

Georgia State University



Founded in 1913 and located in the heart of downtown Atlanta, Georgia State University (GSU) is the second-largest university in the state. Although known for excellence in teaching, research, and service, GSU was experiencing high drop/fail/withdrawal rates in its lower-level mathematics courses. Administration knew that trends indicated further challenges for those students if intervention wasn't planned soon.

GSU faculty and administration assessed obstacles to student success and initiated a redesign of college algebra (Math 1111) and precalculus (Math 1113) based on the following goals: improving quality of instruction, ensuring consistency of content presentation and assessment across sections, reducing high drop/fail/withdrawal rates, and reducing the cost of delivery. Once redesigning the courses was agreed upon, the NCAT's Course Redesign program was the natural choice. Course Redesign models ensure student success via proven methods and measurable outcomes—just the kind of student-focused outcomes that dovetailed with GSU's goals.

Selecting MyMathLab was easy. "In fall 2004, we were piloting college algebra and ordered six different products to field-test," says Margo Alexander, director of the Mathematics Interactive Learning Environment of the Department of Mathematics and Statistics. "Both faculty and students selected what they thought was the best product, and it was MML. We did the same for precalculus, and it was a go again for MML."

An integral component of GSU's redesign was the creation of the Mathematics Interactive Learning Environment (MILE)—a student-centered computer lab with 84 student computer stations, one of which is compliant with the Americans with Disabilities Act. Every computer has access to MyMathLab, and the lab is staffed by instructors and graduate research assistants. "The lab was designed not just to teach math but also to shift the learning paradigm from 'tell me' to 'involve me,'" says Alexander. "Students in both college

algebra and precalculus are required to attend one lecture a week and one lab session a week. The lab provides them with an environment of one-on-one support, in which they can ask anything from any lesson; and if they don't finish a lesson, they can stay or come back later." All work performed in GSU's MILE lab is performed on MML. Says Alexander, "The entire lab, from structure to staffing, is focused on students and their success."

Redesign was a multiphase process that took place from fall 2004 through spring 2005—with dramatic results: college algebra pass rates increased 37.5 percent, and fail/withdrawal rates decreased 40.7 percent. Precalculus rates were equally impressive: pass rates increased 25.5 percent, fail/withdrawal rates decreased 29.7 percent.

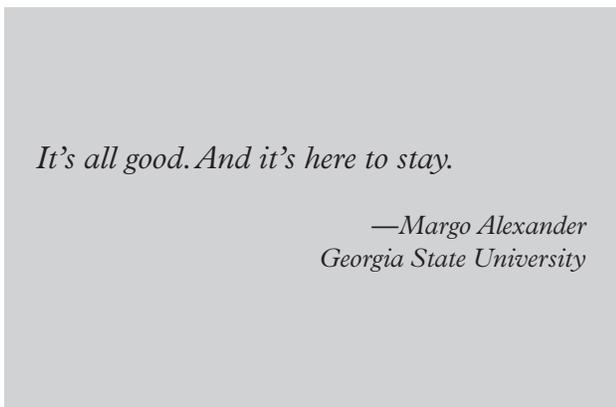
GSU is also seeing its pass-rate success translate to subsequent classes. When comparing the calculus pass rates of students who came from traditional courses with those from MML-redesigned precalculus courses, Alexander discovered that students from MML-redesigned precalculus courses achieved a 23.3 percent higher pass rate than did those from traditional courses. Not surprisingly, drop/fail/withdrawal rates were lower for students from the MML-redesigned courses—by 8.5 percent.

High success rates in both algebra and precalculus have inspired GSU to restructure its calculus courses to include MML. "If you're seeing that students are using MML to do homework and study more, why not offer it as an option?" says Alexander. "To start, we've mandated only that students do MML homework and quizzes. Knowing the success in the other two courses, we're pushing our students to the next level by asking them to take an even more proactive role in their learning."

Retention was a specific concern of GSU. "We're trying to increase retention and graduation rates," says Alexander. "We want our students to retain their knowledge and carry their success beyond college." To that end,

she’s building a peer tutoring program involving students who’ve participated in the MML-redesigned courses. “A student helping a student is more effective than faculty helping a student,” she says.

“Redesigning with MML has also helped standardize the classes and syllabi,” says Alexander. “The administration particularly likes the way it keeps everyone on the same page, ensures that all the objectives and goals of a course are met, and eliminates the variables of grade inflation. Now we can be confident about what our students know when they graduate.”



A certain substantial but behind-the-scenes benefit of the MML redesign has been a pleasant surprise to Alexander and the rest of the faculty: increased communication and collaboration among staff. “Since the redesign, we meet as a group to decide things; everything is a collective effort,” says Alexander. “Faculty and

administration come together for discussion and learn from each other and from each other’s experiences. It’s truly a group effort. I very rarely do something on my own without asking the group, ‘What do we all see?’ or ‘How do we want to proceed?’ It’s really helped eliminate politics and power and control issues.”

By requiring and standardizing the use of MyMathLab and leveraging its unique power to engage students in active learning, accommodate a breadth of learning styles, and provide ongoing assessment and individualized assistance, GSU achieved its objectives—and more!

- Reduction of drop/fail/withdrawal rates
- Reduction of annual cost
- Positive student attitudes about mathematics and students’ own ability
- Improved quality of instruction
- Consistency of performance standards
- Uniformity of content presentation
- Uniformity of assessment across sections
- Administration support
- Development of the MILE

Alexander is proud of GSU’s redesign project. “The fact that everything is coordinated and we’re discussing things and communicating—for faculty to get together like this, it’s such a positive thing,” she says. “The only place we can go is up. I just wish more people could come into the lab and see the students working together and talking mathematics. It’s overwhelming!”

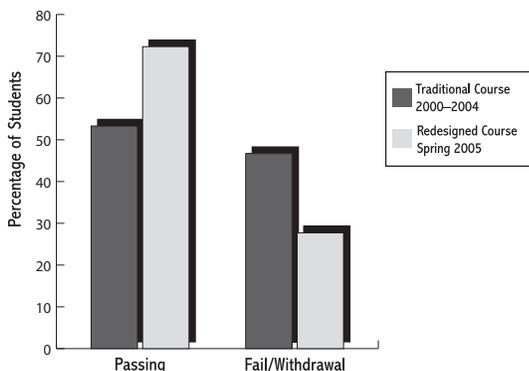


Chart 9. College algebra results.

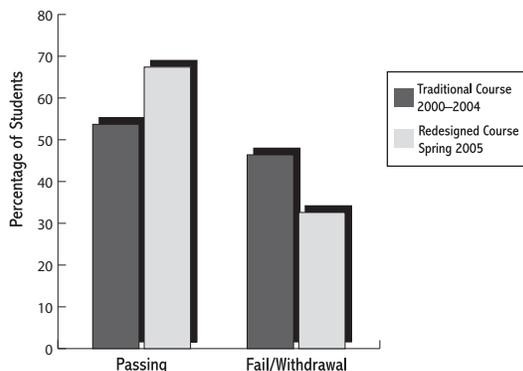


Chart 10. Precalculus results.