

University of Alabama

Course Names Beginning Algebra, Intermediate Algebra, Finite Math, Precalculus Algebra

Credit Hours Three

Semesters Covered Fall 2000–Fall 2007

Types of Data Reported Success Rates, Retention

Type of Implementation Lab-Based

THE UNIVERSITY OF
ALABAMA

Textbooks in Use with MyMathLab

Beginning Algebra, 10e, 2008, Lial, Hornsby, McGinnis; *Intermediate Algebra*, 3e, 2007, Martin-Gay; *Finite Mathematics*, 8e, 2005, Lial, Greenwell, Ritchey; *Precalculus*, 3e,

2008, Beecher, Penna, Bittinger; *Calculus with Applications*, 9e, 2008, Lial, Greenwell, Ritchey

MyMathLab Course Structure

Course Design

Beginning Algebra and Intermediate Algebra courses have one required meeting per week in which students report to the math lab and work on homework and quizzes. In other courses, weekly meetings consist of lecture on key topics for the week. The math lab is open 71 hours a week; students may receive individualized assistance from a staff of instructors and tutors. Students work at their own pace within the deadlines stated in the syllabus. Some students finish the course within eight weeks of the semester start, but the majority work according to deadlines.

Course format comprises the following:

- 30- to 50-minute classes that introduce students to topics and course objectives
- 3 to 4 hours in the lab or elsewhere working independently and using course software that presents a series of topics covering specific learning objectives
- Instructors and tutors available in the Mathematics Technology Learning Center 71 hours a week to provide individualized assistance

Assessments

Within each section of content there is a homework and quiz requirement that contributes to the course grade. Four major tests (not cumulative) each contribute 10 percent to the course grade. A comprehensive final exam counts as 30 percent of the final course grade. In addition, students have lab and class attendance requirements.

MyMathLab Implementation

The University of Alabama uses the majority of features offered in MyMathLab, including customization, homework, quizzes, tests, and prerequisites—contributing 93 percent of each student's final course grade. UA imports grades into its own grade book.

In summer 2000, UA redesigned the math program using MyMathLab and the Math Emporium model developed by Virginia Polytechnic Institute and State University and the National Center for Academic Transformation's Course Redesign program. UA's College of Arts and Sciences assigned to the course the Mathematics Technology Learning Center, which started out as a 70-seat computer lab and now seats 500.

MyMathLab Course Results

By spring 2006, Intermediate Algebra pass rates had risen an average of 20.2 percent from 2000 rates, with the percentage of As and Bs increasing from 36.7 percent to 58.3 percent. For those courses in which the department had not fully made the switch to redesign, side-by-side data revealed not only that the pass rate in the MyMathLab-redesigned Business Calculus was course significantly higher than the traditional counterpart (64.7 percent versus 51.3 percent) but also that the failure rate decreased and the withdrawal rate dropped by more than half.

Tables 1 through 5 illustrate MyMathLab's wide range of positive impact. They show measurable outcomes in pass rates and retention data for individual classes and the overall mathematics department—by test, by semester, and as these outcomes relate to subsequent success.

In addition, faculty at UA note the following advantages to the technology-assisted redesign: flexibility in scheduling, ability to move at individual pace, instant feedback, availability of individual help, equality of presentation, equality of testing, and elimination of language problems.

	Fall 00	Spring 01	Fall 01	Spring 02	Fall 02	Spring 03	Fall 03	Spring 04	Fall 04	Spring 05	Fall 05	Spring 06	Fall 06	Spring 07	Fall 07
Beg Algebra	-	-	-	-	54.6%	35.8%	56.5%	37.2%	60.6%	49.7%	64.2%	65.5%	73.6%	53.2%	74.0%
Inter Algebra	50.2%	35.8%	60.5%	49.8%	62.9%	38.9%	78.7%	61.8%	76.2%	59.1%	67.2%	56.2%	73.8%	59.8%	75.2%
Finite Math	-	-	-	-	67.0%	63.5%	66.5%	56.2%	70.0%	65.0%	66.0%	56.3%	70.3%	62.0%	74.8%
Precalc Algebra	-	-	-	-	60.5%	66.6%	70.3%	68.5%	71.8%	65.0%	71.6%	62.6%	66.0%	57.2%	69.2%
Trigonometry	-	-	-	-	68.2%	59.7%	55.1%	66.8%	65.1%	66.1%	65.1%	75.2%	45.1%	69.0%	66.8%
Precal Alg/Trig	-	-	-	-	78.5%	62.2%	80.0%	61.4%	79.7%	80.6%	79.7%	54.2%	80.6%	71.4%	73.2%
Business Calc	-	-	-	-	-	-	50.7%	54.9%	64.7%	74.2%	64.7%	60.6%	60.4%	69.8%	61.9%

