

# A Breakthrough to Research Excellence: Discovering the Pathways to Success

# **Research Horizons** 2022 Annual Report







### tnstate.edu/research



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# TENNESSEE STATE UNIVERSITY PRESIDENT DR. GLENDA GLOVER



OFFICE OF THE PRESIDENT TENNESSEE STATE UNIVERSITY 3500 JOHN A. MERRITT BOULEVARD NASHVILLE, TENNESSEE 37209-1561



As the president of Tennessee State University, I take great pride in the ongoing accomplishments of our faculty and students. In December of 2021, the University was reconfirmed by the Carnegie Classification of Institutions of Higher Education as an R2: Doctoral - High Research Activity university. Only the top 6% of research universities have this distinction or better and we are striving to reach the next level. External research funding provides scholarships, career-relevant jobs on campus and networking opportunities for our students. Most importantly is the impact the work of our researchers has on instruction of our students. Research enhances the pedagogy of faculty; and, in turn, deepens the learning experience of their students.

Our researchers have procured the second largest external funding amount raised in our history. We are pleased to report that the University secured external funding in excess of \$67 million even in an increasingly competitive environment. Just as impressive as the amount brought in, is the 221 research submissions submitted by faculty. These facts speak to the consistency, dedication and scholarship of our faculty and continued growth within our culture of research excellence. I commend the outstanding efforts of our researchers, faculty, staff and students.

Research is a juxtaposition of intelligence and creativity that means seeing something that was not there and yet proving it to be true. To the agencies, foundations, collaborators and companies that fund our research programs, the investments you make in our university, faculty and students are without a doubt, worth it! We sincerely thank you for your confidence and your belief in our capabilities.

Sincerely,

Johenda Johover

Glenda Glover President

"Think • Work • Serve" AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER M/F

# INTERIM ASSISTANT VICE PRESIDENT AND CHIEF RESEARCH OFFICER FOR RESEARCH AND SPONSORED PROGRAMS **DR. QUINCY QUICK**

As we emerge from the precipice of the COVID-19 pandemic, the research enterprise at Tennessee State University has continued its historic and unprecedented productivity in 2021-2022, with the highest number of grant submissions in the institution's history and the second highest total of grant awards and contracts received. This output is a testament to the commitment and resilience of Tennessee State University's faculty and staff to research pursuits, but more importantly demonstrates the impact and contributions of TSU researchers on student preparedness for the workforce and technological innovation at the state, regional, national, and international levels.



Partnerships maintained and developed by our faculty and

staff have been exemplary and pivotal to our historic growth. These public-private partnerships span all sectors and include relationships with the State of Tennessee, United States Department of Agriculture (NIFA), Department of Energy, Department of Transportation, National Science Foundation, and Apple to name a few. We are appreciative to all Tennessee State University stakeholders and look forward to assisting our faculty and staff with strengthening existing partnerships and developing new ones.

The Office of Research and Sponsored programs is committed to supporting our faculty and staff research efforts, as evidenced by our mini-seed grant award program that funded twenty-three awards this past year. Additionally, the Office of Research and Sponsored Programs strives to provide unparalleled customer service. It is an honor and a privilege to serve the outstanding faculty and staff and lead the research enterprise at Tennessee State University as we pursue our goal to achieve R1 status and reach new research achievements.

wincy Quick

Quincy Quick, Ph.D. Interim AVP and Chief Research Officer Division of Research and Sponsored Programs Tennessee State University qquick@tnstate.edu

# **RESEARCH CENTERS AND INSTITUTES**

### Research Centers and Institutes at Tennessee State University

Center for Aging: Research and Education Services (CARES)

Center for Entrepreneurship and Economic Development (CEED)

Center for Prevention Research

Center of Excellence for Battlefield Sensor Fusion

Center of Excellence for Learning Sciences (COELS)

Center of Excellence in Information Systems Engineering and Management (COE-ISEM)

Cooperative Extension Program (CEP)

Institute of Food, Agricultural, and Environmental Research (IFAER)

