



ALEKS DRAMATICALLY IMPROVES PASSING RATES

Professor Eliza Gallagher started with a pass rate of ~45% and low student and instructor satisfaction. By incorporating active learning in each lecture and reducing class size, the pass rate rose to ~55%. Although this percentage was better, Gallagher still wanted to achieve a higher pass rate. Additionally, there was a particular urgency to improve the pass rate for the under-represented groups in the STEM majors. After implementing ALEKS, the students' pass rate climbed to 70%. Student satisfaction, student performance in subsequent courses, and instructor workload also improved.

INSTITUTION PROFILE

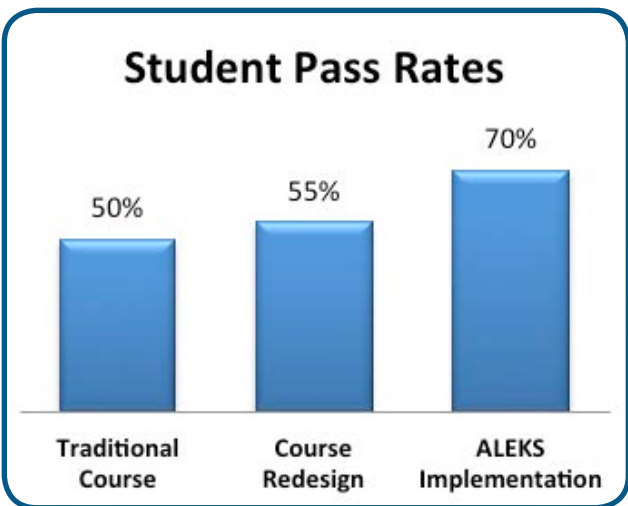
Clemson University is a major research university founded in 1889 and has been ranked as the 25th best national public university by *U.S. News and World Report*. The 17,000-acre campus has a total undergraduate enrollment of 15,836 students. Clemson University is a land-grant institution that conducts research for the benefit of the community and boasts a student-faculty ratio of 18:1.

IMPLEMENTATION

MthSc 105: Precalculus is a preparation course for the standard calculus sequence. The traditional course covered two-and-a-half years of high school math in 15 weeks. Class met six times a week and required two full-time faculty members and eight full-time graduate teaching assistants.

After an initial course redesign, the pass rate increased slightly to 55%, the workload for faculty and students was still high, and the satisfaction was low. Among students who passed, less than half continued in STEM majors.

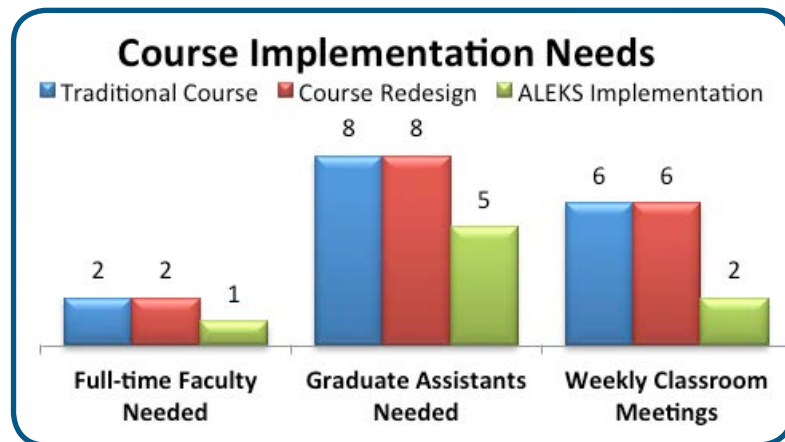
To further improve results and retention, ALEKS was then implemented as a stand-alone model and the MthSc105 class was flipped. The "lecture" section became the online component and the lab sections became twice-weekly, face-to-face meetings for 75 minutes. Students are expected to spend 8-10 hours per week in ALEKS outside of lab. During the lab sections, mini-lectures are held for groups of three to 12 students at a time. To pass the course, students must attain 80% mastery in the ALEKS Pie, take two supervised comprehensive assessments, complete a worksheet, and earn a 70% or better on a written exit exam.



RESULTS ACHIEVED

After experiencing MyMathLab, Maple, MATLAB, Mathematica, and several different textbooks, ALEKS was implemented as a stand-alone model and the classroom was successfully flipped. **With ALEKS, the course now has a 70% pass rate** with students performing in subsequent courses at least as well as under the previous format.

Additionally, staffing needs are being met with one full-time faculty member and five full-time graduate teaching assistants. Classroom space has been freed as a result of meeting twice a week instead of six times a week.



Conclusion:

With ALEKS, students' pass rates have increased, success rates in subsequent courses have improved, and fewer instructors and classroom hours are necessary. **Students prefer the flexibility in scheduling and the ability to work at their own pace.** Further, because ALEKS adapts to individual student performance in real-time, Gallagher notes, "students are put in the position of having to face that their lack of progress is almost always a result of not putting in the work. And, those students who are putting in a lot of time but are not seeing progress can be identified quickly for individual intervention." Students agree.

Gallagher adds, "ALEKS allows you to focus on instruction and meeting the individual needs of your students while allowing the burden of assessment to fall on ALEKS. Clemson University will be adopting ALEKS for placement and will use the data from the ALEKS implementation in Precalculus to inform the initial cut scores."

PURPOSE: PreCalculus and Problem Solving in Mathematics

ALEKS INSTRUCTOR: Eliza Gallagher

ENROLLMENT: 30 Students per Term

“I evaluated many different options, and ALEKS provided, by far, the best cycle of assessment and learning that allows for individualized instructional paths . . . no other program matches ALEKS.”

–Eliza Gallagher, Professor