

NASA MUREP Aerospace Academy (MAA)

Award Year: 2018

Title: THE TENNESSEE MINORITY UNIVERSITY RESEARCH AND EDUCATION PROGRAM (MUREP) AEROSPACE ACADEMY (MAA) GRANT PROPOSAL

Organization: Tennessee State University

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Summary: "Elementary and middle schools in the Davidson County Tennessee area continue to struggle in the areas of math and science. The schools that will be impacted by the Tennessee MUREP have some of the lowest math and science proficiency rates in the district and state. As shown in the 2015 Tennessee Report Card, these schools are well-above the state in rates of poverty for African American or Hispanic students and rank low in math and science proficiency in comparison to other schools in the district and state. The number of students scoring below proficiency in math ranged from 63.3% to 73.4% for all schools. The number of students scoring below proficiency in science ranged from 67.1% to 74.3%.

Tennessee State University, a Historically Black College/University located in Nashville, Tennessee, proposes to house the Tennessee MUREP Aerospace Academy. The goals of the MUREP project are to: (1) inspire underserved and underrepresented minority students to express interest in STEM post-secondary degrees and careers; (2) to intellectually engage underserved and underrepresented minority students, parents, family members, and teachers with firsthand learning experiences involving emerging technologies and high-tech applications, STEM practices, and establishing a supportive learning community; (3) to educate students by utilizing rigorous STEM curricula designed and implemented by effective evidence-based strategies employed by NASA and leading STEM professionals, making connections to personal and cultural experiences, and connecting learning experiences across settings. Key strategies will include multi-faceted initiatives such as First Hand Learning Experiences, Aerospace Education Laboratory (AEL), Family Empowerment Sessions, STEM Professional Development, and STEM Community Outreach Activities.

To accomplish these goals, the proposed program will build on the prior success of NASA and MUREP sponsored programs at TSU, expanding the reach of the program with an innovative program design and community partnerships. The project proposes a STEM curriculum of three thematic modules. Each containing problem-based learning pedagogies enriched with hands-on instructional strategies conducted in world-class, technology infused, university classrooms; making it possible to use interactive presentations and activities creating the ultimate transformative learning experience. Additionally, this program will capitalize on the NASA Aerospace Education Laboratory (AEL) which has a flight simulator, inflatable planetarium, drones, robotics, Ozmo Coding, Oculus Rift, and a computer lab with NASA software to further inspire, engage, and educate students.

Furthermore, the project proposes to achieve the proposed goals and expand its reach by increasing capacity through an intentional strategic partnership with elementary and middle schools of the Metropolitan Nashville Public School District. Additionally, this project proposes to accomplish intentional STEM community outreach through strategic partnerships with local schools, churches, and other community entities. Such collaborations will provide opportunities for STEM fieldtrips for young learners and essential quality professional development.

Finally, this project proposes to capitalize on the most essential partnership for fostering transformative learning, the student's home. The project proposes to accomplish this essential partnership through innovative Family Empowerment Sessions (FES). The FES will serve as a barrage of valuable resources

which will introduce parents to STEM educational opportunities, information, and resources. FES will include the Parent Café, Family Workshops, Family Nights, Family STEM Days, and the launch of an online cyber portal accessible to parents and learners beyond the duration of the program."