Institute of Government

Nanoscience and Biotechnology Core Facility

Otis L. Floyd Nursery Research Center at McMinnville

TSU Interdisciplinary Graduate Engineering Research (TIGER) Institute

- Advanced Visualization and Computing
- Bioinformatics
- Cybersecurity
- Mechatronics
- Nano-materials
- Renewable Energy Systems







# UNIVERSITY RESEARCH CAPACITY

Founded in 1912, Tennessee State University (TSU), a Historically Black College and University (HBCU), fosters scholarly inquiry and research, lifelong learning, and a commitment to service. This 1890 land-grant institution with three farms is Nashville's comprehensive public university, as well as a Carnegie R2 Doctoral – High Research Activity institution. TSU has demonstrated expertise as a robust, expanding educational and entrepreneurial research engine with a continuous positive impact on the economic ecosystem of Nashville, the State of Tennessee, regionally and nationally. Through a myriad of collaborations and an interdisciplinary approach, the university offers unique research, creates entrepreneurial opportunities, produces workforce ready talent, and provides educational and technical assistance services to students, scholars, industries, communities, and business partners.

### **Strategic Research Priorities**

Tennessee State University delivers solutions from local to global challenges through strategic priority areas.

- 1. Cybersecurity, Cyber Physical Systems, Bioinformatics, & Interoperability
- 2. Renewable Energy
- 3. Big Data Analytics
- 4. Education Innovation and Leadership
- 5. Food Supply Security and Sustainability
- 6. Plant and Animal Genetics
- 7. Health Disparities and Disease Prevention/Treatment
- 8. Workforce Pipeline Development
- 9. Early Childhood Education
- 10. Rural Economic Development and Urban Planning
- 11. Biotechnology, Nanosciences, and Advanced Materials
- 12.Astrophysics
- 13. Transportation Systems
- 14. Advanced Manufacturing
- 15. Autonomous Vehicles
- 16. Robotics and Mechatronics

### **Research Methods and Techniques**

The university offers an array of techniques, approaches, methodologies, and services for solving the world's most pressing issues and aiding communities. Common approaches include Feasibility Studies, Economic Impact Modeling, Simulation Testing, Prototype Development, Data Mining, Trend Analysis, Market Analysis, Stress Testing, Automatic Target Recognition Testing, Learning and Behavioral Assessments, Confocal Imaging, Needs Assessments, etc.

### For more information contact

John Barfield Director of Engagement and Visibility 615-963-2291 JBarfield@tnstate.edu







### College of Agriculture

The faculty of the College of Agriculture are engaged in conducting innovative research and communicating new knowledge through Extension activities in the agricultural and environmental sciences and human sciences. The College of Agriculture addresses the needs of humankind, focusing on finding solutions to challenges faced by socially and economically disadvantaged groups, and contributing to the prosperity of the citizens of Tennessee, the nation, and the world. Research areas include agricultural economics and rural communities; agriculture systems and technology; animal health, production, and products; bioenergy, natural resources, environment; food safety, nutrition, and health; plant health, production, and products; family well-being and youth development.

### College of Business

The College of Business (COB) is uniquely poised as a strong, robust, and expanding educational options with the Accelerated and Executive MBA programs. These graduate programs provide convenient and flexible options for working individuals and students taking the next step in management. Preparing students for the corporate environment or entrepreneurship, the COB is positively impacting the entrepreneurial and economic tapestry of Nashville, the State of Tennessee, and the world. The faculty are engaged in conducting applied, discipline-based, and pedagogical research in accounting, business management, economics, finance, and information systems and technology. Our graduates are well prepared and highly sought after. TSU's College of Business is proud to be a part of Nashville's business ecosystem.

### **College of Education**

The College of Education faculty are engaged in research that examines disparities in education and student learning. They strive for developing,

and implementing, innovative models of programs, instruction, and assessment along with integrating technology to influence student learning outcomes; elevating teaching and leading; designing clinical experiences to transform human capital pipeline, developing strategic partnerships; using data to inform program development, and applying human capital decision making processes; strategies for developing pathways to excellent teaching; and more inclusive models of student academic success that are designed to impact student retention.

