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Introductory Research Experiences at the End of the First Year of College.

Universities across the nation are working to increase retention rates for STEM majors. As part of Middle Tennessee State University's (MTSU's) initiative to improve retention of at-risk STEM majors, they recruit first-time, full-time freshmen STEM majors with mathematics ACT scores of 19 to 23 to participate in MTSU's "Mathematics as a FirstSTEP to Success in STEM" project (supported National Science Foundation grant #0969571). One component of MTSU's FirstSTEP program is an introductory, team-based, research experience held at the end of the students' first year of college. FirstSTEP's introductory research experience is a three-week, inquiry-based, intense exploration led by faculty. This presentation overviews the FirstSTEP research approach and demonstrates that introductory, early research experiences can be successful for mathematics projects. At the end of their freshman year, mathematics students can develop a foundation to conduct mathematical research, increase depth of content knowledge, and improve confidence in their technical abilities. As the FirstSTEP participants move toward graduation, we are studying the effects of this project on retention as compared to a control group. (Received September 16, 2014)