



Tennessee STEM Education Center
Science · Technology · Engineering · Math

MIDDLE TENNESSEE STATE UNIVERSITY

Message From The Director

This spring semester has once again reminded me how much meaningful work can grow from strong partnerships, shared vision, and a willingness to invest deeply in students and educators. As you explore this edition of the TSEC newsletter, I hope you'll see not only a collection of events and accomplishments, but also the continued growth of a community committed to expanding opportunities in STEM education across Tennessee and beyond.

This spring, TSEC hosted several outreach events that brought STEM learning directly into our schools and communities. Under the leadership of Dr. Kevin Ragland and the Middle Tennessee STEM Innovation Hub, MTSU welcomed dozens of middle and high school teams for the Regional Science Olympiad competition, while our Elementary Science Olympiad once again created opportunities for younger learners to experience teamwork, creativity, and scientific problem solving. In addition, Lindsay Randolph continued leading engaging STEM Nights in local schools, including Hobgood Elementary's interactive drone mission activity that challenged students to think like engineers and astronauts through hands-on exploration.

We are also proud of the continued momentum across our professional learning and leadership initiatives. The LEADS project recently gathered educators and district partners for another successful LEADS Day in Warren County, while the Middle Tennessee STEM Innovation Hub hosted workshops focused on robotics, project-based learning, and virtual field trip design to support innovative classroom instruction.

This issue also highlights the continued growth of externally funded projects that are shaping STEM teacher preparation and research nationally. Our iTREKS initiative, developed in collaboration with nine partner institutions, continues advancing important conversations around STEM teacher retention and effectiveness in high-need schools.

We also celebrate the accomplishments of our PROPS4DBER postdoctoral scholars and congratulate Associate Director Dr. Kevin Ragland on receiving the Tennessee STEM Innovation Network's Excellence in Advocacy Award.

Thank you for taking time to connect with our work and celebrate the people who make it possible. We remain grateful for the partnerships that continue to strengthen our mission and expand opportunities for students, teachers, and communities through STEM education.

Warm regards,

Gregory T. Rushton, Ph.D.
Director, Tennessee STEM Education Center

MTSU Hosts Regional Science Olympiad, Showcasing Student Excellence in STEM

Middle Tennessee State University recently hosted the annual Regional Science Olympiad, bringing together 26 middle and high school teams for a day of hands-on STEM competition. The event, led by the Tennessee STEM Education Center (TSEC) with support from MTSU faculty, staff, and student volunteers, highlighted student achievement across 46 science and engineering events.

Participants applied months of preparation as they competed in challenges spanning biology, chemistry, physics, earth science, and engineering. The competition emphasized teamwork, critical thinking, and problem-solving, key skills for future STEM success.

This year's event was supported by the College of Basic and Applied Sciences and a \$35,000 grant secured by Dr. Kevin Ragland and the Middle Tennessee STEM Innovation Hub, with funding from the Tennessee STEM Innovation Network and Battelle Education.

Congratulations to the Teams Who Advanced to State!

Division B

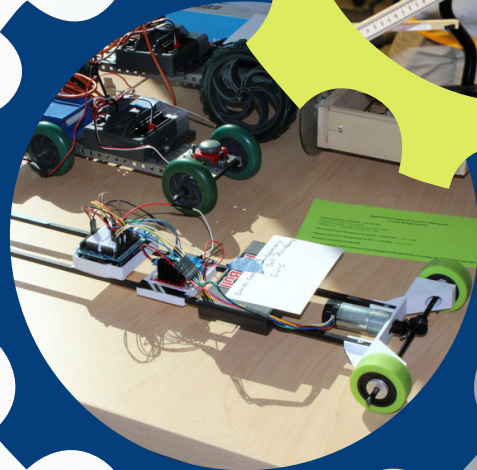
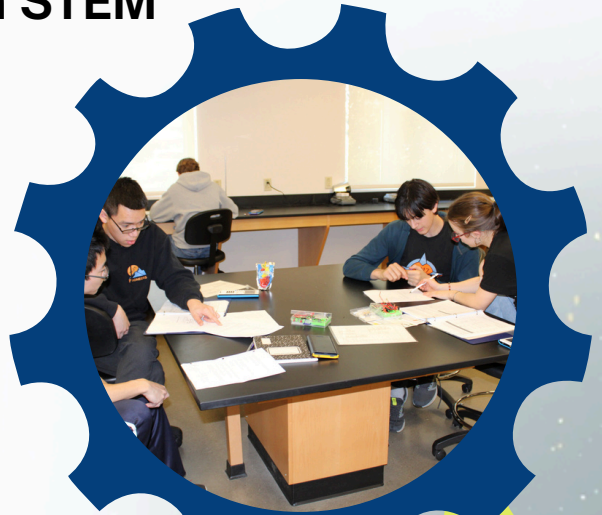
1. Merroll Hyde Magnet
2. Sunset Middle
3. Central Magnet
4. Montgomery Bell Magnet
5. Battle Ground Academy

