

1145-O1-244

**Viktoriya Savatorova\***, viktoriya.savatorova@unlv.edu, and **Aleksei Talonov**. *Undergraduate ODEs and Linear Algebra for engineering majors: studying the foundations and learning by doing.*

Here we would like to introduce our approach to teaching linear algebra and ordinary differential equations simultaneously. Since our audience consisted mostly of engineering, computer engineering and science majors, we bound these two parts by means of engineering and science applications. The idea was to provide engineering students with a thorough grounding in mathematics while retaining the philosophy of learning by doing. The majority of topics presented in the course were accompanied by applications in various branches of engineering and science. The emphasis was made on examples propelling students' engagement, motivation, and interest. In class and at home exercises were used for individual or group study to assure that students master the foundations of the material. The core activities of the course were several group projects assigned in the form of engineering problems. Each problem solution involved using methods of linear algebra and differential equations. Possible examples of group projects varied including, but not limited to oscillation of a pendulum, motion in a viscous fluid, vibrational problem of capacity microphone, electrical circuits and impulse response, etc. We conclude providing students' success rate and their feedback. (Received August 24, 2018)