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*Precalculus Preparation Program for Mathematically Underprepared STEM Majors: A Tool for Increasing Retention.*

Universities across the nation are working to increase retention rates for STEM majors. At Middle Tennessee State University (MTSU) precalculus is an early obstacle for many students who major in a STEM discipline. Therefore, our project recruits students whose first college mathematics course is precalculus. MTSU's Mathematics as a FirstSTEP to Success in STEM project is a 5-year, \$2 million NSF-funded exploration of interventions that address mathematics deficiencies in STEM majors. MTSU first-time, full-time freshman STEM majors who are at-risk based on mathematics ACT test scores between 19 and 23, inclusive, participate in an intensive two-year program that includes a mathematics precalculus preparation program, two years of concentrated academic support, and an intense, introductory research experience at the end of their freshman year. This presentation focuses on the success of the precalculus preparation program, which uses four different instructional strategies to increase students' readiness for precalculus: individualized computer assisted instruction, direct teacher-led instruction, group-based hands-on activities, and peer-led learning. (Received September 17, 2013)