

ALEKS® Case Study

University of Central Oklahoma | Edmond, OK

Case Study Course/Term: Co-requisite College Algebra (MATH 1513) with Fundamentals of Algebra II (MATH 0413); Spring 2017 - 2018

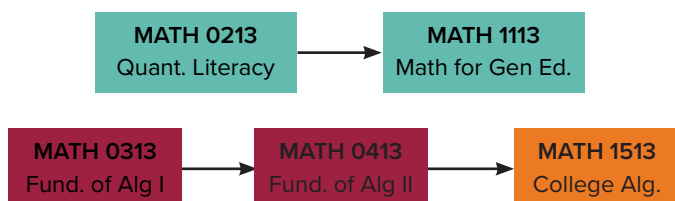
Course Setup: ALEKS College Algebra with Openstax College Algebra (UCO Edition)

Average Enrollment: 272 for Fall 2017; 360 for Spring 2018

Introduction

The University of Central Oklahoma sees approximately 4,500 new students each fall; about 40% of them need math remediation. Prior to the summer of 2011, math remediation was provided by the local community college. In the summer of 2011, UCO began a new developmental math program that offered the course sequences in **Figure 1** and used MyMathLab. Initially, the pass rates improved.

Figure 1: Initial Developmental Math Program at UCO



However, developmental math students were not progressing through College Algebra successfully; the pass rate stagnated at about 40% for the first attempt of the course by these students. UCO began exploring more pathway options, including co-requisite, for the mass population of students needing College Algebra.

In the spring of 2016, UCO piloted a co-requisite College Algebra course that gave students the option to co-enroll in College Algebra (MATH 1513) and Fundamentals of Algebra II (MATH 0413). These were students who needed College Algebra for their major, but also required remediation. The course saw good results in the first term. The following fall and spring terms, however, had mixed results. Each College Algebra section had a 50/50 mix of co-requisite students and non-co-requisite students.

The main challenge that UCO faced with this setup was finding the right homework system. They could not find a product that was individualized to each student's knowledge, and also allowed for the prerequisite knowledge that students were lacking to be embedded into the program's content. Students expressed that they felt lost and that the support course material did not coincide with the college algebra material. Ultimately there was poor attendance in the support course.

Introduction (cont.)

The following year (spring 2017), UCO ran an ALEKS pilot with the Quantitative Literacy sections and one section of Fundamentals of Algebra I. Other instructors joined the course as students and worked through the program. Everyone, students and faculty, liked ALEKS and had positive feedback about the program. Since UCO had plans to implement an at-scale, co-requisite College Algebra course in the fall of 2017 (100% of college algebra students needing remediation would be in a co-requisite class), it decided to fully implement ALEKS in the three remedial math courses and the co-requisite College Algebra course.

ALEKS Experience

Since fully implementing ALEKS, students and instructors seem happy and successful. There is also better attendance and overall student success. The faculty at UCO feel that ALEKS provides the department with a way to help individualize remedial education for each student, which often saves students a semester of class work and expense. Students at UCO love ALEKS because they only need to complete the topics they don’t already know. Meanwhile the instructors are assured that students who need certain prerequisites will receive those in an effective “just-in-time” fashion.

From an administrative view, Professor Alana McAnally, the Director of Developmental Mathematics at the university notes that, “ALEKS has made my job incredibly easy. I have access to all the students and their data, including grades. This access has saved me countless hours of trying to track down information from an individual instructor when a student has a concern or question about a final grade, or about the next class the student should take.”

Implementation

The co-requisite College Algebra course with ALEKS is a requirement for students who need remediation according to their ACT scores. Students who score below 19 on the ACT must either complete the Fundamentals of Algebra I course and/or the co-requisite College Algebra course. These students can also take the ALEKS Placement, Preparation and Learning (ALEKS PPL) assessment to place out of these courses. Additionally, Fundamentals of Algebra I students who score 75% or higher on their ALEKS Initial Knowledge Check are immediately moved into the co-requisite College Algebra course if it is required for their major. **Figure 2** outlines the course setup for the current co-requisite College Algebra course.