Division C

1. Central Magnet
2. Merroll Hyde Magnet
3. Brentwood High School
4. Montgomery Bell Academy
5. Hume Fogg Academic

These teams went on to represent their schools at the State Science Olympiad tournament in Knoxville in April.

TSEC thanks all students, coaches, and volunteers for making this event a success.



Elementary Educators Engage in STEM Learning at MTSU Hub Workshop

On March 3, 2026, the Middle Tennessee STEM Innovation Hub hosted a full-day Innovative Educator Workshop at Middle Tennessee State University, bringing elementary educators together for hands-on STEM learning and collaboration.

The workshop featured three engaging sessions designed to provide practical, classroom-ready strategies. In “From Blocks to Bots,” Shannon Meadows (Librarian and IB Coordinator for Julia Green Elementary School) introduced educators to beginner-friendly robotics tools such as Ozobot, Sphero, Blue-Bot, and Dot & Dash. Participants explored how block coding and robotics can be integrated into everyday instruction to support problem-solving, collaboration, and computational thinking.

In “Virtual Field Trips for CTE and the General Classroom,” Trent Cheeves (Instructional Technology Coach for Murfreesboro City Schools) shared a curated collection of digital tools and resources that connect students to real-world careers and experiences. Educators learned how to effectively plan and facilitate virtual field trips that enhance engagement and extend learning beyond the classroom.

The day concluded with “Transforming Science Practice through PBL Storylines,” led by Stephanie Finley (Science and STEM Specialist, 6-8 for Rutherford County Schools) and Vickie Stem (K-5, Science and S.S. Specialist for Rutherford County Schools). Teachers were immersed in a project-based learning experience focused on ecosystems, modeling how student-driven questions can build deeper understanding of scientific concepts.

Participants left with practical strategies and renewed confidence to support engaging, high-quality STEM instruction.





STEM IN ORBIT: TSEC'S DRONE MISSION ENGAGES YOUNG LEARNERS AT HOBGOOD ELEMENTARY



On March 26, the Tennessee STEM Education Center (TSEC) participated in STEM Night at Hobgood Elementary School, creating an engaging, hands-on learning experience for students and their families.

A highlight of the evening was TSEC's interactive drone station, where elementary students took on the role of astronauts in a "space mission" challenge. Using small indoor drones, students navigated a series of checkpoints beginning with a launch from Earth, followed by orbiting the Moon, flying through Saturn's rings, and landing on Mars.

The activity was designed to introduce foundational STEM concepts in an accessible and exciting way. As students piloted the drones, they practiced skills such as spatial awareness, control, and problem-solving, while also developing confidence through trial and error. The themed stations and visual guides helped students quickly understand each task and stay engaged throughout the experience.

The drone mission quickly became a favorite among attendees, drawing enthusiastic participation and support from families. Parents and caregivers had the opportunity to observe and engage with the activity, reinforcing the importance of hands-on STEM learning beyond the classroom.

TSEC's involvement in events like Hobgood Elementary's STEM Night reflects its ongoing commitment to supporting K-12 STEM education and fostering early interest in STEM pathways. By bringing interactive and innovative experiences directly to schools, TSEC continues to inspire the next generation of learners.



