The CSUSM STEM Center and Associated STEM Support Programs

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Abstract: CSUSM has employed both internal and external resources to develop, implement, and sustain a comprehensive suite of high-impact support programs for CSUSM Science, Technology, Engineering, and Math (STEM) students. These efforts have a locus in a STEM Center, a campus site that provides 35-hour a week drop in-tutoring for students in STEM gateway courses and now has over 10,000 student visits annually (roughly 800 distinct students). Associated activities include supporting STEM faculty in bringing new pedagogical practices to STEM classrooms via an Active Learning Pedagogy Support program (ALPS) and Supplemental Instruction (SI) for many STEM courses. Pedagogical innovations have been further supported through a Learning Assistant program—an activity that takes high achieving students who have completed a STEM course and returns them to that course to help the instructor implement innovative pedagogies. Lastly, the STEM Center is also a hub for a STEM Ambassador program that uses high-achieving CSUSM STEM students to provide STEM specific outreach to the local K-12 population and community colleges.

STEM @ CSUSM
Education & Outreach

The CSUSM STEM Center opened in 2012, with a commitment of space from the university. An NSF STEP grant provides major funding for STEM Center activities.

Serving students in gateway math & science courses

- Approx. 34 peer tutors
- Open 35 hours per week
- Avg. visit = 1.5 hours
- Student learning communities

Experienced students help faculty facilitate in-class activities, supporting high impact practices

- Course Transformation
- Improved Student Learning
- STEM Teacher Recruitment

Active learning and course transformation: Learning Assistants

“The [LA] assisted tables with problems w/o giving the answer directly but led us to the answer through questions.”

Outreach to K14: STEM Ambassadors

Science and math majors serve as STEM Ambassadors for outreach activities

“Making” STEM Relevant in Underserved Communities, a mobile after school Making program for middle and high school students in the Vista Unified School District

Other outreach programs include
- Science Cafes
- After School Clubs
- Classroom Visits & Demos
- On-campus labs
- College & Career Fairs
- Math Circles
- STEM Open House

Sustainability and future challenges

During the period of the project, matriculating STEM majors at CSUSM have more than doubled and demand for project-supported activities is high. As grant funding tapers off, project sustainability is a main priority.

Other project goals and challenges
- Scaling outreach efforts to meet rising demand from K-12 schools
- Addressing the needs of an increasingly diverse STEM student population
- Recruiting more U.S. military veterans to STEM disciplines

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