

## NASA MUREP Aerospace Academy (MAA)

**Award Year: 2018**

**Title: NASA MUREP Aerospace Academy of Northeastern North Carolina**

**Organization: Elizabeth City State University**

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**Summary:** "The goal of the proposed NASA Minority University Research and Education Project (MUREP) project is to build the interest, skills and knowledge necessary for K-12 students to pursue science, technology, engineering, and mathematics (STEM) careers by engaging them in authentic STEM experience built around NASA mission content. Elizabeth City State University (ECSU) will collaborate with a legacy Science, Engineering, Mathematics and Aerospace Academy (SEMAA) site, school districts, non-profit organizations, community-based organizations, and other STEM enrichment programs to conduct a comprehensive outreach program for all levels of K-12 education in the rural Northeastern North Carolina.

The proposed MUREP Aerospace Academy (MAA) project will support student development through activity components that are fully integrated to form a comprehensive support system. The key components of the proposed MAA project are (i) Authentic STEM Experiences, (ii) Technology-Rich Learning Environment, and (iii) Family Involvement.

The NASA MAA program at ECSU will adopt grade appropriate NASA curriculum and integrate 3D printing technology, virtual reality simulation, unmanned aerial vehicle (UAV) design, mobile robotics, computer programming and sensor-based measurement systems to enhance authentic and experiential learning experiences. The project will extend learning to the school districts using the in the form of a mobile Aerospace Education Lab, equipped with a state-of-the-art desktop flight simulator; aircraft design station, desktop wind tunnel, weather station, GPS and radio receiver, 3D printers, mini quadcopter UAVs, mobile robots, and a set of hands-on learning aerospace-themed STEM experiments.

The NASA MAA program at ECSU will also feature the Family Café, a special interactive family involvement forum that will provide parents and other adult family members and caregivers with information, resources, and support needed to become an active partner in their children's education.

Summer camps and yearlong Saturday and Friday academies, conducted in a technology-infused learning environment, will expose students to NASA MAA curriculum and hands-on activities, delivered in an inquiry-based instructional format. The hands-on aviation and aerospace related activities will inspire and engage students in problem-based learning and scientific inquiry. The learning activities will be carefully designed to meet the Next Generation Science Standards (NGSS) and the North Carolina Standard Course of Study for Science and Mathematics. Guest speakers and field trips will complement in-class learning.

The objective is to increase student interest in STEM disciplines and set them on a learning path to become successful in college and beyond. Students will explore, explain, elaborate, and evaluate the importance of math and science to succeed in college. The collaborative project is expected to directly impact at least 1450 students, where each student will have received over forty (40) hours of STEM specific learning, per year. Professional development opportunities for administrators, educators, counselors, teachers, pre-college outreach coordinators, parents, and community members will also be available through ECSU's NASA MUREP Aerospace Academy program. Teachers will also receive continued support throughout the academic year which will allow them to implement learning modules

into their science classes, share them with other teachers, and replicate similar activities at their respective schools.

The project team is committed to conducting both formative and summative evaluation and report results to the NASA Office of Education on a regular basis. Additionally, the project team will disseminate project results through a dedicated website, social media, program brochures, news releases, project newsletters, and publications in technical and educational conferences/journals."