Lindsay Randolph guides a student through a drone landing challenge.



FROM RESEARCH TO IMPACT: 20 YEARS OF POSTERS AT THE CAPITOL



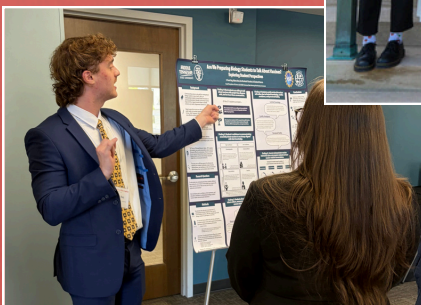
April 8, 2026

For 20 years, the Tennessee STEM Education Center (TSEC) at Middle Tennessee State University has proudly hosted the Posters at the Capitol initiative, bringing undergraduate research to the forefront through meaningful partnerships and a sustained commitment to advancing STEM education. What began as an opportunity to promote student scholarship has grown into a powerful platform where students share their discoveries beyond the classroom and into the public sphere.

This year's event, held on April 8, 2026, welcomed participation from six universities across Tennessee, highlighting the collaborative spirit that continues to drive this initiative forward. Students from across the state presented their research to legislators, faculty, and peers, demonstrating both the depth of their work and the importance of supporting undergraduate research.

Middle Tennessee State University was represented by Emily Callison, Alexis Katz, Trenton McAlmond, Travis Ray, Olivia Vickers, and Madison Yahn, whose research contributions reflected the innovation and scholarly excellence fostered through undergraduate research experiences at MTSU.

As TSEC celebrates this 20-year milestone, the impact of Posters at the Capitol continues to grow. The event not only connects students with state leadership, but also reinforces the role of research in addressing real-world challenges and shaping the future STEM workforce. In this commemorative year, we celebrate the students who continue to lead with curiosity, innovation, and purpose. Their work reflects the power of research when paired with opportunity and mentorship.



Elementary Science Olympiad Inspires Young STEM Learners

April 25, 2026 | Blackman Middle School

What do you get when you combine a love of science with friendly competition? Elementary Science Olympiad. Each year, TSEC watches students light up with excitement as they take on challenges, work in teams, and proudly showcase their knowledge during a full day of science-centered fun.

Students were put to the test as they recalled scientific vocabulary, tackled building and design challenges, and applied their knowledge across multiple STEM disciplines. Events like Mystery Architecture had teams racing against the clock to build strong, creative structures, while No Bones About It challenged students to quickly identify and recall the names of bones. Classrooms buzzed with energy as teammates whispered strategies, sketched designs, and celebrated small victories along the way.

At the conclusion of the event, the top five teams were recognized for their outstanding performance and teamwork:

1. Discovery School
2. Dayspring Academy Team A
3. Overall Creek Elementary
4. Blackman Elementary Team Orange
5. Dayspring Academy Team B

Elementary Science Olympiad is made possible through the dedication of MTSU faculty, staff, and student volunteers who are passionate about inspiring the next generation of scientists, engineers, and innovators. We are especially grateful to Murfreesboro City Schools and Rutherford County Schools for their continued partnership.

Together, we are building confidence, curiosity, and a lifelong love of STEM, one event at a time.



Exploring the World of Science

LEADS Day: Strengthening STEM Through Collaboration and Leadership

On March 25, 2026, the LEADS project community gathered for a full day of collaboration, learning, and connection during LEADS Day—one of the initiative’s signature professional development events. Bringing together Principal Investigators, Master Teacher Fellows (MTFs), faculty, and district partners, the day focused on strengthening relationships and advancing a shared mission to enhance STEM education across the region. Participants engaged in collaborative sessions that included touring schools, project updates, and strategic planning discussions. These activities supported both the continued growth of the LEADS network and the alignment of efforts across institutions and districts.

A highlight of the day was an immersive visit to Warren County Schools. The group toured Warren County High School, exploring dynamic programs in Cosmetology, Engineering, Nissan Automotive, Culinary Arts, and Nursing. The visit offered a firsthand look at how students are being prepared for college and career success through hands-on learning experiences.



