

## **INSTITUTE FOR STEM EDUCATION, CAL STATE EAST BAY 2011-present**

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### **Accomplishments, Yet to Come**

In 2011, the Bayer USA Foundation awarded California State University, East Bay, a three-year grant totaling \$540,000 for the purpose of creating an Institute for Science, Technology, Engineering and Mathematics (STEM) Education, which would serve as a regional infrastructure

students for careers in STEM industries and teaching; providing stronger training for present and future teachers, grades preK-12, in STEM subjects; and partnering with industry and educators to create seamless career pathways that include both rigorous academics and work experiences.

In the fall of 2011, the Institute for STEM Education began operation with the installation of   
was articulated to focus on advancing STEM education in ways that build on existing strengths, are scalable to state and national levels, and are dedicated to continuous improvement. Specifically:

**STEM Leadership:** All four CSU East Bay colleges will, as never before, build common knowledge, develop coherent interdisciplinary strategies assets to develop new knowledge and innovations in strong STEM education.

announces a second three-year grant of \$600,000, we present a summary of progress made and further work anticipated.

## 1. Consolidating Efforts, Building Effective Collaborations

Collaborating for stronger educational outcomes has built infrastructure and brought solid results in just a few years:

focusing on STEM as a way to engage diverse learners and put them on the path to academic and career success.

For the first time, diverse partners – regional educators including grades preK-12 and both two- and four-year colleges, came together with informal science education programs, industries, and other stakeholders – to identify strategic areas for joint action.

A year-long study was undertaken to identify key levers for student success, and working groups were established based on potential for immediate and significant improvement in student outcomes. To date, working groups have been formed for preschool education, out of school time programs, high school to college/career transitions, and professional learning communities to implement new math and science standards.

*Preschool Success:* A pilot effort at a Harder Elementary preschool demonstrates

2012-13:

The percentage of children scoring at grade level proficiency increased by at least 20% in every domain.

The largest gains were in the literacy and language development, cognition and MATH domains, with 40% increases in scores.

*After-School Promise:* Research shows that after-school programs can accelerate learning, and Gateways has helped secure funding to improve after-school STEM learning opportunities for more than 11,000 students across the region (emphasis in underserved communities).

Colleges of Science and of Education and Allied Studies worked together in new ways to recruit and prepare current and future preK-12 teachers and to infuse STEM education into all disciplines.

*Teaching Teachers for Today's Science Standards:* Newly designed Hands-On Science Teaching lab courses being launched in Fall 2014 will provide opportunities for undergraduates working toward a teaching credential to be taught and to teach science in ways that reflect the new K12 science transitions, and





participate, generally sharing with diverse array of businesses the value of their engagement.

STEM Institute was integral voice in three regional CPT grants  
Supported 2013 webinar to EBEDA members with internship toolkit to  
recruit more businesses into providing paid summer internships.

**4.**

## **5. Expansion of Direct STEM Learning Opportunities For Students**

In addition to events noted above, the Institute has contributed to the expansion of STEM learning opportunities for students in the following ways:

Hosted STEM oriented workshops for middle and high school students from first generation, African American, Latino, Asian and Pacific Islander backgrounds. Approximately, 1,303 students participated in this event in 2013 from local high schools and middle schools.

The Institute recruited entities to participate in the Bay Area Science Festival at CSUEB and hosted several activity booths of its own. Approximately, 7,000 future scientists and their families attended this event.

In concert with the Bay Area Science Festival, the Institute hosted a coffee with Congressman Swalwell aimed at getting girls/women engaged in or interested in learning more about STEM.

The Institute was asked by Congressman Swalwell to lend support to students for their participation in a STEM Apps challenge. The event was held at CSUEB. Five students from area high schools were in attendance (Dublin and Moreau Catholic).

The Institute supported the second annual Brain Bee competition for area high school students interested in neurobiology.

In sum, the last three years have indeed seen impressive, profound improvements coming from the Institute for STEM Education. Improvements have come on the ground and in state arenas of strategic planning and policy making; for targeted audiences of underrepresented students and for two- and four-year educators who have never before worked together. We have seen improved training for preschool teachers and better metrics from their students which promise to arm these students with the tools they need to succeed all the way through college to careers. This work at present remains fragile, too dependent on a few compelling leaders but it has begun. In the next three years, we look forward to stronger collaborations, broader results, and expansion of the shared commitment it takes to advance STEM education so that all California students are prepared to succeed in our rapidly evolving world.