

1086-H1-2114 **Marilyn A. Reba*** (mreba@clemson.edu), Department of Mathematical Sciences, Clemson University, Clemson, SC 29631, and **Taufiqar Khan, Ellen Breazel, John DesJardin** and **Irina Viktorova**. *Emphasizing Core Calculus Concepts Using Biomedical Applications to Engage, Mentor and Retain STEM Students.*

With support from Hewlett-Packard Awards and a 4-year NSF-CCLI Grant, the Department of Mathematical Sciences at Clemson partnered with Computer Science to develop and implement technology (web-based software, digital ink) in Engineering Calculus I. The goal was to personalize instruction in large active-learning classrooms. Our current focus, via an NSF-TUES grant, is to motivate interest in calculus by immersing students in bioengineering and biomedical applications, and then converting ideas from these experiences, again with the help of Computer Science, into interactive “mobile apps” for both Ipad and Android tablets. Beginning in Fall 2011 and continuing through 2013, students with STEM majors have the opportunity to enroll in four (1 credit hour) creative inquiry modules, taken in parallel with the freshman and sophomore calculus curriculum, on epidemiology, orthopedics, heat propagation in the human body, or radiology. We will present descriptions of module content, and initial findings about 1) students’ changing perceptions of math, 2) successful performance in calculus courses; and 3) retention as STEM majors. Also, we will demonstrate one of our newly-developed mobile apps. (Received September 24, 2012)