### College of Engineering

The College of Engineering faculty are conducting research in nanomaterials, signal and image processing, intelligent control systems, robotics and mechatronics, artificial intelligence, bioinformatics and big data, health monitoring, systems engineering, wireless communication, and cybersecurity across various systems and software. Our engineering programs house masters and Ph.D. degree opportunities.

### College of Health Sciences

The faculty of the College of Health Sciences, our largest college, are engaged in conducting research that includes speech pathology and audiology, behavioral science approaches to reduce health disparities, obesity, diabetes, and breast cancer prevention and treatment. The college also houses the Tiger Community Rehabilitation Clinic, a student-run occupational and physical therapy clinic.

### **College of Liberal Arts**

The faculty of the College of Liberal Arts are engaged in conducting research in areas that reflect knowledge and potential of new interdisciplinary fields while continuing work in the traditional academic disciplines at the heart of a university. The research includes studies in geosciences and environmental justice; global perspectives on civil rights and justice issues; African American history, literature, and culture; education in music, history, literature, and language; global perspectives in art; and criminal justice.

#### College of Life and Physical Sciences Department of Chemistry

Department of Chemistry research is focused on environmental science, cancer, viruses, drug design, the synthesis of novel inorganic materials, and the interactions between different biological systems and membrane constituents.

### **Department of Biological Sciences**

The faculty of the Department of Biological Sciences are engaged in research endeavors in the broad area of cellular and molecular biology. Research activities involve studies of plant extracts and the effect of cancer cell growth and function, studies of the role of D3 receptors in neuronal development, studies of collagen assembly and trafficking, and studies of global change ecology.

#### **Department of Mathematical Sciences**

Research interests from the faculty of the Department of Mathematical Sciences include

applied mathematics, mathematical modeling, functional and numerical analysis, algebra, mathematics education, wavelets, physics, and

#### **College of Public Service**

The faculty of the College of Public Service are engaged in conducting research specific to leadership; intergovernmental relations, public finance, public policy; policy and economics of education; environmental policy and justice, urban planning and policy, economic development, gentrification, non-profit management and community revitalization; public administration and policy analysis; state lottery policy; health policy; social work; and aging.

### University Honors College

The University Honors College (UHC) provides an especially rich and challenging set of academic offerings to talented and highly motivated students at Tennessee State University. Through special courses, a vigorous intellectual community, and emphasis on undergraduate research, the Honors College enables students to reach new heights of excellence!



# RESEARCH AWARDS: 2021 - 2022

## Annual Research Awards: Five-Year Results



# RESEARCH AWARDS: 2021 - 2022

## 2022 Awards by College, Division, or Center



# DR. SONALI ROY

*Understanding Peptide Signaling for Improved Legume Nitrogen Acquisition* 

Dr. Sonali Roy is interested in finding solutions to the dual problem of Nitrogen use in agriculture; on one hand, added nitrogenous fertilizers boost crop productivity but on the other their excessive use is detrimental to the environment. Dr. Roy studies legumes and their ability to grow independently of nitrogenous fertilizers in association with beneficial soil bacteria that convert atmospheric Nitrogen to plantusable ammonia. Her research uses advanced molecular techniques such as gene editing to study small signaling peptides. These peptide hormones act as signals to help legumes select bacterial partners, integrate environmental cues and control plant physiology such that the plant is able to optimally acquire nitrogen.

Dr. Roy has spent the last ten years studying the legume-rhizobia symbiosis. She was awarded a fellowship from the John Innes Foundation to complete her doctoral studies on plant hormones that regulate nodule organ formation. Dr. Roy pursued her research interests in plant hormones at the Noble Research Institute in Ardmore, Oklahoma, where she discovered small molecules that doubled root nitrogen uptake in hydroponic systems. The institute also donated key equipment and a library of synthetic peptide hormones valued at \$200,000 to support Dr. Roy's lab within the College of Agriculture.

