Abstract

S3 is using a three-pronged strategy to increase the retention of STEM students and the number of students obtaining STEM degrees at SSU. Critical to this has been infusing a sense of belonging and a personal connection with the students.

Efforts have been focused primarily on the first year students. Future efforts include developing a sophomore (second) year experience and examining alternative degree options that appeal to more liberal and broader backgrounds. The School of Science and Technology is partnering with the School of Business and Economics to co-develop curriculum that allows students to realize the real-world value of STEM major.

Results

Faculty at SSU were successful in implementing multiple strategies to increase the number of STEM majors. This included a holistic approach to address the attitudes and the under developed skill sets of the current population of incoming first-year students.

WestEd, our external evaluator, is tracking and measuring the impact of the STEM-FYE strategy. Within the first two years we have already had pronounced success.

- Program is increasing the number of STEM majors
- STEM-FYE students are three times more likely to be a STEM major a year after STEM-FYE intervention
- 85% retention of STEM majors in Science 120 vs. 70% for all STEM freshman

Discussion

Other impacts of the course to date are supported by survey responses and anecdotal evidence. A few highlights of these positive effects include:

- Students reported big improvements in their ability to execute a wide variety of research-related tasks over the semester.
- Students reported a marked shift in self-assessments and attitudes after completing the course. STEM-FYE’s emphasis on field work in the local watershed builds student abilities and confidence in STEM-related competencies and strengthens their connection to STEM, SSU, and the region.
- Students are more engaged in their academic planning and take greater responsibility for their education and future.
- The program is effective at addressing critical issues faced by undeclared majors.
- Students reported that learning presentation skills and learning about the environment were among the most valuable aspects of the projects.
- STEM-FYE students built a strong community with each other, faculty, and peer mentors.

In 2014 the STEM-FYE was approved as a permanent offering by SST, which required the support of all STEM departments, and by the university’s GE Subcommittee.

Limitations

S3 is in its third year and cohort. With a typical five year graduation rate, students of the program will not graduate until 2016 and 2017.

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