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Increased retention of students in STEM disciplines is one vital part to increase the number of students who are able to succeed in STEM fields. Our efforts focus on the first year Calculus and Physics curriculum, and we explicitly bring these two closely connected areas together. The program has two parts. First is the identification of students who can benefit the most from a coordinated experience. This is done by identifying students strength in mathematics as well as physics prior to entry into the courses, and our focus is on students whose have a relative strength in physics and a relative weakness in mathematics skills. The second step is to bring the two courses together into a vibrant whole. This is done by making use of fundamental physics models, and our students are challenged to increase their analytic abilities through the development of physics based models and an exploration and analysis of the resulting models. (Received September 20, 2016)