Dr. Roy continues to pursue her interests in small signaling molecules at Tennessee State University. Since joining TSU in January 2021, Roy has received three federal grants totaling \$1.4 million from the United States National Science Foundation and the US Department of Agriculture to understand how legumes perceive small signaling peptides and their effects on the nodule methylome. Dr. Roy also received the HBCU-UP award to develop an undergraduate course on gene editing, incorporating key theoretical lessons as well as hands-on training activities to be offered as part of the B.S in Agricultural Sciences within the College of Agriculture.



Dr. Sonali Roy is an Assistant Professor in the Department of Agriculture and Environmental Sciences.



Microscopic image of a Root Nodule and Arbuscular Mycorrhizal Symbiosis

### ASSISTANT PROFESSOR

# **DR. LEITAO CHEN**

### Developing A Boltzmann Model For Multi-Scale and Multi-Physics/Chemistry Problems

Dr. Chen's project focuses on a challenging research problem, which is a special type of fluid transport phenomena that are characterized by three unique features: multi-scale, porous media, and multiphysics/multi-chemistry. A representative problem is the transport of electrolytes in the porous electrodes of redox flow batteries. The goal of Dr. Chen's research is to develop a specialized simulation model with the high-performance computing capability based on a new methodology that solves the Boltzmann equation with the finite volume method, which allows a convenient adoption of fully unstructured grids to precisely reconstruct the complex three-dimensional boundaries rendered by porous media. The novelty of this project is that it provides a specifically tailored simulation model that demonstrates a superiority in computational performance (defined as accuracy normalized by

associated computational cost) over existing methodologies for the multi-scale and multiphysics/multi-chemistry fluid transport phenomena in porous media. This new model can accelerate the understanding of the selected research problem. With further development, it can become a general simulation tool for the modeling of any transport phenomenon beyond fluid transport.

Multi-scale and multi-physics/chemistry fluid transport in porous media is exceedingly common to see yet particularly difficult to solve.



Dr. Leitao Chen is an Assistant Professor in the Department of Mechanical and Manufacturing Engineering.



An electron microscope image of the carbon fiber (left) in the reconstructed 3D structure for the entire layer (right) in the porous electrodes of redox flow batteries.

These problems can be found in groundwater remediation, agricultural runoff, energy storage, drug delivery, advanced 3D printing, and many others. All of these have profound impacts on the health, environment, and economy. For example, groundwater remediation costs typically range between \$36 to \$100 per m<sup>3</sup>; increased over-application of phosphorus to mitigate nitrogen rates in soils has led to a spike in soluble phosphorus in agricultural runoff; and energy storage deployments are predicted to grow by over 40% worldwide each year for the next decade. None of these problems can be properly solved by existing simulation tools. Dr. Chen's model can completely shift the paradigm for modeling these problems by providing more accurate predictions and better understandings, followed by better process and system designs. Dr. Chen's research is currently supported by two NSF awards, with a total grant of \$430,000.

# ASSOCIATE PROFESSOR

### Beyond the Bauhaus: Diverse Work, Ideologies, and Methods Missing from the Graphic Design Canon

Beyond the Bauhaus is an article series established by Kaleena Sales in 2019 through her service on the national steering committee for AIGA's Design Educators Community. With the help of AIGA's platform, the series, which features short essays curated and edited by Kaleena has attracted a national following and contributions from design scholars and educators from across the country. The article series amplifies design contributions from underrepresented groups that have been left out of the design canon.

The first article featured the beautifully designed West African Adinkra symbols from the Akan people of Cote d'Ivoire. The short essay discussed the symbolism and deep meaning within the symbols, as well as the use of common visual principles within its designs. The next essay in the series featured the work of Chicago-based, civil rights era artist collective, AfriCOBRA. As the article series grew, contributors began to submit essays about other design histories worthy of inclusion in the canon. Kaleena is now turning this successful series into a book, to be published by Princeton Architectural Press, and released in the fall of 2023.

