERY

# INTRODUCTION

Texas State University's legacy as a school devoted to preparing new teachers remains with us today as a commitment to applied research that can change the world.

At Texas State, we have:

**500** 

independent sponsored research projects each year

Annual research and development expenditures

\$64 million

Ranking in the

### top 50 schools

in the nation for humanities research and development expenditures

(Chronicle of Higher Education, 2018)

### 33 research centers

and institutes, ranging from department level to the Texas State University System

As we work toward our goal of National Research University status, we strive continuously to expand our research footprint, invest in cutting-edge infrastructure, and support the best and brightest minds at Texas State.

In highly specialized facilities such as the Center for Geospatial Intelligence and Investigation, through shared research efforts that span multiple disciplines such as the Center for Communication, Collaboration and Creativity, our faculty generate new knowledge and catalyze ideas into reality. They are pushing the boundaries in forensic anthropology, research psychology, materials engineering, biomechanics, emergency communications, medical geography and much more. Their creativity and determination lead to innovation.

We are proud of the university's alignment with state and national needs. Collaborations with NASA, the National Geographic Society, the National Institutes of Health, the U.S. Department of Agriculture and other organizations help us bring Texas State's work to a wide audience. Our faculty, students and industry partners are making an impact on Texas and the world.

The following cross section of projects represents just some of the exciting research happening every day in every department of Texas State University.

The Texas State University System Board of Regents

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# ENGAGING COMMUNITIES IN STEM EDUCATION

Dr. Sheray Witterd



College of Applied Arts, Department of Occupational, Workforce, and Leadership Studies



In order to remain competitive globally, the United States needs to greatly increase the number of students receiving secondary education in science, technology, engineering and mathematics (STEM) fields. One opportunity to do so is in better engaging and encouraging people of color, who have been historically underrepresented in STEM programs, to pursue and complete higher education degrees. Research has long suggested that the underrepresentation of minorities in the STEM fields is related to a combination of structural barriers to access and opportunity, and social or psychological barriers developed as a response to existing disparities and social factors. Dr. Shetay Ashford of the Texas State Department of Occupational, Workforce, and Leadership Studies is conducting research to overcome these barriers and meet the needs of the future U.S. STEM workforce. Working with co-principal investigators and STEM educators Dr. Kristy L. Daniel and Dr. Dana M. Garcia of the Department of Biology, along with a team of graduate research assistants, Ashford is the principal investigator of a community-engaged research project called ACCEYSS - the Association of Collaborative Communities Equipping Youth for STEM Success.

The ACCEYSS project is currently funded by a two-year National Science Foundation grant to develop pilot studies aimed at creating a sustainable, research-driven STEM intervention model for increasing the number of historically underrepresented and underserved minorities who attain undergraduate STEM degrees. The project began with a study of 151 minority and non-minority students in the Texas State College of Science and Engineering to identify existing and perceived barriers and obstacles, as well as success factors that keep students enrolled and on-track to graduation. The key to success, Ashford believes, is "meeting

people where they are." To that end, ACCEYSS partners with community members including Texas State University, the Career and Technical Education department of the San Marcos Consolidated Independent School District, San Marcos Youth Service Bureau, the City of San Marcos – Office of the City Manager, Greater San Marcos Partnership, the Hays County Youth Initiative, the Calaboose African American History Museum, el Centro Cultural Hispano de San Marcos, Alternative Life Moving Strategies, The P2P Movement, Inc. and several local faith-based organizations, whom Ashford emphatically calls a "historical hub for social, political and economic empowerment in communities of color." Together, these partners will identify ways that the community can help lift up students and support them through graduation and beyond.

The next stages of the project will build on these community engagements, working with stakeholders while further developing the education model for student success. Eventually the group hopes to reach out to other communities to gather more data and test their model's effectiveness with diverse, underserved groups across the state of Texas. Success in this phase will eventually lead to the establishment of a nonprofit organization aimed at taking the ACCEYSS model nationwide and opening a pathway to strengthening STEM skills in students of all ages.

# RESEARCH AT TEXAS STATE

We're proud of our commitment to discovering and creating new knowledge through research in all disciplines. These are some highlights of the university's research efforts:

554 independent sponsored research projects (2018)

64% increase in research and development expenditures over the past five years, from \$39.3M in FY14 to \$64.3M in FY18

Ranked in the

### top 50 schools

in the nation for humanities research and development expenditures

33 research centers and institutes

Freeman Center: 3,486-ACRE research facility for anthropology, agriculture, biology, military science and more

STAR Park is a business incubator for the commercialization of applied research, with

\$1.5M in funded research and \$33M+ equity raised

Center for Communication, Collaboration & Creativity fosters interdisciplinary projects across the university

5-10 Undergraduate Research Fellowships awarded each semester to fund original work

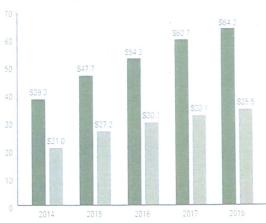


### Research Is Thriving at Texas State

Our focus on research and the excellent work of our faculty and students has helped Texas State maintain steady growth in both externally funded research and research and development spending.

Over the past five years, externally funded research has increased by 69 percent and total R&D expenditures have increased 64 percent.

## Research Expenditures (millions) Total R&D Externally funded



Accurate as of 9/2018.