Last semester, I developed a new class on our campus for science-oriented majors arriving with weak backgrounds in mathematics, but needing to complete the calculus sequence. The typical freshman student in this class has taken Algebra II or Calculus in high school, but lacks motivation and study skills. We use weekly "in-class" worksheets that can be completed using the help of a tutor after regular class meeting if needed. Since most of our students are biology, chemistry, architecture and engineering students, we use a variety of applications from these areas to motivate the students. The talk will discuss the benefits of this new approach and the administrative challenges involved. We will also discuss the results of comparing our Precalculus with Algebra to the standard Precalculus class. (Received September 20, 2007)