962-G1-500 **David O Lomen*** (`lomen@math.arizona.edu`), Mathematics Department, University of Arizona, Tucson, AZ 85721. *A special course for students with advanced placement calculus credit.*

The AB version of Advanced Placement Calculus includes more material than many CalcI courses in college. As a result, the first month or so of CalcII in college is a repeat of what they had a few months previously. This can lead to boredom and a lack of attention to lectures and homework and a resulting lower final grade. In recognition of these facts, we have introduced a year long course, 3 hours each semester, which unites second semester calculus and differential equations. This course begins with applications of differential equations of the form y' = f(x), which looks new to these students, and then covers autonomous ones. Integration topics are covered as they occur in solving differential equations. Taylor series are introduced to solve nonlinear differential equations. Here the ratio test for convergence of series is motivated by such solutions. The need for theorems regarding differentiation and integration of power series also is apparent. By having separate sections - one for life science students and the other for engineering and physics students - we can tailor the motivational examples to those of interest to the students. A surprising result of this approach is that many students switch to being mathematics majors by the end of the two semesters. (Received September 14, 2000)