The LEADS team gathered at Warren County Schools Board of Education

Lunch was prepared and served by Culinary Arts students, providing a memorable showcase of student talent and program excellence. In the afternoon, the group visited West Elementary School, where MTFs shared their work and highlighted student learning during a presentation in the library.

Overall, the day reflected the power of collaboration and the impact of strong school-university partnerships in advancing STEM education.



Tour led by Terri Morton showcasing WCHS Science department



LEADS logo cookie by Culinary Arts students.



Presentation at West Elementary

Celebrating the PROPS4DBER Scholars

Star Wars Themed Banquet Honors Postdoctoral Researchers and Their Achievements

For the past three years, the Tennessee STEM Education Center (TSEC) has proudly supported innovative educational research through projects like PROPS4DBER (Preparation and Refinement of Postdoctoral Scholars in STEM for Discipline-Based Education Research). Led by Dr. Grant Gardner, alongside principal investigators Dr. Gregory Rushton, Dr. Sarah Bleiler-Baxter, Dr. Jennifer Kaplan, and Dr. Liz Barnes, this NSF-funded initiative prepares postdoctoral scholars to become independent leaders in STEM education research through mentorship, collaboration, and professional development.

To celebrate the accomplishments of the program and its scholars, TSEC Project Manager Aspen Malone and Assistant Project Manager Alex Ayala organized a Star Wars-themed banquet honoring the hard work and dedication of the PROPS4DBER cohort. The event marked the successful completion of the program's third year while creating a fun and memorable opportunity to recognize the scholars' growth.

The banquet celebrated postdoctoral researchers Dr. Cassandra Mohr, Dr. Alyssa Freeman, Dr. Andrew Puente, and Dr. Mary Foley, whose work and development throughout the program have made meaningful contributions to discipline-based education research. Through the mentorship of their principal investigators and the support of TSEC, these scholars have strengthened their skills and expanded their impact in STEM education.

As these scholars move forward into new professional opportunities, TSEC proudly recognizes their achievements and remains committed to supporting transformative research that shapes the future of STEM education.



iTREKS: Charting a New Path for STEM Teachers

How a quiet conversation between colleagues across 9 institutions became iTREKS— a nearly \$2M NSF-funded national Community of Practice rethinking how we prepare and retain STEM educators in high-need schools.

~\$2M

NSF AWARD

9

PARTNER INSTITUTIONS

1,300+

TEACHER PLACEMENTS

150+

NEW STEMTEACHERS/YEARLY

THE MISSION

iTREKS studies STEM teacher preparation in districts where early-career turnover hits hardest. The team treats retention as an equity issue: if high-need schools can't keep effective teachers, the students who most need strong STEM instruction are the ones who lose out.

EARLY MOMENTUM

In its first year, iTREKS has held three Community of Practice meetings, co-authored study instruments, and will make a national debut at the UTeach Conference. Partner districts have begun initial conversations with districts in their area to join the research.

RESEARCH STRANDS

Strand One: Studies placement and effectiveness across high-need districts using longitudinal datasets and the nationally validated Tripod student perception survey.

Strand Two: Studies the Community of Practice itself: how a multi-institutional community develops over time and helps institutions learn together.

3 YEARS IN THE MAKING

Getting from idea to award was a journey. After crafting the proposal for two years, the call finally came in Fall 2025: nearly \$2 million in collaborative NSF funding.

“This project seeks to identify what actually supports long-term persistence and effectiveness — rather than relying on assumptions or isolated examples.”

— iTREKS RESEARCH TEAM

MTSU LEADERS

Dr. Gregory Rushton (PI), Dr. Kimberly Evert (Co-PI), & Heather Green (MTeach Partner), Aspen Malone (Research Project Manager)

THE PARTNERSHIP

Middle Tennessee State University, University of Colorado Colorado Springs, Alabama A&M, UTeach Institute, University of Houston, North Dakota State University, University of Texas Rio Grande Valley, University of Nevada Reno, Central Washington University

IMPACT AT MTSU

iTREKS leverages MTSU's own MTeach program, securing a national seat at the table on teacher retention and school equity.

