1067-C1-251 **Brian Birgen*** (brian.birgen@wartburg.edu), 100 Wartburg Blvd, Waverly, IA 50677, and **Mariah Birgen** (mariah.birgen@wartburg.edu), 100 Wartburg Blvd, Waverly, IA 50677. *Using Modeling and Differential Equations with a Numerical Solver to Teach First Year Calculus.* Preliminary report.

Historically the first year of Calculus has consisted of courses in Differential and Integral Calculus designed to meet the needs of Engineering majors. Many students take only the first course in this sequence and never make the connections between Calculus and their area of future studies.

At Wartburg College we have completely redesigned the Calculus sequence. Students begin with Applied Calculus, a course on Modeling and Differential Equations, in which students use a numerical solver to analyze and solve a variety of problems. Students who take only one Calculus course are exposed to the applications and power of the discipline, without getting lost in the formalism.

In the second semester students take Foundational Calculus, an intense development of Differential and Integral Calculus without applications and a focus on symbolic manipulations. Online mastery based homework as well as challenging group homework are aspects of this course to assure that students learn the material to the necessary depth.

Preliminary results show that students persevere through the first semester Calculus course at a higher rate, and that students are comparably prepared for sophomore level math classes. (Received August 13, 2010)