

Sounds like Success for a Co-requisite College Algebra Class for All

Poster Session at NOSS 20200

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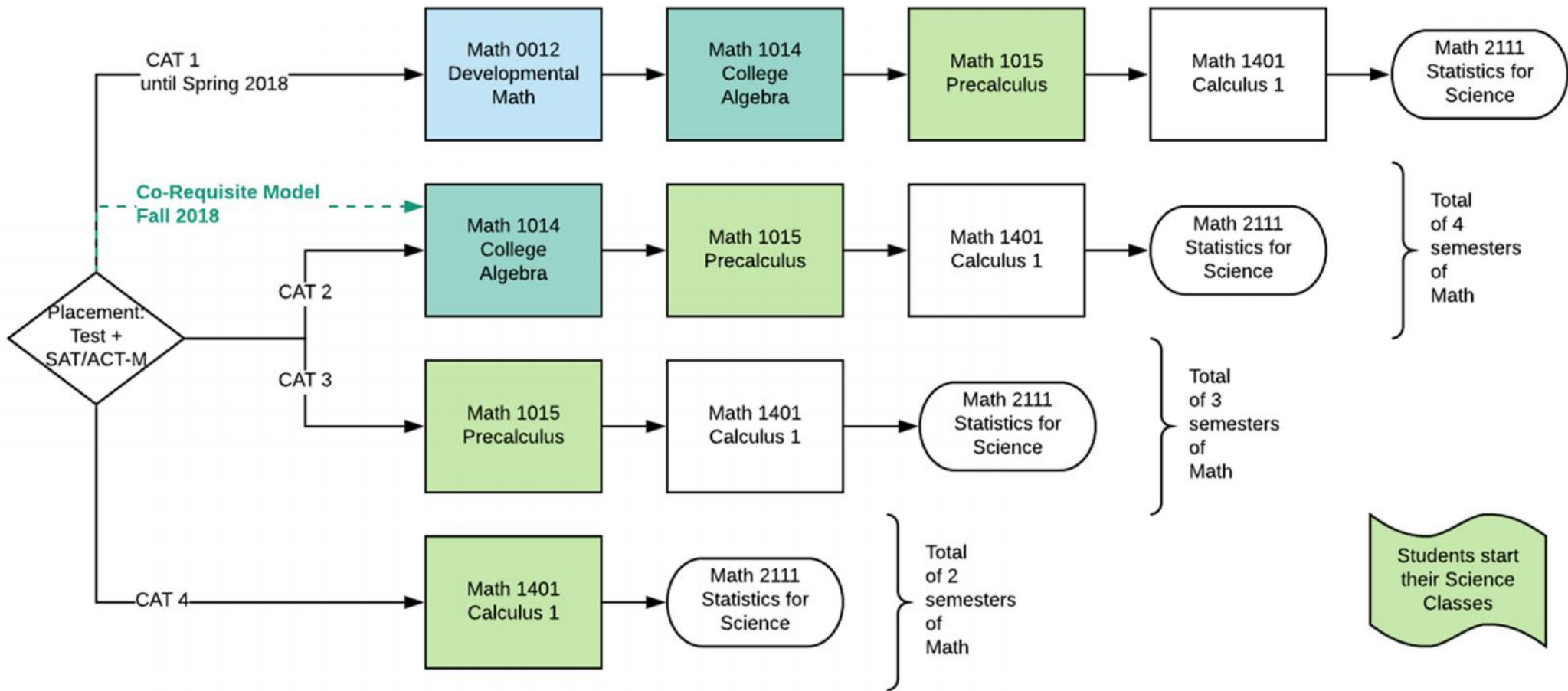
Abstract

- Explore the possibility of enabling success of all College Algebra students with the inclusion of co-requisite materials for everyone and having a lab for the students who need the extra assistance. Sounds like a recipe for success. I will focus on key ingredients of our implementation using ALEKS.