Table 1. Success Rates of MyMathLab Implementaton by Semester, Fall 2000–Fall 2007

	Fall 02	Spring 03	Fall 03	Spring 04	Fall 04	Spring 05	Fall 05	Spring 06	Fall 06	Spring 07	Fall 07
Beg Algebra	72.8%	53.3%	75.0%	57.0%	79.7%	76.2%	83.7%	73.6%	88.1%	69.4%	85.3%
Inter Algebra	77.2%	59.3%	85.8%	72.3%	86.4%	77.7%	80.1%	73.4%	86.7%	77.0%	85.9%
Finite Math	74.3%	72.4%	80.8%	71.8%	85.5%	78.8%	80.5%	70.8%	84.2%	75.7%	85.1%
Precalc Algebra	73.7%	81.7%	78.7%	80.8%	84.5%	82.9%	83.7%	80.9%	84.3%	82.0%	85.6%
Trigonometry	79.9%	83.1%	70.3%	80.4%	82.8%	79.5%	77.0%	85.8%	68.9%	81.9%	81.5%
Precal Alg/Trig	91.8%	84.2%	93.9%	88.4%	96.3%	84.4%	91.6%	75.0%	95.5%	85.7%	87.7%
Business Calc	-	-	69.3%	67.6%	64.6%	83.8%	71.3%	76.4%	75.0%	81.7%	77.2%

Table 2. Retention Rates of MyMathLab Implementaton by Semester, Fall 2002–Fall 2007

	Test 1	Test 2	Test 3	Test 4	Final
Fall 2001	92.4%	89.3%	83.8%	81.6%	78.6%
Fall 2002	92.3%	89.7%	84.7%	79.4%	77.2%
Fall 2003	92.1%	91.2%	88.6%	86.3%	85.8%
Fall 2004	94.4%	92.2%	90.0%	86.6%	86.4%
Fall 2005	93.6%	89.7%	82.7%	79.7%	80.1%

Table 3. Intermediate Algebra Retention per Test, Fall 2001–Fall 2005*

*Data reflect the percentage of students enrolled in the course who took each test.

	Test 1	Test 2	Test 3	Test 4	Final
Without MML	88.4%	83.0%	67.0%	64.9%	67.3%
With MML	94.6%	92.2%	85.6%	82.6%	81.4%

Table 5. Business Calculus Retention per Test, Fall 2005*

*Data reflect the percentage of students enrolled in the course who took each test.

	Semesters	Pass Rate for Subsequent Course
Without MML	Fall 1998–Spring 1999	57.4%
	Fall 1999–Spring 2000	54.6%
With MML	Fall 2000–Spring 2001	58.0%
	Fall 2001–Spring 2002	74.6%
	Fall 2002–Spring 2003	81.4%

Table 4. Pass Rates for Subsequent Courses before and after MyMathLab Implementation

Conclusions

The use of MyMathLab has significantly improved student success rates. Prior to implementation MyMathLab, success rates averaged 40 to 45 percent. Today, success rates in Intermediate Algebra have averaged 70 percent in the fall semesters and 60 percent in the spring semesters.

As studies have become more longitudinal, UA has realized how MyMathLab works best: as part of a larger redesign that includes mandated use by students. The results consistently show a direct correlation between required attendance in the labs and higher success rates.

Longitudinal studies have also increased UA's awareness of MyMathLab's impact on subsequent success. By 2006, students who came out of a MyMathLab–redesigned Inter-

mediate Algebra course passed their subsequent course, Precalculus Algebra, at an average rate of 71.3 percent compared with the overall average of 48.3 percent.

Based on this data, the University of Alabama is convinced: MyMathLab in an Emporium redesign setup can enhance student learning; can increase success rates, particularly for underserved students; and can reduce resource demands.

Plans for the future include using even more of the tools offered by MyMathLab (e.g., item analysis and pooling) to further increase student success rates.

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