Kaleena Sales is an Associate Professor of Graphic Design and Chair of the Department of Art & Design. She is co-host of Design Observer's The Design of Business | The Business of Design *Minisodes* podcast with Omari Souza. Her design writing and research centers on Black culture and aesthetics, and has been featured in a number of leading design industry publications. She recently co-authored the book *Extra-Bold: A Feminist, Inclusive, Anti-Racist, Non-Binary Field Guild for Graphic Designers,* alongside Ellen Lupton, Farah Kafei, Jennifer Tobias, Josh A. Halstead, Leslie Xia, and Valentina Vergara. Kaleena currently serves on the Arts at the Airport Board of Directors and has previously served



Kaleena Sales is an Associate Professor of Graphic Design and Chair of the Department of Art & Design.



Beyond the Bauhaus: The Gees Bend Quilters

> Beyond the Bauhaus: The Chinese Type Archive







Beyond the Bauhaus: How a Chicago–Based Art Collective Defined Their Own Aesthetic





Beyond the Bauhaus is as an article series established by Kaleena Sales in 2019 through her service on the national steering committee for AIGA's Design Educators Community.

as Director of Diversity and Inclusion for AIGA Nashville. Kaleena is also an award-winning illustrator, with work featured in Communication Arts 2021 Illustration Annual, and has recently worked as an on-screen artist for the global artist brand, Prismacolor. Learn more about her work at <u>www.kaleenasales.design</u>.

# ASSOCIATE VICE PRESIDENT **DR. ROBBIE K. MELTON**

Addressing the Diversity of the Digital Divide

TSU SMART Global Innovative Technologies Division is a state-of-the-art center established to promote digital literacies, to inspire SMART connected innovations, and to provide education technology skills across the spectrum of education (PreK-Life Long Learning) and all disciplines, in preparation for the digital workforce and communities.

The staff and faculty of the SMART Technology Innovation Center are engaged in four national research studies:

- 1. HBCU-C2 of Apple's Everyone One Can Code and Everyone Can Create in promoting digital literacy and coding/creating skills for the digital workforce,
- 2. HBCU Open Education Resources (OER) in making education accessible and affordable by reducing the cost of textbooks,
- 3. Academic eSports in utilizing video games to pathway into STEAM Programs, increase retention, and provide another opportunity for intermural and competition sports, and
- 4. SMART Immersive Teaching, Learning, and Training research in investigating the impact of virtual reality (VR), augmented reality (AR), Holograms (HR), and Artificial Intelligence (A.I.) in enhancing teaching, learning, and in creating an environment for emerging innovations.



Dr. Robbie K. Melton is the Acting Interim Vice President for Academic Affairs and Associate Vice President of the SMART Technology Innovation Center.



Students participated in a demonstration of new cutting-edge technology with the Oxford Medical Simulation at the TSU SMART Center.

### ASSOCIATE PROFESSOR

# DR. KIMBERLY P. JOHNSON

### Rhetorical Scholarship from a Womanist Perspective

Dr. Kimberly P. Johnson is an ordained minister and preacher with research interests that sit at the intersection of African American rhetoric; women's studies; womanist preaching; womanist theology; and African American studies and preaching. Dr. Johnson's book, *The Womanist Preacher: Proclaiming Womanist Rhetoric from the Pulpit*, examines sermons by exemplary womanist preachers (Elaine Flake, Gina Stewart, Cheryl Kirk-Duggan, Melva Sampson, and Claudette Copeland) to answer the question: how does womanist preaching attempt to transform / adapt the tenets of womanist thought to make it rhetorically viable in the church? And what is gained and lost in this? *The Womanist Preacher is a groundbreaking venture for the field of communication (previously, the field only had one book in print that addresses womanist discourse) and is the first piece of scholarship that specifically reveals what womanist preaching looks like from a rhetorical standpoint.* Thus, *The Womanist Preacher* serves as a roadmap toward gaining a deeper understanding of womanist rhetoric and womanist preaching.

Dr. Johnson recently won two awards from the National Communication Association's African American Communication and Culture Division and Black Caucus. She was the recipient of the 2021 Top Book Chapter Award for "A Womanist Response to Black Lives Matter and American Nationalism," in Womanist Ethical Rhetoric: A Call for Liberation and Social Justice in Pr Kimberly P. Johnson is an

Dr. Kimberly P. Johnson is an Associate Professor of Communications and an affiliate faculty member of the Women's Studies Program.

