



CASE STUDY PORTLAND STATE UNIVERSITY

ALEKS Placement Improves Student Success

Portland State University set out to increase success rates in ten Mathematics and Statistics courses ranging from Elementary Algebra to Calculus. A common cause of failure was student deficiencies in prerequisite knowledge; likely due to the lack of placement testing and prerequisite enforcement at Portland State. A Placement Committee decided that ALEKS was the best placement tool available, due to its accuracy, flexibility, and built-in remediation tool. In 2012, the first year of implementation, Portland State saw a 6% increase in pass rates for students who used ALEKS for placement when compared to 2011. For students who did *not* use ALEKS placement, but instead satisfied the prerequisite through a previous course, Portland State saw a 2% decrease in pass rates; indicating that ALEKS better assesses and prepares students for mathematical success.

Institution Profile

Portland State University has an annual enrollment of over 23,000 undergraduate students, with over 4,000 students enrolling in ten entry-level Mathematics or Statistics course. The university's motto is "Let Knowledge Serve the City", and it does so, with a large population of non-traditional students and returning-adults.

Implementation

Product Description:

ALEKS is an adaptive and artificially intelligent placement and learning system. It uses 25-30 open response questions to analyze exactly what a student knows, doesn't know, and is ready to learn. Once students have completed an assessment, they see a detailed pie chart called MyPie with their unique results. This MyPie is far superior to the standard single placement score (which the student also receives for cutoff purposes); it is a snapshot of the student's current mathematical knowledge. This is an extremely effective visual tool, as many students can confuse "past knowledge" with "present knowledge". Having these results takes the guess-work out of reviewing mathematics.

Digital Product in Use:

ALEKS Prep for Calculus

Course Placement:

Elementary Algebra through Calculus I

Placement Coordinator Name:

Austina Fong

Enrollment:

Over 4,000 Students

Case Study Term:

2012 Calendar Year

"Addressing student success in high failure courses is essential for any institutional effort aimed at improving retention and completion. Aligning student preparation with course content using ALEKS [and] giving students the ability to refresh on the content ... is resulting in better outcomes for students and the institution."

*- Sukhwant Jhaj
Vice Provost for Academic Innovation and Student Success*

"ALEKS not only gives students the opportunity to place into their preferred course through remediation, but also helps students succeed in that course."

*- Austina Fong
Math Placement Coordinator*

Implementation of ALEKS

Prior to using ALEKS, Portland State University had no method for placing students into their Mathematics and Statistics courses. Additionally, there were recommended prerequisites, but none were enforced. Once ALEKS was implemented for placement in 2012, the policy enforced by the Department of Mathematics and Statistics was that students must either place at the necessary level on the Placement Test in ALEKS or have successful completion (C- or above) of the prerequisite course or higher. The Placement Test at Portland State is designed so that students can take the assessment at any time and location most convenient to them. If the desired score is not initially reached, students can utilize a 6-week, self-paced remediation tool within the ALEKS learning module, and retake the assessment. This process makes placement much more convenient for students and less nerve-racking for those with math and/or test anxiety. The ALEKS learning module also takes the guess-work out of reviewing; it tells the student exactly which topics they know, don't know, and more importantly, which topics they're ready to learn next. This can save a student several hours of either reviewing topics that are already mastered (boredom) or reviewing topics that are too difficult for their current knowledge state (frustration).

Results Achieved

Placement Results

In the calendar year of 2012, Portland State had 3,371 students complete the ALEKS Placement Test. A total of 891 students retook the assessment in an effort to improve their placement score. **Of those students, 86% (767) improved their score enough to jump at least one course.** Additionally, of the 3,371 students who completed the Placement Test, over 50%

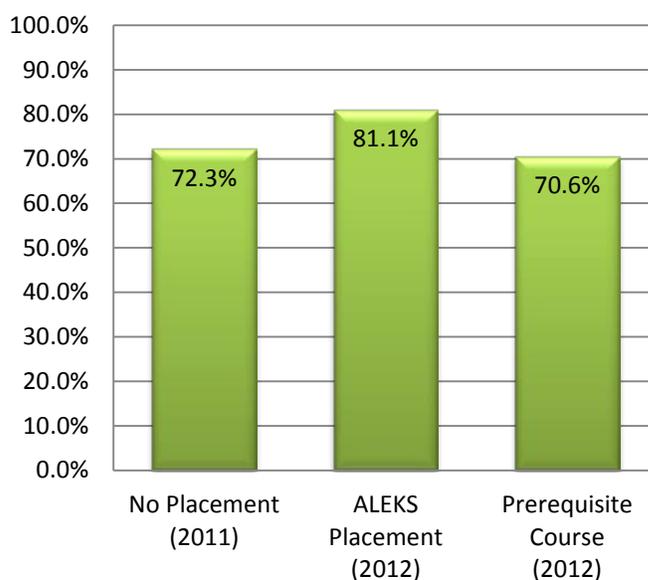
Number of Courses Jumped	Number of Students	Percent of Students
1	325	37%
2	215	24%
3	182	20%
4	45	5%

(1,699) were initially placed into a remedial course (either Elementary or Intermediate Algebra). **For those remedial students who chose to reassess (806 students), 64% of them (519) were able to place out of a remedial course and into a college-level course.** This leads the way to increased retention, reduced time to graduation, and more major/degree options.

Course Results

Within the first year of implementation, Austina Fong saw an interesting change in the pass rates. Although the pass rates only increased by 1.6% overall compared to 2011, there was a significant difference in course performance between students who got into the class by passing the ALEKS placement test, as opposed to passing the prerequisite course. **Students who placed with ALEKS had a 10.5% higher pass rate than those who had passed the prerequisite course.** This shows that ALEKS placement better assesses and prepares students for mathematical success. Additionally, after ALEKS Placement was implemented, instructors reported anecdotally that students seemed better prepared, creating an improved classroom dynamic for more effective and consistent instruction.

Pass Rate in Math/Stat Courses



Student Comments

"This software was outstanding -- so intuitive and easy to use. I loved having the flexibility to work on campus or at home. I also found that using ALEKS inspired me to be self-motivated in my math learning. It was a fun challenge to work through the pie slices and see my progress. I learned so much!"

"The self-directed nature of using the ALEKS software inspired me to work harder -- I learned so much math over 4 weeks! I had not realized how much I had forgotten, and ALEKS has helped me discover this."

Instructor Comments

Calculus Instructor: *"On Exam I, this class had an average of 84% compared to 74%, 80%, and 63% the past three times I taught this course. In addition, in times past I typically spent about 1 week reviewing material. This quarter, because of placement, I was able to start day 1 with limits."*

Intermediate Algebra Instructor: *"Not only did my students this term do much better on their first exam than students in previous terms, but I was also able to make the exam more challenging than in the past. Because the students were better prepared for the material, I was able to present more concepts and put more questions on exams so that I could get a better assessment of their overall understanding."*

Conclusion

The Placement Committee has been very happy with the results that ALEKS has produced so far, and are greatly looking forward to seeing continued results. Both students and instructors have seen first-hand the benefits of math preparation and remediation with ALEKS. With the implementation of ALEKS for placement, students are still able to enroll in their preferred course after ensuring that they are adequately prepared and likely to succeed. This allows instructors to teach the course as intended, and even present more challenging and motivational problems to students.

Interested in learning more? Austina Fong is happy to share more about her experience with ALEKS and can be emailed at austinaf@pdx.edu.

Or, you can visit the following websites for more information:

www.successinmath.com

www.aleks.com

<http://www.pdx.edu/math/placement/instructions>.