



CENTER FOR SCIENCE AND MATHEMATICS EDUCATION

MISSION San Francisco State University's College of Science and Engineering has established CSME to cultivate excellence in the teaching and learning of science at all educational levels. The center's mission is to recruit, prepare, and support good science and mathematics teachers; and to promote success of STEM students of all backgrounds.

CSME TEACHING FELLOWS

Each year, CSME supports a community of more than 70 STEM majors planning to be K-12 teachers. Since its founding in 2008, the Fellows have performed over 7,250 hours of educational community service for local schools, nonprofits and community groups. They commit to supporting and mentoring each other in regular community gatherings. The Fellows receive stipends to reduce the students' need to work part-time, extra mentoring, and access to a dedicated study center. We have also supported their winning of over \$216,000 in scholarships from outside sources.

The program has increased the number of STEM teachers going to SFSU credential program, increased STEM credentials awarded, and gotten high satisfaction ratings. The CSU Chancellor's Office calls it "a model for the state and nation." An outside evaluator praised it as "an oasis at a large state university."

PRIME: CALIFORNIA MATH SCIENCE PARTNERSHIP

CSME, SFUSD and Lawrence Hall of Science partner to deepen math content knowledge for in-service 4th and 5th grade teachers in SFUSD through a three year sequence of 5-day summer workshops, school year meetings and special coaching. Students of the first cohort showed increases compared to a control group in test scores in the content areas targeted.

SF MATH CIRCLES AND JULIA ROBINSON MATH FESTIVAL

SF Math Circles is a mathematics enrichment program for a diverse group of middle school students, open to all and targeting high-need communities like the Mission and Bayview. The Julia Robinson Math Festival is a math fair encouraging female middle school students to enjoy math and pursue related careers.

K-8 STEM TEACHER PATHWAYS

CSME is developing rich college preparation for K-8 STEM teachers. We are partnering with SFUSD, CCSF, California Academy of Sciences, UC Museum of Paleontology, Exploratorium, and UCSF. Extending the WISE project, we provide in-service professional development and adapt this work for use in pre-service coursework on middle school science content. We are creating a STEM Summer Institute as a bridge program to support STEM teachers in their first two years of college and model engaging STEM pedagogy. We are also partnering with local afterschool providers to enrich the curriculum with more science and to provide authentic early teaching experiences for future teachers.

ENGINEERING PATHWAYS

CSME has partnered with Chabot College, Cañada College, CSU East Bay, and the Workforce Investment Boards of Alameda and San Mateo Counties to create a special one-year mathematics sequence to prepare future engineers from nontraditional backgrounds for college study.

SUPPLEMENTAL INSTRUCTION

CSME offers a series of one-unit courses supplementing the STEM major filter courses. The instructors create learning communities to focus on conceptual understanding and mutual support.

SPACEWARD BOUND

CSME is the Northern California coordinator of a field expedition for future STEM teachers, in partnership with the CSU Chancellor's Office and the CSU Desert Research Station at Zzyzx, California. For a week in spring, future teachers study side-by-side with world-renowned planetary NASA scientists who search for life in extreme environments.

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