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**Scott A. Strong\*** ([sstrong@mines.edu](mailto:sstrong@mines.edu)), Applied Mathematics and Statistics, 1500 Illinois St., Golden, CO 80401, and **Allison R. Palmer** and **G. Gustave Greivel**. *Engaging STEM Students with Ordinary Differential Equations through Modern Models*. Preliminary report.

Why hasn't differential equations suffered the demise predicted by Rota in his 1997 address to the MAA at Simmons College where he brought into question the typical narrative of introductory courses? Perhaps, contrary to his provocative prediction, its fundamental importance in STEM education may allow the course to persist without any serious reformation into a modern form. Currently, blends with linear algebra and computational environments are common but often at the cost of developing strong connections to modern qualitative analysis. At the same time, emphasizing a dynamical systems perspective often results in a weakened motivation for practicing classical techniques. Of the modern perspectives, where should priorities be placed? In this talk, we describe a pedagogy that leverages cooperative learning engagements to introduce first-year STEM students to ordinary differential equations by threading technical content with mathematical models and modeling. Doing so provides the instructor flexibility in the use of quantitative, qualitative and approximation procedures while motivating learning across a diverse STEM audience. The talk will describe the course's context-rich assignments, supporting student growth in higher-order cognitive domains, and preliminary assessments. (Received September 17, 2019)