

Texas A&M University-Commerce Federal Initiatives Requests FY 2011

Title: Improving STEM Skills for Rural Youth in Northeast Texas

Description: This project focuses on enabling teachers and students to enhance their science, technology, education, engineering, and mathematics skills. The project includes two summer camps known as the X-Teems Academy and the Infinity Institute. Groups of students from rural districts who are typically underrepresented in STEM fields are identified to participate in this project.

There are two primary components, X-Teems Academy and Infinity Institute. The **X-Teems Academy** is a non-residential summer camp that emphasizes Project Based Learning strategies and brings teams (each team consist of 6 students and 2 teachers per team) from surrounding rural school districts. The summer portion of the Academy includes professional development for the teachers, math and science based activities for the students as well as opportunities for the teams to participate in collaborative learning activities. The teams develop both summer and year-round project(s) in cooperation with professors from the university. The four-week **Infinity Institute** is a residential summer camp designed to challenge high-aptitude students from low-income school districts in the fields of mathematical studies and scientific research with the goal of increasing student interest in these fields. Students are selected each year by a committee of university faculty from a pool of highly qualified applicants in grades 9-11.

Targeted Audience: This initiative targets middle school and high school teachers and students in rural Northeast Texas. The **X-Teems Academy** participants are composed of average-performing, but promising middle and high school students, a middle school teacher, and a high school teacher. The **Infinity Institute** participants are made up of high-aptitude high school students who have great potential, but who have had limited exposure to math and science.

Relevance and Background: The US faces a critical lack of scientists, engineers, and mathematicians. Something must be done to build up the pipeline of students qualified to major in these important STEM areas. With the proposed projects, students benefit from guest speakers and field trips to observe science and math being utilized in highly skilled jobs along with the interaction with faculty and college STEM majors. Team building exercises are conducted in order to foster cooperation between students with different educational interests as well as increasing the leadership roles of those participating. This important project has tremendous **relevance** to the TAMU-System, the state and the nation as we struggle to recruit, educate, and graduate qualified students in the science, technology, engineering, and mathematics fields. Based on *The Gathering Storm*, a report commissioned by the National Science Foundation, these individuals are desperately needed at this time in our country. Research question for STEEM will include: Do short term summer STEM programs have long term impact on persistence in STEM majors through college graduation?

Amount Requested: \$1,415,720

Budget/Cost

Year 1

| | |
|-----------------------------------|--------------------|
| Graduate Research Assistants | \$134,000 |
| Undergraduate Research Assistants | \$85,000 |
| Faculty Salaries | \$186,720 |
| Stipends – Students & Teachers | \$780,000 |
| Travel & Conference Fees | \$60,000 |
| Equipment | \$120,000 |
| Evaluation | \$15,000 |
| Educational Materials | \$35,000 |
| Total for Year 1: | <u>\$1,415,720</u> |

Years 2 & 3 are the same as Year 1.

Agency/Agencies Targeted

National Science Foundation

Department of Education

Investigator Information

Principal Investigator

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