

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



KEY TAKE-AWAY

MyMathLab enables students to work at their own pace, thereby reinforcing personal accountability and increasing self-confidence. The support of SIUC's tutoring lab ensures students achieve the learning mastery that will prepare them for subsequent success.

Textbook in Use

Algebra and Trigonometry, 3e, Judith A. Beecher, Judith A. Penna, Marvin L. Bittinger

Course Implementation

Course Design

MathXL serves as the linchpin of Southern Illinois University Carbondale's (SIUC's) multiphase, seven-year redesign of College Algebra. Program implementation began in fall 2006 and comprised homework assignments and optional multimedia learning aids. Sections met three times per week, there was one section, and there was no required lab time.

By spring 2009, there were five sections, all of which met three times per week (two lectures, one lab), and use of MathXL features was expanded. Unlike in traditional courses, where content may vary by instructor, all redesign sections have similar course content, lecture notes, and assignments.

Students may receive help via open labs (five days a week, 6–9 p.m.), department Help Sessions, and instructor office hours. MathXL provides multimedia learning support from students' own computers, from any computer on campus, and online help around the clock.

Assessments

Students complete a total of 44 assignments: 32 homeworks, 6 quizzes, and 6 tests. Approximately 80 percent of all assignments are graded by MathXL: all homework, all quizzes, and about one-third of the tests.

Use of MathXL

MathXL is used for homework, quizzes, and grading. In addition, Dan Mussa, assistant instructor, uses MathXL's email announcements, individual and course assignment settings, and study plan features. Grades are kept in the MathXL Gradebook, allowing students daily access to their progress.

Customizing MathXL's study plan enables Mussa to retain control of course content while enhancing his teaching style with technology. Students are presented with exactly the practice problems and concepts he covered in class.

Use of MathXL contributes 80 percent to a student's final course grade.

Results and Data

As indicated in Tables I–8, student success levels in MathXL-enabled sections consistently and significantly surpassed those of traditionally instructed sections. Final exam grades were higher; withdrawal rates were lower.

Mussa notes that by using the departmentally common final exam as a comparative measure, he avoids any discrepancy that might arise due to variations among instructors' grading methods or testing standards.

A MathXL-enabled section of Trigonometry was taught in spring 2009. There was no required lab; however; assignments, testing, and course management were similar to the MathXL-enabled College Algebra sections described in this report. The class median on the common final exam was 140/200 compared with the overall median of 108/200.

Semester	MathXL	Traditional
Spring 2009	75.2%	40.3%
Fall 2008	71.4%	29.7%
Spring 2008	53.1%	38.7%
Fall 2007	55.9%	37.4%
Average	65.2%	35.9%

Table 1. Final Exam Grade of A, B, or C, Fall 2007 to Spring 2009 (n=1,028)

Grade	MathXL	Traditional
A	15.6%	8.2%
B	21.1%	10.8%
C	21.7%	16.1%
D	15.4%	19.0%
F	26.2%	45.9%

Table 2. Average Final Exam Grades, Fall 2007 to Spring 2010 (n=1,671)

Grade	MathXL	Traditional
A	27.9%	9.6%
B	11.8%	9.1%
C	16.2%	18.7%
D	16.2%	22.5%
F	27.9%	40.1%

Table 3. Average Final Exam Grades, Fall 2007 (n=334)

Grade	MathXL	Traditional
A	16.7%	10.4%
B	18.2%	10.4%
C	18.2%	17.9%
D	21.2%	17.9%
F	25.7%	44.4%

Table 4. Average Final Exam Grades, Spring 2008 (n=242)

Grade	MathXL	Traditional
A	16.3%	6.4%
B	32.7%	9.5%
C	22.4%	13.8%
D	12.3%	15.1%
F	16.3%	55.2%

Table 5. Average Final Exam Grades, Fall 2008 (n=502)

Grade	MathXL	Traditional
A	17.6%	9.1%
B	18.8%	9.7%
C	38.8%	21.5%
D	7.2%	19.9%
F	17.6%	39.8%

Table 6. Average Final Exam Grades, Spring 2009 (n=318)

Grade	MathXL	Traditional
A	13%	5.4%
B	26%	13.0%
C	20%	14.0%
D	15%	23.0%
F	26%	44.3%

Table 7. Average Final Exam Grades, Fall 2009 (n=353)

Semester	MathXL	Traditional
Spring 2009	92.4%	82.3%
Fall 2008	71.5%	63.5%
Spring 2008	85.7%	64.2%
Fall 2007	79.0%	75.0%
Average	82.2%	71.3%

Table 8. Retention, Fall 2007 to Spring 2009 (n=1,028)

The Student Experience

In a spring 2009 survey conducted in the mathematics lab and via email, 100 percent of those students who had used MathXL responded that it was helpful to them; 95 percent responded that they would use the program again and that they would recommend it to others.

In a spring 2009 report, the manager of SIUC's Trueblood Tutoring Lab stated that since fall 2008, attendance had more than doubled—a comment supported by the spring 2009

survey, in which 73 percent of those responding had visited the lab three or more times.

In the same report, the lab manager noted that those students using MathXL had asked fewer questions and had a better understanding of what they needed help with when they did have questions. She recommended that more professors implement MathXL into their curricula.

Conclusions

As a result of MathXL's success, departmental plans include expanding the use of the hybrid model using MathXL from six College Algebra sections to all College Algebra sections and investigating the potential implementation of this model in the following courses: Intermediate Algebra, Trigonometry, Pre-calculus, Finite Math, and Business Calculus. Such expanded use of MathXL would mean an exponential increase in the number of students using MathXL per semester—from about 180 to more than 700.

To handle the increased number of students seeking lab time, plans are also in development for a dedicated math lab containing up to 100 stations. "When I started this journey I had no idea how far it would take us," says Mussa. "While I hoped for a dedicated math lab, I could only imagine it would become a reality."

*Submitted by Dan Mussa, Assistant Instructor
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