Figure 2: Co-requisite College Algebra Setup

Course Credit	College Algebra (3-hr credit) + Support (Fundamentals of Algebra II, 3-hr credit)
Sections	8-12 sections with 34 students per section
Grading System	College Algebra: Traditional A – F (A = 90-100, etc.) comprised of ALEKS Objectives, quizzes, exams, in-class work Support: Pass/fail
Final Exam	College Algebra: Paper/pencil Support: ALEKS Assessment
Schedule	College Algebra: TTH, 75 minutes, traditional lecture Support: MWF, 50 minutes, lab-based with group activities
Instructors	2 instructors: one for College Algebra and one for Support



Institution Profile

The University of Central Oklahoma is a 4-year regional university that serves more than 16,000 students in the metropolitan area of Oklahoma City. Founded in 1890, the university was one of the first institutions of higher learning in Oklahoma and now offers 121 undergraduate areas of study and 74 graduate programs. With strong connections throughout the Oklahoma City metro, the University of Central Oklahoma is dedicated to developing in students the confidence to succeed through transformative learning experiences.

Implementation (cont.)

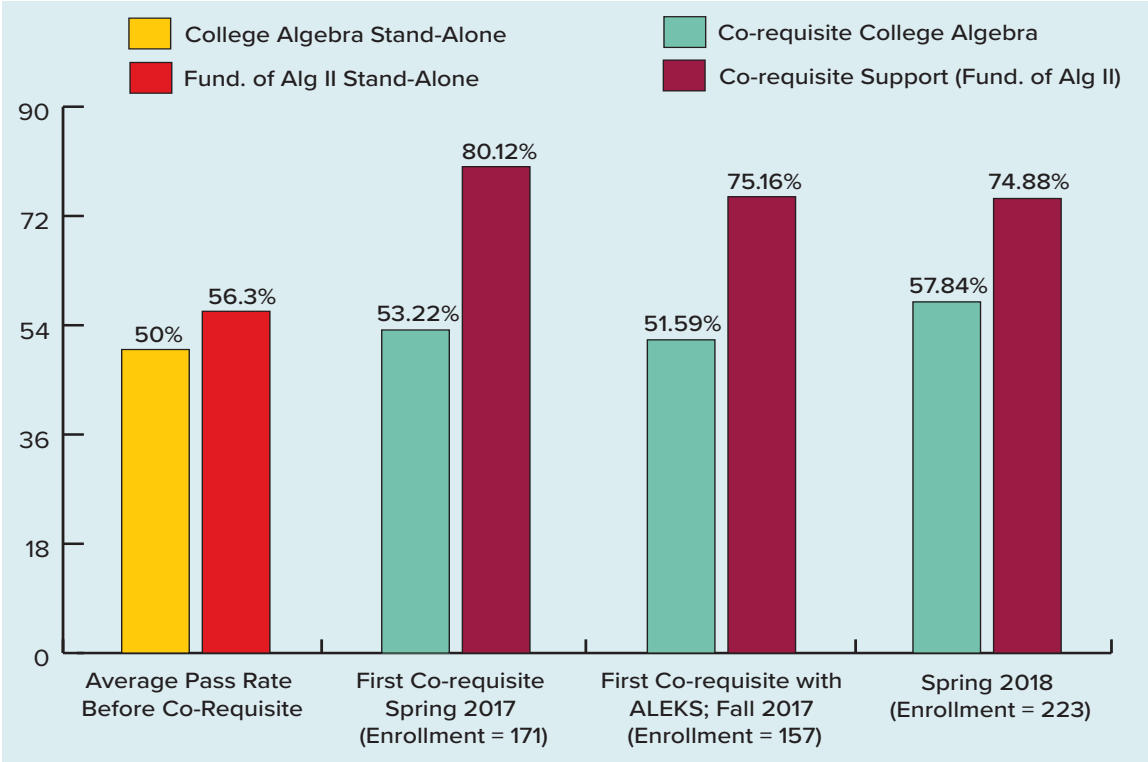
The instructors use the ALEKS Reports in a variety of ways. Professor McAnally specifically uses the ALEKS “ready to learn” topics to teach material that the class is ready for, and to limit repeating material that students already know. She also uses the ALEKS data to communicate with students to make sure they are staying current in the class and to gauge the amount of time they are spending on material. Students who fall behind in the College Algebra component can continue with Fundamentals of Algebra II online to complete at least their remediation requirements.