TSEC Welcomes Danielle Davila as Assistant Project Manager



Danielle Davila joined TSEC in February 2026 as an Assistant Project Manager, supporting Aspen Malone on key initiatives, including the LEADS, iTREKS, and GWEP grants. Her role spans logistics, communications, and strategic planning across multiple programs.

Background in Education: For the past seven years, Danielle has served as a substitute teacher at Riverdale High School, providing consistent support across diverse classroom settings. She is also a mother of three daughters, a commitment that informs her approach to mentorship and leadership.

Professional Development: Danielle is pursuing project management certification with a focus on Scrum methodologies, with the goal of advancing into specialized project management roles. Her cross-sector experience in education, grant coordination, and industry programming positions her well for continued growth in this area.

Beyond the Workplace: Danielle is a credentialed Executive Bourbon Steward and leads educational tasting experiences covering bourbon history, production, and sensory evaluation. She contributes to barrel picking teams, helping identify expressions that reflect both tradition and craft. She is also preparing to pursue certification as a cigar sommelier.

Welcome

Alex Ayala

Assistant Project Manager



Tennessee STEM Education Center
Science · Technology · Engineering · Math

MIDDLE TENNESSEE STATE UNIVERSITY

We're thrilled to introduce Alex Ayala, a senior in Mechatronics Engineering who will graduate in Spring 2026 with a minor in Mathematics. Following his undergraduate studies, Alex plans to continue into the MBA program at MTSU and work in the Management Department as a Graduate Assistant.

During his time at MTSU, Alex has developed a strong foundation in both engineering and project management. In his role as an Assistant Project Manager at the Tennessee STEM Education Center, he supports the ACT-STEM and PROPS4DBER grants, working closely with principal investigators to keep projects running smoothly and effectively. His work spans a wide range of responsibilities, including budget management, event and banquet planning, and website development, all aimed at enabling faculty to focus on their areas of expertise.



These experiences reflect Alex's ability to adapt, organize, and contribute across multiple areas, a skillset that makes him a valuable part of the TSEC team.

Alex's technical background and hands-on project experience have fueled his interest in product design, where he hopes to build innovative, impactful consumer products. He also aims to lead technical teams and bridge the gap between engineering and business, enabling multidisciplinary groups to work together effectively.

We are excited to have Alex on our team and look forward to the contributions and perspective he brings to TSEC.

Excellence in STEM Advocacy

TSEC Associate Director *Dr. Kevin Ragland*
Honored by *TSIN*

The Tennessee STEM Innovation Network (TSIN) is a nonprofit organization dedicated to advancing STEM education through professional development, strategic partnerships, and statewide collaboration. Closely aligned with the mission of the Tennessee STEM Education Center (TSEC), TSIN supports high-quality K–12 STEM learning opportunities across Tennessee.

TSIN collaborates with partners including East Tennessee State University, the University of Tennessee, Tennessee Technological University, Middle Tennessee State University, the Tennessee Department of Education, and the Tennessee Valley Authority to strengthen STEM education and prepare students for success in an evolving workforce.

At the 2026 TSIN Summit, held May 4–5 at the Gaylord Opryland Resort and Convention Center, TSEC’s Dr. Kevin Ragland received the Excellence in Advocacy Award, recognizing individuals who have made a significant impact on STEM education in Tennessee. Dr. Ragland has led initiatives focused on STEM outreach, educator professional development, and expanding access to meaningful STEM learning opportunities across the state.

“I am deeply honored to receive this recognition from the Tennessee STEM Innovation Network. This award reflects not only my work, but the collective efforts of students, colleagues, and community partners who are committed to expanding access to meaningful STEM learning. Advocacy in STEM is about opening doors, helping every learner see themselves as capable of contributing to science, technology, engineering, and mathematics. I’m proud to be part of that mission across Tennessee.”



Summer Professional Learning Series: Two Workshops for Innovative Teaching

This June, educators across the region are invited to participate in two engaging, full-day professional learning experiences designed to support innovative teaching practices and strengthen classroom impact. These workshops offer practical strategies, hands-on learning, and opportunities to connect with fellow educators.

