

**LOUISIANA SCIENCE, TECHNOLOGY, ENGINEERING,
AND MATHEMATICS (LaSTEM) ADVISORY COUNCIL**

**ANNUAL REPORT TO THE LOUISIANA
SENATE AND HOUSE COMMITTEES ON EDUCATION**



LOUISIANA BOARD OF REGENTS

JANUARY 2023

Executive Summary

Act 392 of the 2017 Regular Session, authored by Senator Sharon Hewitt, commissioned the Louisiana Science, Technology, Engineering, and Mathematics Advisory Council (LaSTEM Council). Under the auspices of the Louisiana Board of Regents, the LaSTEM Council is tasked to do the following:

- Coordinate and oversee the creation, delivery, and promotion of STEM education programs;
- Increase student interest and achievement in the fields of STEM;
- Ensure the alignment of education, economic development, industry, and workforce needs; and
- Increase the number of women who graduate from a postsecondary institution with a STEM degree or credential.

The Council, chaired by the Commissioner of Higher Education, is comprised of 29 members including representatives of both K-12 and postsecondary education, state agencies, business and industry, professional organizations with links to STEM education, training, and workforce, and economic development entities.

As required by Act 392, this report provides an update on the work of the Council, emerging initiatives, and recommendations for legislation and policy changes. The LaSTEM Council was required by law to meet every month for the first year, beginning in September 2017, and did so until October 2018. The Council began quarterly meetings beginning in February 2019. Despite the challenges of the past several years, this year saw many successes for LaSTEM, including the awarding of two collaborative NASA grants and provision of a 2023 \$1 million Federal Congressionally Driven Spending (CDS) allocation in support of elementary engineering curriculum deployment in Louisiana. The second annual Directors' Retreat was held in August 2022, bringing together all nine LaSTEM regional directors and stakeholders to strategize and continue to develop work toward priorities and objectives as set forth in the roadmap for the LaSTEM Regional Centers.

I. LaSTEM Advisory Council Charge and Goals

This report, filed pursuant to Act 392 of the 2017 Regular Session of the Louisiana Legislature, highlights the significant progress made by the LaSTEM Advisory Council in 2022. The law provides a list of tasks for the LaSTEM Advisory Council, including:

- Create a comprehensive, statewide STEM plan that has clear objectives to guide the development of STEM education and STEM career opportunities and aligns elementary, secondary, and postsecondary STEM curricula, programs, initiatives and activities;
- Coordinate all state STEM education-related programs and activities;
- Create a new STEM culture and promote activities that raise awareness of STEM education and STEM career opportunities;
- Integrate employers and educators by engaging business and industry, employers, professional and community-based organizations, STEM education stakeholders, and career and talent programs and activities;
- Encourage industry and business entities to provide funding, resources, and technical assistance to elementary, secondary, and postsecondary schools to promote interest in STEM discipline courses and career opportunities;
- Connect STEM education resources, initiatives, and programs regionally and throughout the state;
- Establish an information clearinghouse, to be housed at the BoR, to identify and provide best practice resources for both the secondary and postsecondary educational systems and to review and acquire STEM education-related instructional materials;
- Empower STEM teachers and provide support for high-quality professional development for teachers of STEM subjects;
- As appropriate, join and participate in a national STEM network and collaborate with other states in STEM education program development; and
- Establish a competitive grants program to fund robotics competitions to provide students at all appropriate grade levels opportunities to improve STEM skills by participating in events sponsored by science and technology development programs.

The STEM Council and its Subcommittees developed this broad-based charge from Act 392 into three goals that guide the work of the Council and support of the Regional STEM Centers (RSCs). The LaSTEM goals are:

- **LaSTEM Goal 1:** Build strong foundations for STEM literacy by ensuring that every American can master basic STEM concepts and become digitally literate.
- **LaSTEM Goal 2:** Increase diversity, equity, and inclusion in STEM and provide all Louisianans with lifelong access to high-quality STEM education, especially those historically underserved and underrepresented in STEM fields and employment.
- **LaSTEM Goal 3:** Prepare the STEM workforce for the future—both college-educated STEM practitioners and those working in skilled trades that do not require a four-year degree—by creating authentic learning experiences that encourage and prepare learners to pursue STEM careers.

The Council set purposeful and ambitious goals around the establishment of Louisiana RSCs and selection of their directors, and the 2022 calendar year saw the continued implementation of these objectives. The following section will focus on the successes achieved by the LaSTEM Advisory Council over the past year.

II: A Successful Year of Engagement in STEM Education in Louisiana

Advisory Council Meetings

During its 2022 quarterly meetings, the LaSTEM Council highlighted the ongoing work and impacts of the Regional STEM Centers both tailored to their areas and through their statewide initiatives. In addition, the Council hosted STEM organizations and STEM champions, who presented the exciting engagement with Louisiana STEM providers and opportunities for growth and development around the state. Also featured in Council meetings were opportunities to visit STEM-centric facilities in different regions and to experience first-hand some of the remarkable accomplishments of STEM facilities and initiatives. The following presentations and discussions occurred at the quarterly meetings:

- **January (virtual due to COVID):** LaSTEM Summit discussion, RSCs' report-out
- **April (LSU Center for River Studies, Baton Rouge):** CWPPRA/LaSTEM Caminada Headlands virtual field trip, Microsoft TEALS, fund reappropriation to RSCs
- **August (SOWELA, Lake Charles):** SOWELA hurricane recovery presentation, RSCs report-out, discussion of 2023-26 Regional STEM Center selection process, tour of Chennault International Airport Facilities
- **November (Alexandria International Airport, Alexandria):** Rural STEM presentation, area industry group presentations, 2023 Request for Applications (RFA) approval, RSCs' report-out

NASA Office of STEM Engagement Grant Awardee

LaSTEM partnered with the Louisiana Space Grant Consortium (LaSPACE) and other state Space Grant partners on three NASA Office of STEM Engagement (OSTEM) grants. Two of the submitted grant proposals were awarded.

