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Kathy Williams (kathy.williams@mail.sdsu.edu), **Antoni Luque** (aluque@mail.sdsu.edu)
and **Nicole Tomassi** (nictomassi@gmail.com). *Promoting Active Learning and Modeling in
PreCalculus: Design Features for Creating Engaging Labs*. Preliminary report.

Recommendations from the CRAFTY documents provide a refreshing change of perspective toward the development of scientific habits of mind. However, precalculus instructors face a challenge: How can we create engaging opportunities for students with diverse skill sets, backgrounds, and career interests? A team of researchers (funded by an NSF Grant entitled "A National Consortium for Synergistic Undergraduate Mathematics via Multi-institutional Interdisciplinary Teaching Partnerships") has addressed this challenge by creating weekly labs that involve active learning opportunities for modeling each of the function families studied in the course. For example, we have developed physics labs including a quadratic model of a ball rolling down a ramp and a trig model that uses the same ramp and ball to "discover" gravity. We have also developed biology-focused labs such as a logarithmic exploration of pH and an exponential model of a virus spread. This talk will describe design characteristics that guide our development and research including having low floor and high ceiling entry points, opportunities for small group work and whole-class presentation, quality over quantity, explicit ties to the lecture portion of the class, and conceptually-based homework. (Received September 27, 2017)