On **June 9**, the Innovative Educator Workshop, titled *“When Am I Ever Going To Have To Use This?”*, is designed specifically for **middle and high school teachers** and focuses on one of the most common questions students ask—and how educators can answer it by connecting classroom content to real-world careers. Led by **John Mullin**, Tennessee State Manager for Learning Blade, this session introduces free, ready-to-use resources that increase student engagement and build career awareness in STEM and computer science. Participants will explore strategies to spark curiosity, strengthen classroom discussions, and help students see the relevance of their learning, all without requiring major changes to existing curriculum.

On **June 11**, educators can continue their learning with *“Beyond the Tool: Practical AI Strategies for Teaching and Learning”*, which is open to **elementary, middle, and high school teachers**. This workshop moves beyond the hype of artificial intelligence to focus on what is actually useful in the classroom. Led by **Claire Williams McGee**, District Lead STEAM Coach with Metro Nashville Public Schools, the session emphasizes practical, sustainable ways AI can support lesson planning, streamline feedback, and enhance student engagement. Participants will explore a range of free, teacher-facing AI tools and experiment with strategies in real time, learning how to use AI as a thought partner rather than simply an answer generator.

Together, these workshops are designed to help educators make sense of emerging tools and instructional strategies, equipping them with actionable approaches that save time and support meaningful learning experiences for students.



Mary Ellen Sloane Receives NSF-Supported Travel Grant for National PEARC Conference

Mary Ellen Sloane, TSEC Faculty Associate Director, has been awarded a competitive travel grant through the Campus Champions NSF EAGER Award to attend the Practice and Experience in Advanced Research Computing (PEARC) Conference, a national gathering focused on research computing, data science, and cyberinfrastructure.

The Campus Champions program is a nationwide network of professionals who support faculty, students, and institutions in accessing advanced computing resources, data tools, and emerging technologies such as artificial intelligence. Campus Champions serve as connectors, helping researchers leverage cyberinfrastructure to advance innovation and discovery.

The 2026 PEARC Conference, themed *"Resilient Roots, Empowered Communities,"* will be held July 26–30 in Minneapolis, Minnesota. The conference brings together leaders from academia, government, and industry to share best practices, emerging technologies, and real-world applications in research computing through technical sessions, workshops, and collaborative networking opportunities.

Through this NSF-supported opportunity, Sloane will engage with a national community of experts and bring valuable insights back to Tennessee's STEM education and research initiatives. This recognition highlights the importance of connecting local STEM efforts with national cyberinfrastructure networks to expand innovation, access, and impact.



Grants

Grants Submitted

Advancing Civil Discourse in Undergraduate Biology Education, Barnes, E (**Rushton, GT**). \$2,679,677. Fund for the Improvement of Postsecondary Education (FIPSE), US Department of Education, 2026-2030. (Submitted December, 2025).

D-START: Data Science Track Award for Research Transition (D/START) (R03-Clinical Trial Optional) Connectomic Signatures of Substance Use Risk in Adolescents with ADHD: A Quantum-Inspired Data Science Approach. Co-PIs: Donglin Wang, Yeqian Lio, Wandi Ding, **Tiffany Rogers** (Submitted October 2025).

DUAL Coaching: Deepening Understanding through AI and Live Coaching. **Rushton GT**. (**Ranganathan, J.**; Miller, K.; Merritt. A). NSF STEM K-12, \$749,993, 2026-2028. (Submitted December 2025).

EAGER: Empowering the AI Research Community through Facilitation, Access, and Collaboration: Campus Champion EAGER Project #2505400. Ghahramani, F. (PI), **Sloane. M.E.** (awardee). (2026). NSF OAC Office of Advanced Cyberinfrastructure (OAC).

Exploring Mentorship Dynamics: Science Norms and Border Crossing for First-Generation College Students, **Hosbein, K.**, Barnes, M. E., Caputo, J., Carter, L., Johnson, S., National Science Foundation (NSF), \$1,929,758, 2025-2028.

