

Product Name MyLabsPlus

Course Name College Algebra

Course Format Emporium: open lab + face-to-face discussion, fixed due dates

Key Results After redesigning College Algebra using MyLabsPlus in an emporium model, success (ABC) rates increased nearly 12 percent and final exam pass rates increased 21 percent.

Materials in Use

Precalculus: A Unit Circle Approach, Ratti and McWaters

Implementation

College Algebra is a prerequisite for several of USF's science, technology, engineering, and mathematics programs, but in the traditional model, the average success rate for the course was only 65 percent (2007–2010). Redesign was one way the school sought to increase student outcomes.

The redesigned course, based on the National Center for Academic Transformation's Emporium model, promotes student engagement in the learning process. Each week, students are required to attend a large discussion session and spend at least three hours in the computer lab using MyLabsPlus. In the discussion session, students use a personal response system (clickers) to collaborate and respond to questions posed by the instructor. In the lab, they are encouraged to use MyLabsPlus's interactive learning resources, including tutorials with immediate feedback, videos, and animated slide presentations. In addition, graduate teaching assistants and math tutors are available for one-on-one assistance.

All tests, the final exam, homework, and course content quizzes are completed in MyLabsPlus. Students are given three attempts on each homework assignment, and they must score a minimum of 70 percent in order to access that section's quiz. Students are then given one attempt on the timed quiz. Students may earn up to three possible extra credit points by completing MyLabsPlus Study Plans.

“The average final exam pass rate for the redesigned classes was 11.8 percentage points higher than the rate for the traditional classes—a full letter grade.”

Assessments

45 percent	MyLabsPlus tests (3)
25 percent	MyLabsPlus final exam
10 percent	MyLabsPlus quiz
8 percent	MyLabsPlus homework
6 percent	Lab attendance
4 percent	Discussion session clicker grade
1 percent	Prerequisite skills assessment
0.5 percent	How to enter answers quiz
0.5 percent	Lab orientation quiz

Use of MyLabsPlus contributes 88 percent to each student's final course grade.

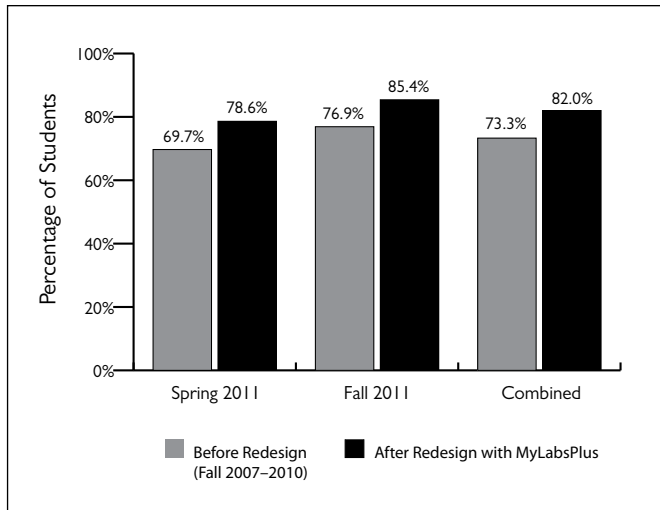


Figure 1. College Algebra Average Success (ABC) Rates before and after Redesign (Fall 2007–Fall 2011)

Results and Data

The redesigned classes for spring and fall 2011 had higher average student success rates than did the traditional classes: the average success rate for the redesigned classes was 8.7 percentage points higher than the average rate for traditional classes (figure 1).

Final exam pass rates also increased: for spring and fall 2011, the average final exam pass rate for the redesigned classes was 11.8 percentage points higher than the rate for the traditional classes—a full letter grade (figure 2).

The Student Experience

In spring 2012, a qualitative study by then-undergraduate Matthew Maher was completed to identify which aspects of the redesigned format students found the most helpful. The majority of students had positive feedback about the design and their attitude toward math had improved as a result of taking the course. One of the most interesting themes to arise from the study was that, although the students initially protested the required lab hours, they ultimately recognized that it helped to keep them on track and to master the material. As one student explained, “If I didn’t have the labs, I’d wait until the last minute and take the quiz or take the homework real quick and not actually learn it.”

When asked, “Overall, what has helped or hurt your motivation in class the most and why?” students’ responses showed the importance of offering multiple resources for learning:

- “Seeing my grade immediately after class greatly helped my motivation.”

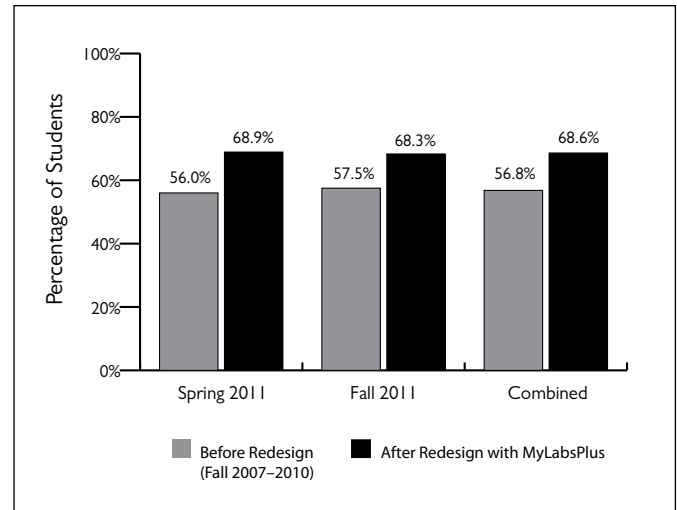


Figure 2. College Algebra Average Final Exam Pass Rates before and after Redesign (Fall 2007–Fall 2011)

- “Being given another chance to get it right in homework and quizzes was a great motivation to get the best grade I could. It encouraged me to learn the material, rather than forget about it after I got it wrong the first time.”
- “I think what has helped me the most in this class is the video examples on how to solve the problems. I am a visual learner so to see an actual person working out the problem helps me understand the concept and steps better.”
- “The most helpful study tool was doing the Study Plans before each test along with the practice tests.”
- “The practice tests helped me the most because they gave me example problems that were similar to those that were on the actual exam.”

Conclusion

The redesigned College Algebra course promotes active learning, addresses diverse learning styles, encourages mastery-level learning, and enables students to be more in control of their learning process. For faculty and teaching assistants, it results in time savings that would normally be used for class management and that can now be used for individualized attention. The school also anticipates a cost savings realized by using the computers for testing versus paper.

*Summarized from a study by Fran Hopf, Ruthmae Sears, Ana Torres, and Matthew Maher
Submitted by Marcus McWaters, Department Chair
University of South Florida*