1056-F1-1349   **Alison Ahlgren*** (`aahlgren@illinois.edu`), Department of Mathematics, 1409 W. Green Street, Urbana, IL 61801, and **Marc Harper** (`marcharper@gmail.com`), 601A Boyer Hall, Box 951569, UCLA, Los Angeles, CA 90095-1569. *Readiness Assessment and Course Placement through Introductory Calculus.*

The theory of knowledge and learning spaces is used to assess readiness and determine course placement for mathematics students at or below introductory calculus at the University of Illinois. Readiness assessment is determined by the artificially intelligent system ALEKS. The ALEKS-based mechanism from the University of Illinois reduces over-placement and is more effective than the former ACT-based mechanism. Significant enrollment distribution changes occurred as a result of the mechanism implementation. ALEKS assessments provide more specific skill information than the ACT. Correlations of ALEKS subscores with student maturity and performance meets expectations in many cases and revels interesting characteristics of the student population.

The data shows that preparation, as measured by ALEKS, correlates positively with course performance, more strongly than the ACT. Longitudinal comparison of students taking Precalculus shows that ALEKS assessments are an effective measure of knowledge increase. Calculus students with weaker skills can be brought to the skill level of their peers, as measured by ALEKS, by taking a preparatory course. The data is also used to measure course effectiveness and visualize the aggregate skills of student populations. (Received September 21, 2009)