Improving Teacher Retention and Effectiveness through Knowledge Sharing: Studying STEM Teachers in High Needs Schools across a Community of Practice, **Rushton, G.T.**, Evert, K., National Science Foundation (NSF), \$1.2 million, 2025-2028.

National STEM Teacher Corps: The Southern Alliance for Recruitment, Retention, and Renewal of Rural STEM Teachers (R4 STEM), **Rushton, G.T.**, Krahenbuhl, K., National Science Foundation, \$2.4 million, 2025-2030.

S-STEM: Scholarships for MS and PhD Students in Data Science (S4DS), Gamble, K., Wu, Q., Wallin, J., **Rushton, G.T.**, National Science Foundation (NSF), \$1,999,076, 2025-2030.

STRIDE: A Meta-Synthesis of Student Science Identity Formation and its impact on Professional STEM Pathway Persistence, Google, A. and **Hosbein, K.**, National Science Foundation (NSF), \$1,232,607.

Supporting International Library Collaboration through the Research4Life Academic Alliance.
Sloane, M.E. (2025). \$25,595 submitted for Lyrasis Catalyst.

Active Grants

Advancing the Culture of Teaching in STEM through Diffusion of Strength-Based Reflexivity (ACT-STEM). Bleiler-Baxter, S., **Rushton, G.**, Gardner, G., National Science Foundation (NSF), \$1,199,915, 2024-2029.

Agri-analytics Fellowship: An Interdisciplinary Approach to Expanding Career Pathways for Undergraduate Students. **Ragland, K.**, Jin, Y., Cui, S., Mosley, C. USDA-NIFA-REEU. \$749,443. 2023-2028.

AgXplore Professional Development Institute for Middle School Agriculture Teachers. **Ragland, K.**, Mosley, C. 2023. USDA-NIFA-PDAL. \$500,000. 2023-2026.

An Investigation of Virtual Reality Initiatives and Workforce Development. Mosley, C., Sloane, M.E., Jin, Y., **Ragland, K.**, Institute of Museum and Library Services. \$549,574., 2023-2026.

Beginnings: Creating and Sustaining a Diverse Community of Expertise in Quantum Information Science (EQUIS) Across the Southeastern United States. Terletska, H., **Rushton, G. T.**, National Science Foundation (NSF), \$264,322, 2023-2026.

Exploring Mentorship Dynamics: Science Norms and Border Crossing for First-Generation College Students, **Hosbein, K.**, Vincent-Ruz, P., Nardo, J., UL Research Institutes (ULRI), \$591,807, 2024-2027.

From Education to Employment: Building Regional STEM Readiness. **Ragland, K.**, Battelle Education, \$35,000, 2025-2026.

Improving Teacher Retention and Effectiveness through Knowledge Sharing (iTREKS): Studying STEM Teachers in High Need Schools across a Community of Practice. **Rushton, GT.** (Evert, K.). National Science Foundation (NSF) DUE-2448306, \$1,232,951, 2025-2029.

Incorporating Learning Assistants into High DFW Science Courses to Decrease DFW Rates, **Hosbein, K.**, Barnes, M. E., \$50,000, 2024-2025.

LEADS: Leaders in Education Advancing Data Science, **Rushton, GT** (Jones, RS; Gamble, K; Krahenbuhl, K; Miller, K.). National Science Foundation (NSF) DUE #2345138, \$2,999,332, 2024-2029.

Preparation and Refinement of Postdocs in STEM for Disciplinary-Based Education Research, Gardner, G., Barnes, E., Bleiler-Baxter, S.K., Kaplan, J., **Rushton, G.T.**, National Science Foundation (NSF), \$1.25 million, 2023-2026

Sub-award: NEXTGENeration Inclusion Consortium: Attracting and Engaging the Underserved in the Food, Agriculture, Natural Resources, and Human Sciences Workforce. Mosley, C., **Ragland, K.**, Carter, J., Cui, S., Haruna, S. USDA-NIFA-NEXTGEN. \$901,626, 2023-2028.

