

**Meeting:** 1003, Atlanta, Georgia, SIAMMINI1, SIAM Minisymposium on Undergraduate Linear Algebra and Differential Equations: Projects, Problems, and Issues

1003-34-306      **Michael Huber\*** (am6996@usma.edu), Department of Mathematical Sciences, 646 Swift Road, West Point, NY 10996, **Steven Horton** (as9492@usma.edu), Department of Mathematical Sciences, 646 Swift Road, West Point, NY 10996, and **Timothy Povich** (at9970@usma.edu), Department of Mathematical Sciences, 646 Swift Road, West Point, NY 10996. *Teaching Differential Equations With Modeling and Without Integration.*

Most differential equations texts claim to have real-world problems and applications. By introducing realistic, applied problems, the faculty at the United States Military Academy motivates students to solve real problems that are not trivial. This presentation will outline some successes and some failures in using student group projects which ask the students to model applications of physics, engineering, and economics with differential equations. The calculus is introduced as a vehicle for modeling, and Mathematica is typically used to find solutions. We will present various projects used in the past and discuss the role of technology and faculty development for each project. In addition, we are testing a new curriculum which covers differential calculus in one semester and integral calculus in the following semester. Interestingly, differential equations are introduced before the students study integration. (Received September 08, 2004)