Results

Prior to ALEKS, the average pass rate for the stand-alone Fundamentals of Algebra II course was 56.3%; approximately 50% of those who passed went on to complete College Algebra with a C or better the following semester. This indicates that only about a quarter of students in Fundamentals of Algebra II were eventually passing College Algebra. The average passing rate for the stand-alone College Algebra course was 50% (see Figure 3).

The implementation of the co-requisite model in the spring of 2017 saw an improvement in student success, even though enrollment in the co-requisite course was not a requirement. The implementation of ALEKS in the fall of 2017 continued the positive trend of improved student success (see Figure 3). The fall of 2017 was also the first semester that co-requisite College Algebra was a requirement for students who needed remediation, while the stand-alone Fundamentals of Algebra II course was no longer offered.

Figure 3: Pass Rates for College Algebra and Fundamentals of Algebra II



Overall since ALEKS was implemented, 55.26% of co-requisite students have passed the College Algebra component with a C or better and 75% have passed the support component (Fundamentals of Algebra II). This is a significant increase from previous terms where only approximately 25% of students who started in Fundamentals of Algebra II passed College Algebra. It also is an improvement over the average passing rate for the stand-alone College Algebra course, which remains at 50%. Ultimately the co-requisite College Algebra course with ALEKS has helped more students successfully get through Fundamentals of Algebra II and College Algebra in less time than the traditional pathway.

Results (cont.)

The faculty believes that ALEKS is crucial to the co-requisite model because:

- students have one platform for both the College Algebra and Support components, making the co-requisite course easy and efficient for students.
- the College Algebra course has embedded prerequisites that appear automatically only when the student needs that skill to complete their work.
- instructors can see whether a student who fails College Algebra has met all prerequisite knowledge requirements, which allows that student to at least pass the Support course.
- students can purchase time in ALEKS and move into different courses as needed without disrupting their account. This is especially beneficial during the first two weeks of class.

Professor McAnally believes that “the way ALEKS works is very powerful for the students’ success. By ALEKS only allowing the students to attempt problems that they are likely to have 90% or more success on, the students do feel successful. Also, I feel that retention has increased in my College Algebra course.”

With the implementation of a co-requisite College Algebra course and ALEKS, the university now offers several effective pathways for students to succeed in college-level math.

Student Feedback

UCO has received positive feedback from students regarding ALEKS. One student stated, “I know that with ALEKS I cannot just guess, and hope that gets me by. I actually have to know what I am doing because I am going to have to do it again in a slightly different way, and then I will have to do it again on the Knowledge Check to keep it in my ALEKS Pie.”

“The depth of what ALEKS offers you is like no other product I have seen. ALEKS can be customized in a multitude of ways. The data ALEKS gives about a student, course, or even instructor is amazing.”

– Alana McAnally, Director of Developmental Math

Instructor Profile



Alana McAnally taught high school for seven years before becoming the Director of Developmental Mathematics

at the University of Central Oklahoma. She has a bachelor's in mathematics education from UCO, a master's of education in curriculum and instruction from the University of Texas at Arlington, and will earn her PhD in instructional leadership and academic curriculum from the University of Oklahoma in December of 2018. Alana has three daughters, loves spending time with her family, and goes to Disneyland whenever she gets the chance!