Findings from the First Year of Implementation of the Modeling Practices in Calculus Curriculum

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A team of educators and researchers within the STEM Transformation Institute at Florida International University are developing and conducting research on the Modeling Practices in Calculus (MPC) curriculum. MPC is a student-centric design in which students are meant to emulate the authentic practices of mathematicians in the classroom in order to learn Calculus I by actively doing mathematics in a lecture-reduced classroom with a focus on students working with their peers. These authentic practices include students actively working in groups to develop modeling and problem-solving skills; engaging in a culturally responsive learning environment that features learning assistants, multiple representations, and argumentation; and building proficiency with mathematical terminology, language constructs, and symbols. Curriculum artifacts and highlights of the first year of implementation will be presented. Also, the ongoing process of evaluating, modifying, and implementing of the curricular materials and class structure will be discussed.