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Integrating technology and pedagogical strategies for learning and teaching calculus.

The Department of Mathematics at the University of Central Florida (UCF) has recently undertaken a major redesign project for its first course of Calculus, historically taught in very-large class environments and with an over 50% of DFW rate. The pedagogical solution proposed involves active teaching strategies, an online adaptive homework platform, and a perceptive assessment system focusing on higher level skills (conceptual understanding). Adaptive assignments are due before corresponding lecture, which yield initial knowledge background for meaningful learning. While adaptive assignment only covers procedural skills, they efficiently emulate one-to-one tutoring. We will detail the components of the course and discuss the data and the results obtained. (Received September 16, 2019)