

Product Used **MyMathLab**
 Course Name **College Algebra**
 Credit Hours **Three**

KEY TAKE-AWAY

Redesigning College Algebra using MyMathLab in a hybrid format resulted in significantly improved outcomes in both College Algebra and its subsequent courses: higher success (ABC) rates, higher pass rates, and lower withdrawal rates.

Materials in Use

Trigsted MyMathLab College Algebra

Course Implementation

Mississippi State University requires all students to take two math courses that are college algebra and above. When administration noticed a rapid decline in College Algebra enrollment, they took a closer look at the course. Prior to fall 2005, the average withdrawal rate for the course was 15 percent; the average success (ABC) rate was 61 percent. They decided to make a change.

Course Design

Prior to fall 2005, College Algebra was taught in a traditional format that included three hours of lecture, optional homework, four exams, and a comprehensive, common final. Today, College Algebra is a hybrid course in which students spend two hours in lecture and two hours in lab per week using MyMathLab.

Although all student work is required and graded, instructors spend less time grading, thanks to the automated grading aspect of MyMathLab. Students may rework problems as many times as they need until they reach a grade of 75 or higher. Once students earn at least a 75 on their homework, they take a multiple-choice quiz in MyMathLab. Students then

take a mastery quiz (practice test), and finally, a proctored test in MyMathLab after every three or four quizzes.

Assessments

- 40 percent MyMathLab tests (4)
- 30 percent MyMathLab final exam (proctored)
- 12 percent MyMathLab quizzes
(one attempt, no learning aids)
- 10 percent MyMathLab homework (unlimited attempts)
- 8 percent Work outside of MyMathLab

Use of MyMathLab

MyMathLab is used for all aspects of the course: tests, exams, quizzes, and homework. In addition, instructors use the MyMathLab Gradebook and the Item Analysis feature to identify areas on which to spend more time. The Coordinator Course feature is used to ensure consistency among sections.

Use of MyMathLab contributes 92 percent to a student's final course grade.

Results and Data

Since implementing the MyMathLab-supported College Algebra redesign, the average success (ABC) rate has skyrocketed to 78.9 percent each semester—an increase of 17.9 percentage points; and the average withdrawal rate decreased—from 15 percent before redesign to 4.16 percent after.

Perhaps even more telling, however, is the success students are seeing in subsequent courses—particularly compared to students who took College Algebra elsewhere.

The average subsequent withdrawal rates for students who took the redesigned College Algebra course are significantly lower than the average rates for students who transferred into the subsequent courses: 50 percent lower for trigonometry, 41.6 percent lower for business calculus, and 53.6 percent lower for statistics (figure 1).

Similarly, the average subsequent success (ABC) rates for students who took the redesigned College Algebra course are

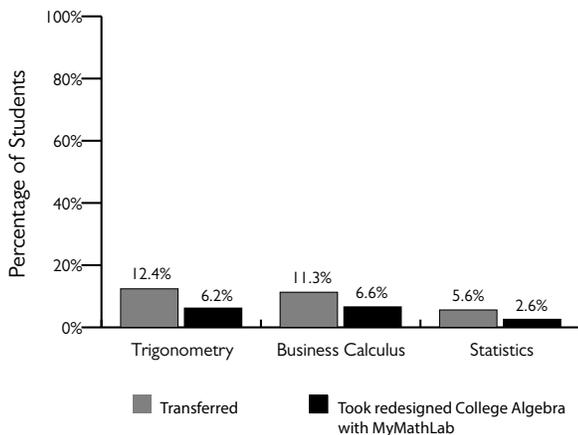


Figure 1. Average Subsequent Withdrawal Rates for Transfer and Redesign Students (Spring 2011–2013)

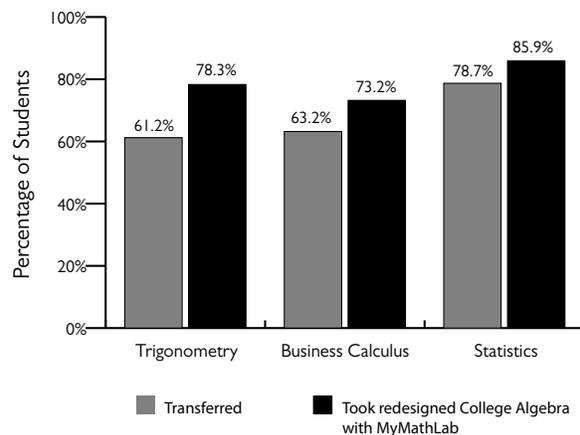


Figure 2. Average Subsequent Success (ABC) Rates for Transfer and Redesign Students (Spring 2011–2013)

significantly higher than the average rates for students who transferred into the subsequent courses: 27.9 percent higher for trigonometry, 15.8 percent higher for business calculus, and 9.1 percent higher for statistics (figure 2).

In addition, pass rates in subsequent courses are an average of 12.5 percent higher for students who took the redesigned College Algebra course than for those who took the course elsewhere and transferred in for the subsequent course.

The Student Experience

Most students like the new format and are happy with the success they're seeing. According to Instructor Kimberly Walters, "Students learn pretty quickly if they don't understand the material and ask more questions than they used to."

End-of-semester survey responses included the following:

- "MyMathLab is a very resourceful tool—it's organized very well and it was easy for me to navigate."

- "I never thought I'd like doing assignments, quizzes, and tests on the computer, but I liked it better than using pen-and-paper. If I didn't understand a concept in class, I could use 'View Example' to learn more."
- "The online homework helped me understand how to work the problems and get the concepts down."

Conclusions

Faculty at Mississippi State University have seen a lot of success—and learned some valuable lessons. "Getting the course set up takes some time, but after that, it's a breeze to tweak," says Walters.

"Change is difficult," says Walters. Getting instructor buy-in for a new model can be challenging, but the results spoke for themselves. "For the most part, the success we saw with what we were doing was what convinced those who were opposed to it. Some thought they'd have lots of up front work and would have to make major changes in how they taught. Once they realized that the up front work was done by someone else and they could simply teach, that really helped."

The redesign has had so much success that Mississippi State University piloted a redesigned version of Business Calculus in fall 2013 and are looking into possible course redesign when there is more lab space.

In fall 2013, the school switched to MyLabPlus and plans to continue improving their outcomes using this product.

*Submitted by Kimberly Walters, Instructor
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