

Savannah State University (SSU), has embarked upon a project to positively change the way undergraduate students learn mathematics and engineering; primarily those students that are in pre calculus classes and classified as freshman or sophomores. The Engineering Technology and Mathematics department at SSU is involved in a NSF sponsored project titled Proactive Recruitment in Introductory Science and Mathematics (PRISM) program, ***“PRISM - Building Undergraduate Innovations for Lower Divisions in STEM (BUILD-STEM).”*** The overall goal of the SSU PRISM program is to improve the experience of freshmen and sophomores in math and STEM, to better prepare them as STEM majors, and to increase the number of well-prepared, successful undergraduate majors and minors in the mathematical sciences and other science or engineering disciplines. Many freshmen come to SSU academically under prepared; especially in mathematics. Others have the aptitude and potential to excel in STEM but have never been encouraged or engaged to consider this field. Therefore, a significant number of freshmen drop out before their sophomore year. Our program impacts student success by engaging lower division students in a broad spectrum of new and innovative hands-on and interactive teaching, discovery learning, and mentoring practices.

This paper focuses primarily on the impact of the interdisciplinary curriculum enhancement of the pre calculus course using hands-on, real life applications to enhance student learning and show the importance of math in the engineering disciplines. The curriculum enhancement was successfully implemented at SSU on a pilot basis as part of the College Algebra Reform Project funded as a sub contract by the U.S. Military Academy. Program results have shown an increase in student comprehension and engagement by incorporating real life examples, an interdisciplinary approach and working in small groups within the class. The pre calculus course was chosen for this program because a large amount of freshman and sophomores, especially in the STEM disciplines, take this course.

The pre calculus curriculum enhancements are in the form of class projects that provide an additional, rigorous element emphasizing problem solving and research. During the spring and fall semesters of the 2010 year students in the pre calculus sections were given surveys to gather information on their mathematical academic background as well as their attitudes and expectations on learning mathematics. In addition, students were surveyed after they had taken the enhanced version of the pre calculus course to determine if the real world projects had an impact upon their learning the course content. This paper describes the details of the curriculum enhancement module of the PRISM program. It also, depicts the results of the project infusion into the curriculum as well as the students survey feedback on effectiveness of the enhancements. Future modifications and activities of the curriculum enhancement component are discussed.