Problems to solve

- Increase the mastery of the material presented in College Algebra
- Increase the preparation of students going onto Precalculus and Calculus
- Decrease the time to enrollment into Precalculus and first set of Science classes

Students' path to completion of Math classes for Science



Composition of students in Math 1014

Major	Fall 2018	Spring 2019	Fall 2019
Biology/Chemistry/Physics	5	1	4
Computer Science	2	1	
Psychology (BS)	2	1	1
Pre-Science	29	4	13
Undecided (A&S)	5	3	1
Other majors	12	12	9
Total	55	22	28

Fall 2018 to Spring 2019:

- 16 students were enrolled in the Co-Requisite Lab
- Grades for 1014:
ABC = 43 (78%), DF = 12 (22%)
- 24 Students went onto Precalculus
- 2 students repeated College Algebra in Spring 2019

Spring 2019:

- ABC = 16 (73%)
- DF = 6 (27%)

Fall 2019:

- Co-Req Lab could not run
- ABC = 16 (57%)
- DF = 7 (25%)
FSA/WD = 5 (18%)

Timeline for implementation

Fall 2017-
Spring 2018:

- review textbooks and courseware
- decided to use ALEKS and Miller/Geiken College Algebra, 2nd edition

Summer
2018:

- Set-up class in ALEKS
- Train for using ALEKS
- Create power point slides for lecture notes

Fall 2018:

- Ran three sections of College Algebra and two sections of Co-Req Lab
- Two instructors taught both class and lab
- Midterm adjustment of class objectives:
 - 441 Topics (238 goal + 203 prerequisite) approximately 20 topics per week
 - 309 Topics (235 goal + 74 prerequisite) approximately 15 topics per week

Spring 2019:

- Ran one section of College Algebra
- No Co-Req Lab ran due to low enrollment
- Further adjustment of class objectives: 164 Topics (137 goal + 27 prerequisites)
- Adjusted workflow for students to have 2 Prep assignments (1 – 3 topics) and 1 Homework (8 – 11 topics)

Fall 2019:

- Ran two sections of College Algebra
- No Co-Req Lab ran due to low enrollment
- Continued to use 164 Topics (137 goal + 27 prerequisites)
- Continued to use the new workflow for students

Spring 2020:

- Ran one section of College Algebra
- No Co-Req Lab was offered
- Additional support provided by Graduate Assistant who attends the class

Key components for the class

Using ALEKS

- Prerequisite material is available for all students
- Focused on Learning Objectives matching the foundation needed for Precalculus class
- Given valuable information to us (instructor and student) about what they know and what they don't know
- Students need to answer between 3 to 5 questions correctly to learn the topic
- Textbook resources available as an e-textbook along with videos and quick lessons.

Power Point Lecture slides

- Slides provide the scaffold for the lesson
- Students and instructor fill in the notes during class time
- Encourage better note taking and attention to what the instructor is saying

Grade determined by the following

Prep and Homework (ALEKS using Objective Goals) Two Prep Assignments (1 – 3 topics) * One Homework Assignment (8 – 11 topics)	20%
Two computer projects (using Desmos and Excel)	5%
Pie progress goals: (divided into 25%, 50%, 65%, 85% completion)	5%
Class participation: Attendance and class activities	10%
Three Tests	30%
Final Exam	30%