*Turbulent Times*, and the 2021 Top Article Award for "Must Thee Take the Man Exclusively? Jarena Lee and Claiming the Right to Preach," in the *Listening/Journal of Communication Ethic, Religion, and Culture*.

Dr. Johnson is currently working on an edited two-volume anthology called, *Preaching During a Pandemic: The Rhetoric of the Black Preaching Tradition*, with Andre Johnson and Wallis Baxter, III. This book is a collection of sermons from those who preach within the Black preaching tradition. By examining these sermons, she hopes to address questions such as: (1) How are preachers incorporating and infusing Covid-19 in their sermons? (2) What shape does the prophetic and priestly sermon take when preaching during a pandemic? (3) And finally, are specific models or types of sermons more frequently employed during a crisis? Both volumes are scheduled for release in December of 2022. The second project is a book chapter that honors the legacy of Prathia Hall, a womanist scholar, preacher, and social justice activist. The chapter, which is tentatively called "Prathia Hall: Between the Wilderness and a Cliff," rhetorically analyzes Hall's 1992 sermon, "Between the Wilderness and a Cliff," to discover what womanist characteristics were employed and what Hall's sermon says to current day America.

Dr. Johnson has a Doctor of Philosophy in Communication along with a Graduate Certificate in Women's and Gender Studies from The University of Memphis; a Master of Divinity Degree from McCormick Theological Seminary; and a Bachelor of Science Degree in Speech from Northwestern University. She is a licensed and ordained minister in the Christian Church (Disciples of Christ) and serves as an Associate Minister at New Covenant Christian Church in Nashville, Tennessee.

### EXECUTIVE DIRECTOR

# DR. ANDREA L. TYLER

*Improving Student Achievement, Persistence, and Career Pathways in STEM* 

Dr. Andrea L. Tyler's research focuses on the educational experiences and career pathways of post-graduate and graduate students of color. Dr. Tyler's research sits at the intersection of race and gender equity and inclusion, STEM graduate and post-graduate achievement and career choices, mentoring relationships on educational outcomes, and identity constructs among marginalized populations, particularly Black females in STEM fields. Dr. Tyler has published in top-tier journals and co-edited a book titled Seeing The Hidden Minority: Increasing the Talent Pool Through Identity, Socialization, and Mentoring Constructs.

In 2022, Dr. Tyler was awarded two grants funded by the National Science Foundation (\$1.5 million) and the U.S. Department of Education (\$750,000). The NSF grant is titled Collaborative Research: Racial Equity: Examining Blackness in Postsecondary STEM Education through a Multidimensional-Multiplicative Lens. The purpose of the research grant is to develop theories, research methods and tools, and forms of knowledge that expand the field of STEM education's conceptual understandings of and implications for racial equity in STEM. The collaborative

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research project will also focus on examining Blackness in Postsecondary STEM Education through a Multidimensional-Multiplicative Lens and constitutes a network of six institutions (two HBCUS, three PWIs, and one HSI) located across the Mid-Atlantic, Southeast, Southwest, and Midwest regions of the U.S.

*The All-Star Mathematics Institute (ASMI)* funded though the U.S. Department of Education is a free yearround program with an intensive two-week non-residential summer component. The All-Star Mathematics Institute will assist students in critical Mathematical skills and provide support with mathematics courses necessary to persist in STEM disciplines. Dr. Tyler is also the Principal Investigator of a third active grant funded by the Department of Education (\$750,000) titled *Student Opportunities for Advancement in Research Skills (SOARS)*.

Dr. Tyler earned her doctoral degree in Educational Leadership (STEM Curriculum and Cultural Studies) from the Miami University of Ohio. Dr. Tyler also holds degrees in Curriculum and Instruction (STEM Education) and Mechanical Engineering from North Carolina A&T State University.





Dr. Andrea L. Tyler is the Executive Director of Title III Administration and Director of Graduate Student Services.

