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Alison Ahlgren*, Department of Mathematics, 1409 West Green Street, Urbana, IL 61801, and
Marc Harper. *Connecting student knowledge and course performance at the University of Illinois.*

Four years of assessment data at the University of Illinois reveals many interesting connections between initial knowledge of students (at the level of specific mathematical skills) and course performance. We present analysis at three levels: aggregate mathematical ability, ability in specific areas (such as trigonometry), and at the level of specific skills (such as the ability to solve equations involving rational functions).

In particular, we show a very strong relationship between aggregate mathematical ability and mean grade in precalculus, business calculus, and traditional calculus; correlations between categories of skills and correlations with grades, including cutpoints for success and failure; and correlations with specific skills and final grade.

The skills data is obtained from ALEKS assessments collected over the previous four years at the University of Illinois. The size of the data set (tens of thousands of assessments) reveals interesting connections that have been difficult to quantify previously. We will also give aggregate comparisons to ACT Math scores, which were previously used to place students. (Received September 10, 2010)