

# Memorial University of Newfoundland

**Course Name** Precalculus

**Credit Hours** Three

**Semesters Covered** Spring 2007–Fall 2007

**Type of Data Reported** Success Rates

**MyMathLab Contribution to Final Grade** 5 Percent



## MyMathLab Course Structure

**Course design:** Precalculus is open to students with a Math Placement Test (MPT) score of more than 55 percent and is a prerequisite for Calculus for those students scoring less than 80 percent. The course presents fundamental mathematical concepts and the opportunity to improve computational and logical skills.

The mathematics faculty at Memorial University of Newfoundland (MUN) report an annual average failure rate for the course of about 30 percent. They cite a variety of possible contributing factors, including students' weak algebraic and arithmetic skills, poor reasoning ability with formal concepts, preference for rigid algorithmic approaches, failure to check answers or solution processes, negative attitudes, low motivation, low mastery goals, and poor management skills.

**Text in use:** *Algebra and Trigonometry*, Custom Edition, R. Blitzer

**Assessments:** Students are required to complete ten weekly quizzes using MyMathLab during each semester. They are offered the possibility to practice on a weekly basis with a set of practice problems pertaining to the material taught in class and relevant to their weekly quiz. In total, students are responsible for:

- Ten quizzes on MML
- Ten weekly written assignments
- Three midterms
- Final exam

## MyMathLab Implementation

A portion of the problems used for the weekly practice problem sets and for the weekly quizzes are taken from the MyMathLab database.

Grades are exported into a course spreadsheet.

## MyMathLab Course Results

	MPT Average	Precalculus Average	Percentage of A Students
Spring 2006 (without MML)	76%	89%	12.9%
Spring 2007 (with MML)	70.5%	88%	15.4%

**Table 1. Comparison of A-Student Results in Spring 2006 and Spring 2007**

Table 1 (last column) shows that the proportion of students receiving As increased from 12.9 percent in Spring 2006 (taught without MyMathLab) to 15.4 percent in Spring 2007 (when MyMathLab was first incorporated in the course). At MUN, an A corresponds to a score greater than 80 percent. Although the table indicates that the average score for the students receiving As were about the

	MPT Average	Precalculus Average	Percentage of B Students
Spring 2006 (without MML)	68.7%	68.7%	19.3%
Spring 2007 (with MML)	57.3%	71.4%	26.9%

**Table 2. Comparison of B-Student Results in Spring 2006 and Spring 2007**

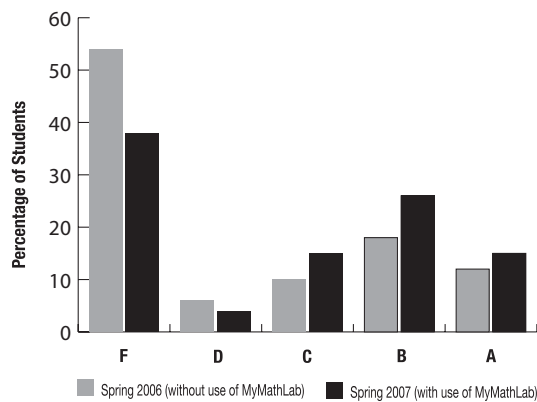
same in both years, comparison of the average MPT score (taken prior to enrollment), shows that the group using MyMathLab made greater progress than the group not using MyMathLab.

Table 2 (last column) shows an even more drastic improvement in the proportion of students receiving Bs, which corresponds to a score of 65 to 79 percent. In this case, the

*In a computer-assisted learning environment, the role of the instructor remains central, complex, and delicate.*

—From the presentation, *Development of New Instructional Media for Introductory Mathematics*, Oana Radu  
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percentage of students earning a B increased from 19.3 percent in the Spring of 2006 (without MyMathLab) to 26.9 percent in the Spring of 2007 (when MyMathLab was first incorporated). Of particular note, is that the students using MyMathLab had a lower average MPT score—more than 10 percentage points less than the previous semester's students—thus making an even more remarkable gain over the previous year's students.



**Figure 1. Grade Distribution Spring 2006 and Spring 2007**

	MPT Average	Precalculus Average	Percentage of A Students
Fall 2006 (without MML)	72%	85%	12.6%
Fall 2007 (with MML)	72%	88%	18.8%

**Table 3. Comparison of A-Student Results in Fall 2006 and Fall 2007**

Figure 1 illustrates an increase in the percentage of students earning an A, B, or C during Spring 2007, the first semester that MyMathLab was used. Similarly, the percentage of students earning a D or F decreased with the use of MyMathLab.

In Table 3, the MPT average was the same for both semesters. This most clearly illustrates the MyMathLab advantage, as not only do the percentage of students earning an A increase by about 50 percent (from 12.6 percent to 18.8 percent), but those students' precalculus average for the course is also higher.

## MyMathLab Course Conclusions

MUN has an evidence of: By providing the kind of structural, step-by-step support necessary for mastery learning, MyMathLab may help students achieve better results. The large number of examples available for review at each student's individual pace, would take a prohibitive amount of time during a lecture. This feature alone proved MyMathLab a valuable tool for student self-practice.

A MUN survey of MyMathLab students indicated that the program did promote self-motivation—86 percent of students surveyed reported that they used the computer lab twice a week. Seventy percent of students also reported that they found the software user friendly.

Inspired by the preceding results, MUN is considering two possible scenarios for future MyMathLab implementation:

- *MyMathLab as an integral part of the entire course.* In this case, MyMathLab would support every topic

in the course, with a high correlation among MyMathLab exercises, in-class instruction, and assessment practices.

- *MyMathLab as a special part of the course.* In this scenario, MyMathLab would support only assessment, improvement, and review of basic algebraic skills necessary for learning other topics in the course.

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