

Teachers For A Competitive Tomorrow: Programs For Master's Degrees In Science, Technology, Engineering, Mathematics, Or Critical Foreign Language Education FY 2010 Abstracts

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Teachers Employing Applied Mathematics to Engage Students – TEAMES: A New Master's Degree in Applied Mathematics with a Concentration in Teaching

The Claremont Graduate University (CGU) School of Mathematical Sciences (SMS), in collaboration with the CGU School of Educational Studies (SES), and the San Bernardino City Unified School District (SBCUSD), proposes to develop a three-year, 32-unit, part-time Master's degree in Applied Mathematics with a concentration in Teaching. This degree will be geared toward in-service and pre-service 9th–12th grade mathematics teachers with an applied mathematical focus and the pedagogy necessary to make critical real-world connections to core mathematics concepts. We will also implement and evaluate the new degree program with sixteen teachers in SBCUSD in some of the lowest performing high schools in California.

Goals and Objectives:

The goals and objectives of this proposal are to: (1) develop a new Master's degree in Applied Mathematics with a concentration on teaching; (2) recruit and enroll diverse mathematics teachers from the lowest achieving high schools in SBCUSD to complete this new degree free of charge; (3) provide core competencies in applied mathematics content to participants enrolled in the degree; (4) integrate effective pedagogical methods to assist participants in becoming highly skilled at creating and delivering exciting, innovative curricula in mathematics that will engage a diverse student body; (5) increase student achievement in the lowest performing schools in SBCUSD; and (6) institutionalize this new Master's degree in Applied Mathematics with a concentration in teaching, targeting future partnerships with low-performing schools and districts to enhance mathematical coursework and achievement.

Partners:

The *School of Mathematical Sciences (SMS)* at CGU has two principal foci: (1) its doctoral programs, qualifying students for careers as researchers in mathematical sciences, and (2) several specialized master's-level programs in applied mathematics designed for students who wish to seek

employment in industry or government, as well as for currently employed persons who would like to add to their knowledge of modern techniques and trends in applied mathematics.

The *School of Educational Studies* at CGU houses an innovative Teacher Education Internship Program (TEIP) that has documented success in teacher retention in poor, urban schools as well as a strong accountability focus that instructs new teachers how to use student performance data to guide instruction.

San Bernardino City Unified School District is the eighth largest district in California with 54,727 students. The student population is quite diverse with 68.9 percent of the students being Hispanic, 15.7 percent of the students being African-American, and 10.5 percent of the students being Caucasian. SBCUSD is a high-need district with over 27 percent of families in San Bernardino living below the poverty threshold and 4.4 percent of their teachers working on emergency credentials or other non-highly qualified status. They also are a Program Improvement district and in spring of 2010, had 11 of their schools identified on the California State Persistently Low Achieving list.

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