

ALEKS[®] Case Study

Hillsborough Community College | Tampa, FL

Course Name: MAC 1105 College Algebra

Implementation: Flipped Classroom

Course Setup: ALEKS 360 with Miller College Algebra, 2e

Average Enrollment: 28 students per section; 2,200 annual

Introduction

College algebra is a “notoriously difficult” course for students to pass at Hillsborough Community College (HCC). The pass rates are low and the withdrawal rates are high. As such, the school has been redesigning some of the college algebra courses as part of the HCC Math Success grant.

Professor Misty Vorder Bruegge’s college algebra courses have been part of the redesign. She has been teaching college algebra at HCC for about 9 years using the MyLabs system. This prompted Professor Vorder Bruegge to try a different homework platform system in one of the two grant sections as part of the redesign. She had piloted ALEKS in an intermediate algebra course several years ago, and had good results. She decided to use ALEKS in one of the college algebra grant sections. The other section would use MyLabs with the adaptive Skill Builder feature.

ALEKS Experience

Professor Vorder Bruegge found that ALEKS is more conducive for long-term course material retention due to the continual assessing via the Knowledge Checks. It is also individualized—students don’t waste time on material they already know. Instead, students spend time working on their individual knowledge gaps.

She has noted that because her students have a lot of responsibility outside of class, they don’t have time to waste on static homework material that they already know. Her students’ time is much better spent filling in their individual knowledge gaps rather than on new material they are not ready to learn.

In addition, because ALEKS makes students prove mastery of prerequisite material, they don’t spend hours struggling with material for which they don’t have prior knowledge necessary to successfully complete.

“The 79 percent pass rate in my ALEKS section is the highest I have ever had in a college algebra section in over 9 years of teaching at HCC.”

– Misty Vorder Bruegge

Implementation

College algebra at HCC is a 16-week, 3-hour course. It is setup as a flipped classroom model -- students watch lecture videos at home and work on homework assignments in the class. "Notebook check" quizzes are given on most class days to ensure students watch the videos and take notes. As students work on homework in the class, the professor and the supplemental instructor answer questions. In addition, students have a class activity on the day before each exam.

Students are placed into college algebra either by passing Intermediate Algebra, or via advising. The grading system is setup as follows: Homework = 15%, Notebook Quizzes = 10%, 4 Exams = 60%, Final Exam = 10%, Activities = 5%. In the ALEKS section, the homework portion of the grade is divided into 5% for completing ALEKS Objectives and 10% for completing 95% of the ALEKS Pie. Also, the final exam is an ALEKS comprehensive Knowledge Check completed in class.

Results Achieved

Professor Vorder Bruegge's pass rates in college algebra have historically been around 50 to 60 percent. Compared to this historical rate, the pass rate for the ALEKS section in the redesign saw a significant increase (See Figure 1). There was also an improvement in the withdrawal rate. Professor Vorder Bruegge observed that MyLabs did not appear to help struggling students, while ALEKS did a much better job helping students fill in their knowledge gaps. This is evident in her data by the number of B and C grades earned with ALEKS versus MyLabs, which she attributes to two flaws in MyLabs: 1) completing prerequisite material with Skill Builder is not mandatory, and 2) not having the adaptive capabilities to continually track where students are struggling with the course material (see Figure 2).

Figure 1: College Algebra Results

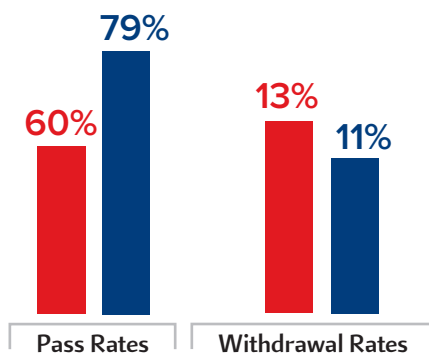
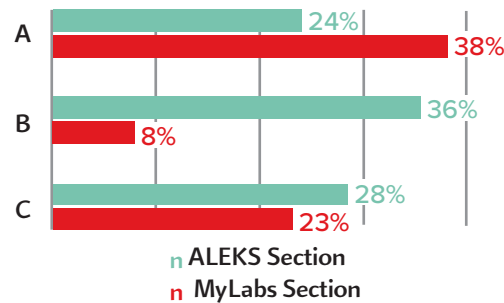
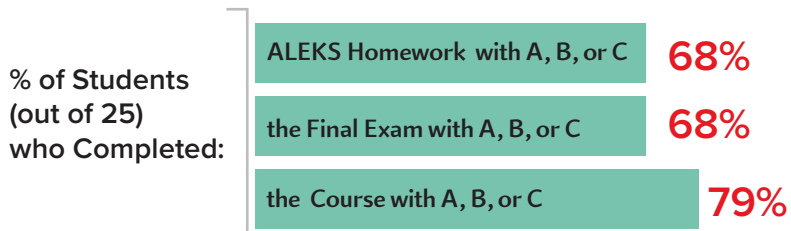


Figure 2: Final Course Grades



Conclusion

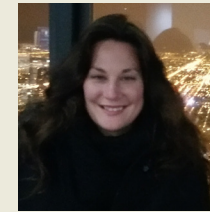
Professor Vorder Bruegge believes that ALEKS is the best fit for her students' needs. ALEKS continually assesses students, so it knows where students are with the course content at any given time, a major contributing factor to student success. There is also a clear consistency between exams, ALEKS homework, and final grades. (see Figure 3).



Institution Profile

Founded in 1968, Hillsborough Community College is a two-year community college located in Hillsborough County, Florida. It serves over 40,000 students across five campuses, who can earn degrees and certificates in 20 different fields.

Instructor Profile



Professor Misty Vorder Bruegge is a tenured professor at Hillsborough Community College, where

has been teaching for over nine years. In 2008, she simultaneously received her bachelor's and master's degree in pure mathematics with honors from the University of South Florida.

What she loves most about teaching is helping students' achieve their long-term academic and career goals. When she's not exploring new teaching strategies, she enjoys traveling, cooking, reading, and spending time at the beach.