### DIRECTOR

# DR. ANITA MCGAHA

### Expanding Opportunities for Inclusive Learning

The Tennessee Department of Intellectual and Developmental Disabilities has awarded the Tennessee Believes grant to four universities, including the Tennessee State University Office of Disability Services. TSU is the first public university in middle Tennessee to have a comprehensive transition postsecondary (CTP) program. It is also the only historically black college or university (HBCU) that permits intellectually and developmentally disabled (IDD) students from out of state to take part in the CTP program.



Dr. Anita McGaha is the Director of the Office of Disability Services.

The \$284,000 Believes Grant awarded to TSU by the Division of Intellectual and Developmental Disabilities created the TigerEDGE

(Educate, Develop, Grow for Employability) non-degree certificate program, which is being piloted fall 2022. The two-year cohort CTP program will give young adults with disabilities an opportunity to experience college life and provide practical experience in preparation for the workforce. The TigerEDGE students are enrolled in two inclusive (audited) classes of their choice and are taking the required freshman course UNIV 1000: Service to Leadership for credit as well as some specially designed courses to prepare the students for the workforce and independent living.

According to Dr. Anita McGaha, Director of Disability Services at TSU and principal investigator of the grant, "TigerEDGE gives individuals an 'Edge' in the transition to independent adulthood by providing personcentered, inclusive learning and choice. We believe their quality of life will be enhanced as a result of the services provided, which will enhance the building of social skills, academic abilities, and professional and employment aptitude. TSU's students and the community as a whole will benefit from having a CTP program," Dr. McGaha said. The TigerEDGE students and their peers will "learn, live, and work together in an inclusive atmosphere."

Of course, this amazing work could not happen without the support of TSU's President Dr. Glenda Glover, Dr. Curtis Johnson, Chief of Staff, AVP, Mr. Gregory Morrissette, and the College of Education's faculty, staff, and students. Dr. McGaha has partnered with the College of Education, Speech Pathology, the Career Center, and Academic Affairs to ensure the TigerEDGE students will have what they need to be successful in an inclusive higher education learning environment. "We are looking forward to seeing the TigerEDGE program grow and become an approved CTP program. Most importantly, we are excited for the IDD students to have an opportunity to attend TSU, Big Blue Country, a HBCU and have a sense of belonging," Dr. McGaha said. "TSU's motto is in action: Think. Work. Serve."

# TSU QUICK FACTS: 2021 - 2022



Carnegie "High Research" University (R2)



**337 Full-time Instructional Faculty** 



Undergraduate Student-to-Faculty Ratio: 14 to 1









Source: TSU Common Data Set 2021-2022, IES IPEDS Date Canter: Tennessee State University 2021-2022

# RESEARCH AND SPONSORED PROGRAMS STAFF



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Division of Research and Sponsored Programs

**TSU Research is:** 

# TRANSFORMATIVE

INNOVATIVE AND

GAME CHANGING

REVOLUTIONARY

EXEMPLARY

TSU IS ON THE RISE

T.I.G.E.R. Research Initiative

Tennessee State University is embarking on an ambitious pursuit of \$100 million in awards from external funding sources.

The T.I.G.E.R. Research Initiative is the University's comprehensive campaign to reach the goal of \$100 million in funding through research development and strategic partnerships.

# \$100 Million



Imagine what we can accomplish together.

# **TENNESSEE** STATE UNIVERSITY Division of Research and Sponsored Programs

Tennessee State University is designated by the Carnegie Classification of Institutions of Higher Education as a R2: Doctoral Institution – High Research Activity. The university engages in cutting-edge research to address critical challenges in our society. Our research arm supports faculty and students by taking their ideas from conception to fruition in critical areas such as agricultural sciences, engineering, biotechnology, nanomaterials, health sciences, cybersecurity, artificial intelligence, astrophysics, business and the social sciences.

The Office of Research and Sponsored Programs works to enable our research community through:

- New Funding Opportunities
- Proposal Development and Submission
- Pre-award Support
- Post-award Support
- Faculty Development Workshops

# **Find Your Funding**

Find your funding with these grant search services:

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### grants.gov



National Science Foundation

nsf.gov

# tnstate.edu/research

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