

Summary of Guided Pathway Efforts in STEM

A major goal of the STEM III grant is to institute guided pathways in STEM. The purpose of this is to outline the efforts and achievements that have been made towards this.

Since the inception of the grant, several cohorts of students have been recruited to receive guided pathway supports. The supports consisted of an initial class where students explored the various careers and educational opportunities in STEM, heard from speakers working in STEM fields and from transfer university instructors and administrators, and learned about academic support services at Gavilan as well as internship and other employment opportunities. In addition, they enrolled in a Math Bootcamp to hone their math skills for the upcoming semester. These students were then supported with proactive counseling, a faculty mentor, and access to a lending library of textbooks and other school supplies as well as other community building activities. The progress of these students will be compared to a similar cohort that did not get the above mentioned services.

The grant also funded and inspired improvements that benefitted all STEM students. We hired a full time STEM counselor to advise all STEM majors. Accelerated math classes have a much higher success rate than traditional math classes, so we added sections of accelerated Math to attract and develop STEM students combined with a robust effort to recruit and train faculty and in-class tutors in how to teach these classes. We also brought career and university speakers into the classroom to inform students about career and transfer opportunities. Specifically, in the Spring of 2017 and 2018, the STEM team brought Dr. Cleber Ouverney from partner institution San Jose State to campus to present information to Biology students on the MARC U*STAR program, an opportunity for junior and senior level San Jose State students to participate in biomedical research. We also had a group of STEM summer interns speak to various classes about their experiences as interns. We brought a group of STEM tutors to classes to talk about strategies for academic success. We also had a field trip for a group of STEM majors to visit San Jose State to visit their Science Symposium, where SJS students presented the results of their research. These students got to meet other SJS students and then had lunch with STEM faculty.

General education classes that were focused on STEM have been added. In Spring of 2018, an English 1A class focused on STEM issues was offered. This semester, the English class is being offered again as well as a Film class (Humanities 3) with a focus on STEM. These classes were heavily advertised in the Natural Science classes and labs.

We continue to offer summer internships where students do research at SJS or work for a non profit agency doing research. They then display the results of their research at our annual Science Symposium.

The grant has also enabled the College to dedicate more space for STEM classes and student use. One major milestone in this area was the opening of our new STEM Center, a place for STEM students to meet, study and get academic support. Laptop computers are available to students using the center and textbooks and other supplies are also on hand. The Center is staffed with faculty and student tutors from Math, Physics, Biology, Chemistry and Computer Science. The math and science student tutors are supported with a robust tutor training program that is supported by release time for a biology and math instructor. There is a coffee pot and microwave oven available for student use,

coffee is provided and instructors sometimes bring food as well. Students can make appointments in the Center with our full-time bilingual STEM Counselor. This Center has alleviated the space limitations of the previously over crowded Math Lab and allowed the math lab to focus on the needs of developmental and statistics students. It has also provided a centrally located space for our STEM students to meet, study, build community and address their academic needs.

Another classroom for the Natural Science Department has also been secured, and plans are in motion to convert the room to become a much-needed wet lab. The space will serve both science and math students. In addition, two rooms in a high school in Hollister have been added to offer science classes at night. Both of these spaces will alleviate the pent up demand for science class offerings. Finally, laptop computers were purchased for use in the classroom on the main campus as well as on the offsite campuses in Hollister and Morgan Hill to augment instruction in these locations.

This additional space will allow us to increase the number of students we can serve and build community and comradery in our program. There is a good deal of collaboration, discussion and informal peer mentoring happening between our student tutors, some who already have bachelor's degrees, and our students. The STEM Center in particular facilitates this collaboration and increases students' access to their instructors and to our full-time bilingual STEM Counselor. In the past, we have been limited by space in the number of science lab classes that can be offered. The grant has allowed us to more effectively meet the demand for these classes.

Another goal of the grant was to increase "high impact practices" of instructors in the classroom. Towards this, a group of eight math and science faculty attended a reading apprentice for STEM conference during the summer. After completion of the conference, this group met during college hour several times in the Fall semester to discuss their experience applying the methods learned from the conference and to share handouts and lessons learned, and then shared information at the Natural Science department meetings. The reading apprenticeship for STEM conference has not only increased the efficacy of our instructors but also has augmented our students' access to their text books, making them more independent and effective learners.