*Note: Prep Assignments were added in Spring 2019

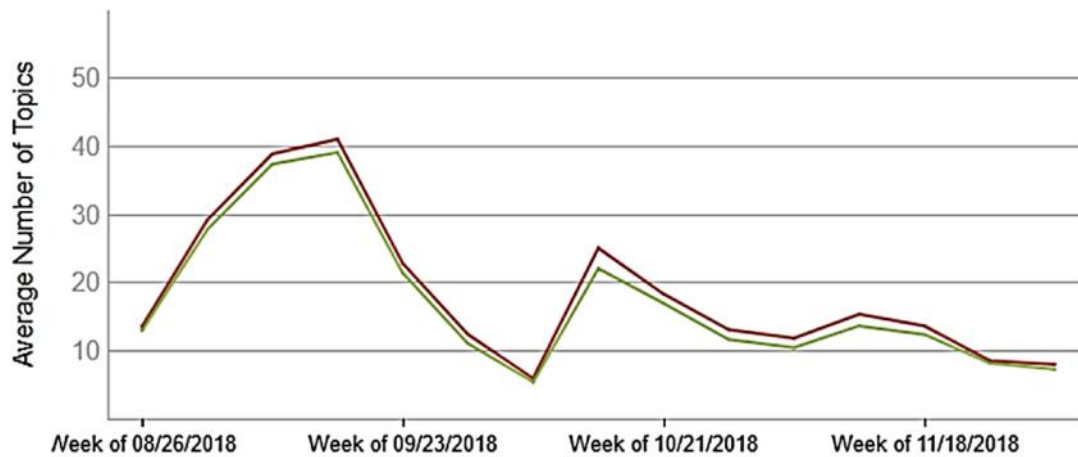
A typical week for a student in the class

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Do Prep A for Tuesday's class due 11:59pm (2-3 topics)	<ul style="list-style-type: none">• Class• Prep B assigned for next class	Do Prep B for Thursday's class due 11:59pm (2-3 topics)	<ul style="list-style-type: none">• Class• Homework assigned• Prep A assigned for next class.	Work on HW	Work on HW	Finish up Homework assignment due Mon. at 11:59pm (8 – 11 topics)

You will be spending at least one hour per day on ALEKS.

For every topic you will have 3 to 5 problems to answer correctly.

Class Average - Topics by Week

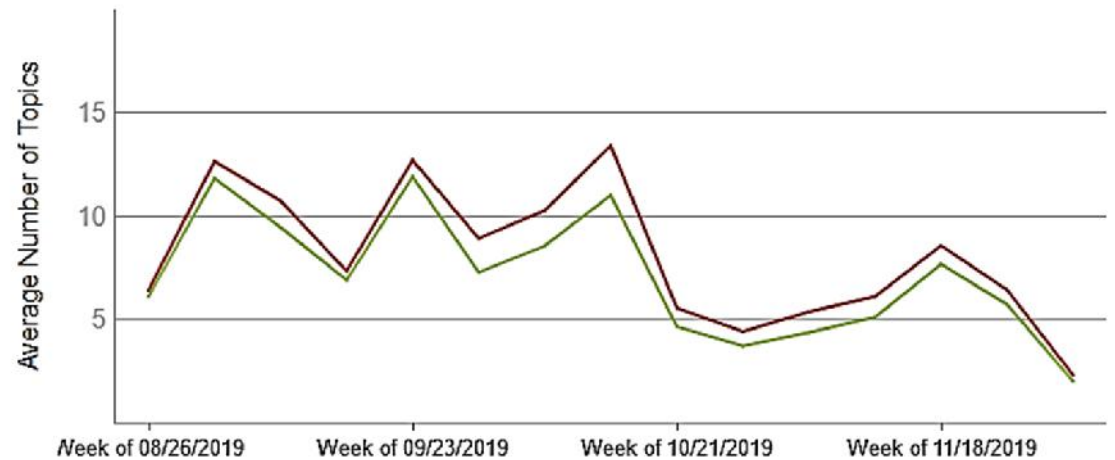


ALEKS as a tool to track student's progress through the semester was helpful when we discovered we were expecting the students to do too much during the week

Course adjustments were made:

- Reduced the number of learning objectives per week to be ~15 topics
- Require the students to work on 1 – 3 topics before each class as a Prep Assignment and then 8 – 11 topics were assigned for homework to be done over the weekend.
- Now we have steady progress!

Class Average - Topics by Week



Lessons learned and feedback:



Fall 2018

- Too much work required!
- Homework done Sunday night



Spring 2019

- Prioritize prerequisites
- Keep prep and homework done throughout the week



Fall 2019

- Provide tutoring support to at risk students sooner
- Assign a GA to each section

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