Viktoria Savatorova* (vs1445@ccsu.edu) and Aleksei Talonov (aleksei.talonov@unlv.edu). Above and beyond traditional instruction through integrating research projects into Calculus classroom.

We present our practices of using research projects to enhance student’s engagement in Calculus classes, which have had traditionally low success rates and retention. Our experience shows that many of the students who struggle are not just underprepared, but also are not motivated. The goal for them is to pass the class with whatever minimum effort they can. The most challenging task for an instructor becomes not just to present the material, but to transform students from passive listeners to active participants and doers. For the semester we choose an actual science or engineering problem. The actuality of the problem we present in the form of the short reading assignment. This assignment is complemented by a short talk given by a STEM faculty working in the corresponding area. This guest speaker emphasizes the importance of the problem and the necessity of the knowledge of mathematics in order to solve it. Throughout the whole semester student’s group work in class and at home is guided using a set of transparent assignments. The full task is broken down in subtasks with carefully described instructions. Students learn by doing, and it increases the knowledge. Students also benefit from peer learning and discovering the application of Calculus in an amusing and exciting way. (Received July 06, 2019)