- **Space Teams Labs: Engaging, Inspiring, and Training a Diverse and Inclusive Future STEM Workforce.** Partnering with Texas and New Mexico Space Grant Consortia, this grant supports providing and installing Space Team Labs (computer, virtual reality headset, learning materials, and access to the Space Team portal) across K-12 classrooms in the three states. The Space Team Labs are

virtual reality STEM educational programs focusing on collaborative problem-solving in a team environment. LaSTEM participation begins in Year 2 (2024) of the grant.

- **Inspiring NASA’s Next Generation through Building, Coding, and Machine Learning Missions (NASA ML-Bots).** A partnership with Georgia and Alabama Space Grant Consortia, this grant supports the development of curriculum and content around Rover hardware for middle and high school students. The program will impart understanding of and experience in emerging STEM fields such as artificial intelligence and machine learning. LaSTEM participation begins in Year 3 (2025) of the grant.

2023 Federal Congressional Driven Spending Request

LaSTEM was successful in securing a \$1 million Federal Congressionally Driven Spending (CDS) request to purchase support to implement the Boston Museum of Sciences’ Engineering is Elementary (EIE) elementary education curriculum in Louisiana. The request was collaboratively submitted by LaSTEM, the RSCs and LDOE STEM team members. The funding will introduce elementary-level students to engineering and computer science concepts and skills through EIE programming, as well as provide teacher professional development. The EIE program will begin in fall 2023.

Second Annual LaSTEM Directors’ Retreat

LaSTEM’s BoR administrative staff, the LDOE STEM team, and RSC directors convened for the 2nd Annual LaSTEM Directors’ Retreat (Retreat) on August 19th, 2022. The retreat was hosted by LaSTEM Region 5 at SOWELA in Lake Charles and facilitated by LaSTEM Program Administrator Dr. Clint Coleman.

The intent of the Retreat was to bring all RSC directors and program administrative staff together to review individual and collective progress after a full year of RSC implementation. The retreat also served as an opportunity to review Board of Regents processes and procedures, and LDOE STEM goals, as well as to refine the template for required quarterly performance reports submitted by the RSCs.

Dr. Shannon LaFargue, Superintendent of Calcasieu Parish School Board, led retreat participants through a strategic planning exercise that he utilizes within his school district.

Finally, there was a group discussion focused on identifying metrics to assess the impact of regional programming aligned with LaSTEM statewide goals and other data already collected across different sectors involved in LaSTEM work. RSC Directors were also challenged to envision metrics that may be useful in the future for their individual statewide initiatives. The retreat resulted in both a stronger understanding across the RSC directors of the value of data in assessing ongoing work and a set of preferred metrics to capture moving forward.

LaSTEM Annual Summit

The 2021 LaSTEM Summit, with a theme of *Working Together for a Future That Works*, was originally scheduled to be held in-person at the Raising Cane's River Center on October 26, 2021. Due to continued COVID-19 disruptions, the Summit took place on February 8, 2022.

The event attracted approximately 700 participants, 40 presenters, and 60 education support organizations and featured robotics and e-sports demonstrations, teacher workshops, and opportunities for students, teachers, and others to engage with hands-on STEM experiences. The Summit also showcased many of the dynamic STEM programs Louisiana has to offer and the talented individuals invested in this work. An empowering keynote address was provided by Dr. Steven Pearlman, national STEM leader and author of *America's Critical Thinking Crisis, The Failure and Promise of Education*. This year's LaSTEM Annual Summit broke attendance records and speaks to the continuing impact the LaSTEM initiative is having in the state. Attendees were enthusiastic about the conversations and activities available at the Summit and many plans to incorporate their experiences into their STEM work.

The 2023 Annual Summit is scheduled to be held at Lafayette's Cajundome and Convention Center on October 17, 2023. Registration information will be available on the LaSTEM website in early 2023.

Part III: Conclusion

As charged in Act 392 of the 2017 Regular Session of the Louisiana Legislature, the LaSTEM Council continues to advance STEM efforts across Louisiana. Events and presentations, such as the annual LaSTEM Summit and STEM topics presented to the Advisory Council, have allowed STEM champions across the state to discuss regional and statewide needs, showcase best practices, and network with key stakeholders. In addition, new funding collaborations with federal and state agencies show the impact and value of the LaSTEM RSC framework.

In 2022, RSC directors continued to refine the operations and offerings of their individual centers, as well as increased cross-region collaborations. This is a major step forward in establishing strong STEM leadership in every region of the state, as well as providing the LaSTEM Council with a comprehensive view of region-specific and collective STEM education and training needs.

The Council's achievements in raising awareness and promoting STEM pathways would not have been possible without the collective efforts of those involved, along with the Council's coordination and leadership. The work to date has created a roadmap to achieving a sustainable, effective, efficient, and fully engaged Louisiana STEM Network, enabling leaders and participants in every corner of the state to share resources, communicate best practices, raise awareness throughout communities, strengthen educational and business/industry partnerships, and meet the needs of tomorrow's workforce. The centrality of STEM to Louisiana's future cannot be overstated, and the work of the Council continues to leverage its resources to serve the needs of the state and all its regions.