



Promoting Institutional Commitment to Support STEM Teacher Preparation at California State University Fullerton

Funded by the CSU Chancellor's Office, the Mathematics and Science Teachers (MAST) Project was established in 2005 as an innovative partnership of the Colleges of Education and Natural Sciences and Mathematics at California State University Fullerton to provide strong, collaborative, and comprehensive efforts to improve practices in the areas of mathematics and science teacher candidate recruitment, pre-service preparation, induction, beginning teacher professional development and retention. The MAST Project goal is to develop highly-qualified secondary mathematics and science teachers (grades 6-12) whose training enables them to enter the classroom with the skills and knowledge to effectively serve students and enhance student achievement.

This university-wide initiative involves faculty and staff from two colleges, eight departments and four centers, including the Departments of Secondary Education, Elementary and Bilingual Education, Special Education, Mathematics, Chemistry and Biochemistry, Physics, Geology, Biology, Liberal Studies, Child and Adolescent Studies, and Health Science as well as the Science Education Program, Catalyst Center for Advancing Researching in Teaching and Learning Math and Science, Center for Careers in Teaching, Professional Teaching Development Center (PTDC), Admission to Teacher Education, and International Students Office. Partners in the MAST Project include local school districts, county offices of education, community colleges, informal science education institutes, and business, industry, and community agencies. The project has leveraged numerous grants and projects during its six-year history.

Five characteristics of Cal State Fullerton contribute to the success of the MAST Project:

1. Committed Administrative Support for Collaboration
2. Supportive Institutional Structures
3. Culture of Faculty Collaboration
4. External Partnerships with K-12 School Districts, County Offices of Education, and Community Colleges
5. Comprehensive Continuum of Credential, Graduate, and Professional Development Programs for Math and Science Teachers

The success of the MAST Project is measured in multiple ways, including the following:

- Fullerton program completers are consistently ranked among the highest within the CSU system by employers. (CSU Systemwide Evaluation of Teacher Candidate Performance)
- Fullerton has steadily increased the number of math and science teachers prepared. (CSU MSTI Annual Report, 2009)
- In the last five years, Fullerton has received over \$10M in grants and projects to improve practice in the areas of mathematics and science teacher recruitment, preparation, induction, and professional development.

Establishing the Catalyst Center for the Advancement of Research in Teaching and Learning Math and Science has enhanced our capacity to identify best practices.

The goal of this center is advance research in teaching and learning across the entire spectrum of math and science education, from preschool through graduate education and including informal education. The Catalyst Center conducts research that informs policy and practice in five key areas:

- Teaching and Learning in Math and Science: focuses on improving understanding of the ways students learn math and science and the best practices of teaching STEM subjects with the ultimate goal of improving achievement in preK-graduate math and science students.
- Cyberlearning to Improve Math and Science Teaching and Learning: focuses on advancement of research on the capacity of math and science faculty, teachers, and students to use information, communication, scientific, and educational technologies to improve teaching and learning.
- Recruitment and Preparation of Math and Science Teachers: focuses on the identification of innovative and effective strategies for recruiting and preparing high quality preK-14 math and science teachers.
- Enriching the Professional Development and Experience of Teachers: focuses on identifying best practices in designing, implementing, and evaluate meaningful professional development experiences for math and science preK-14 teachers that translate into improved teacher quality and student performance in math and science classrooms.
- Program Evaluation in Math and Science Education: focuses on developing and implementing evaluation approaches that robustly assess success of math and science education projects and programs; and to improve dissemination of program evaluation findings for grants and projects to inform local, regional, and national education communities.



For additional information, contact Victoria Costa, Director, Catalyst Center and MAST Project (vcosta@fullerton.edu; 657-278-2307) or visit the following sites:

- Catalyst Center <http://catalyst.fullerton.edu/>
- Math and Science Teachers (MAST) Project Wiki <http://mast.wikispaces.com/>
- Science Education <http://nsm.fullerton.edu/scied/>
- Single Subject Credential Program http://ed.fullerton.edu/SecEd/Credential_Prog/Index.htm

