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Keri Kornelson* (kkornelson@ou.edu), **Deborah Moore-Russo**, **Stacy Reeder**, **Matthew Grover**, **Justin Wollenberg** and **Randa Shehab**. *A Study of Skills and Weakness of Incoming Mathematics Students*.

Prior knowledge plays an important role in student learning in and completion of undergraduate mathematics courses. The transition to university mathematics is difficult for many reasons, and gaps in students' foundational skill sets have the potential to hamper students' progress not only in their initial mathematics courses but also in subsequent mathematics courses. In this talk, we build on previous research of Reeder and Stewart (2017, 2019) related to the algebra skills of calculus students. Specifically, we use output from a proctored, widely-used, commercial mathematics placement instrument to identify the demonstrated skills and weakness (in algebra as well as other mathematical areas preceding calculus) of incoming freshman at the University of Oklahoma. We then connect these assumed prerequisite skills to student performance on course exams and to overall success in their initial and subsequent mathematics courses. We also look at the continuation of STEM majors as they persist on to further STEM courses based on the results of the placement instrument. We discuss results of the student, consider implications for this particular university as well as others in light of study results, and conclude by sharing potential areas for future research related to this topic. (Received September 16, 2019)