Publications

Freeman, A. S., **Davis, L.**, Mohr, C., Gardner, G. E., **Malone, A.**, Nkuah, A., **Rushton, I.**, **Rushton, G. T.**, Mafe, T., Wang, C., & Bleiler-Baxter, S. K. (2026, January 10). Understanding cultural dissonance and its potential to foster change in STEM departmental teaching cultures [Paper presentation]. Southeastern STEM Education Research Conference (SSERC), Birmingham, AL, United States.

Houston, J. R., **Rogers, T. D.**, Kirkpatrick, T. M., Robison, A. M., Throm, A. G., Burgess, S. M., Klinge, P. M., Sakaie, K., Vorster, S. J., Luciano, M. G., Loth, F., & Allen, P. A. (2026). High-Resolution Diffusion Tensor Imaging of the Cerebellum and Brainstem in Chiari Malformation Type I: Association with Function and Pain. *Cerebellum* (London, England), 25(2), 45.
<https://doi.org/10.1007/s12311-026-01991-7>

Malone, A., **Davis, L.**, Freeman, A. S., Gardner, G. E., Mohr, C., Nkuah, A., **Rushton, I.**, **Rushton, G. T.**, Mafe, T., Wang, C., & Bleiler-Baxter, S. K. (2026, January 9). From framework to fulfillment: Investigating Scrum's role in supporting motivation through self-determination theory [Poster presentation]. Southeastern STEM Education Research Conference (SSERC), Birmingham, AL, United States.

Mohr, C., Wang, C., Freeman, A. S., Bleiler-Baxter, S. K., **Davis, L.**, Gardner, G. E., Mafe, T., **Malone, A.**, Nkuah, A., **Rushton, G. T.**, & **Rushton, I.** (2026, January 10). Framing teaching culture: A snapshot of mathematics departmental teaching culture [Abstract presentation]. Southeastern STEM Education Research Conference 2026, Birmingham, AL, United States.

Mohr, C., Wang, C., Freeman, A. S., Bleiler-Baxter, S. K., **Davis, L.**, Gardner, G. E., **Malone, A.**, Nkuah, A., **Rushton, G. T.**, & Mafe, T. (2026, January 7). Four frames inside the department: Exploring mathematics departmental teaching culture [Abstract presentation]. 2026 Joint Mathematics Meetings, Washington, D.C., United States.

Mohr, C., Wang, C., Freeman, A. S., Bleiler-Baxter, S. K., **Davis, L.**, Gardner, G. E., **Malone, A.**, Nkuah, A., **Rushton, G. T.**, & Mafe, T. (2026, February). More than the sum: A four frames analysis of mathematics departmental teaching culture [Paper presentation]. 28th Annual Conference on Research in Undergraduate Mathematics Education, Alexandria, VA, United States.

Nkuah, A., Bleiler-Baxter, S. K., **Rushton, G. T.**, Freeman, A. S., Mohr, C., Gardner, G. E., Wang, C., **Malone, A.**, **Davis, L.**, Mafe, T., & **Rushton, I.** (2026, January 10). Exploring factors within chemistry departments which shape teaching innovation [Oral presentation]. Southeastern STEM Education Research Conference, University of Alabama at Birmingham, Birmingham, AL.

Thank You to our TSEC Faculty and Staff!



**Tennessee STEM
Education Center**

***820 Fairview Ave, Murfreesboro,
TN 37132***

(615) 904-8573



tsec.mtsu.edu

Gregory Rushton, Ph.D., Director

Kevin Ragland, Ph.D., Associate Director

Lindsay Randolph, Center Coordinator

Aspen Malone, Research Project Manager

Melanie McQuiston, Program Assistant

Danielle Davila, Assistant Project Manager

Jaishree Ranganathan, Ph.D., Associate Director

Mary Ellen Sloane, MLIS, Associate Director

Heather Green, MSE, Faculty Fellow

Katy Hosbein, Ph.D., Faculty Fellow

Tiffany Rogers, Ph.D., Faculty Fellow

Alex Ayala, Student Worker

Lucas Davis, Student Worker

Stephanie Figueroa, Student Worker

Izzie Rushton, Student Worker

Ashlee Schafer, Student Worker
