

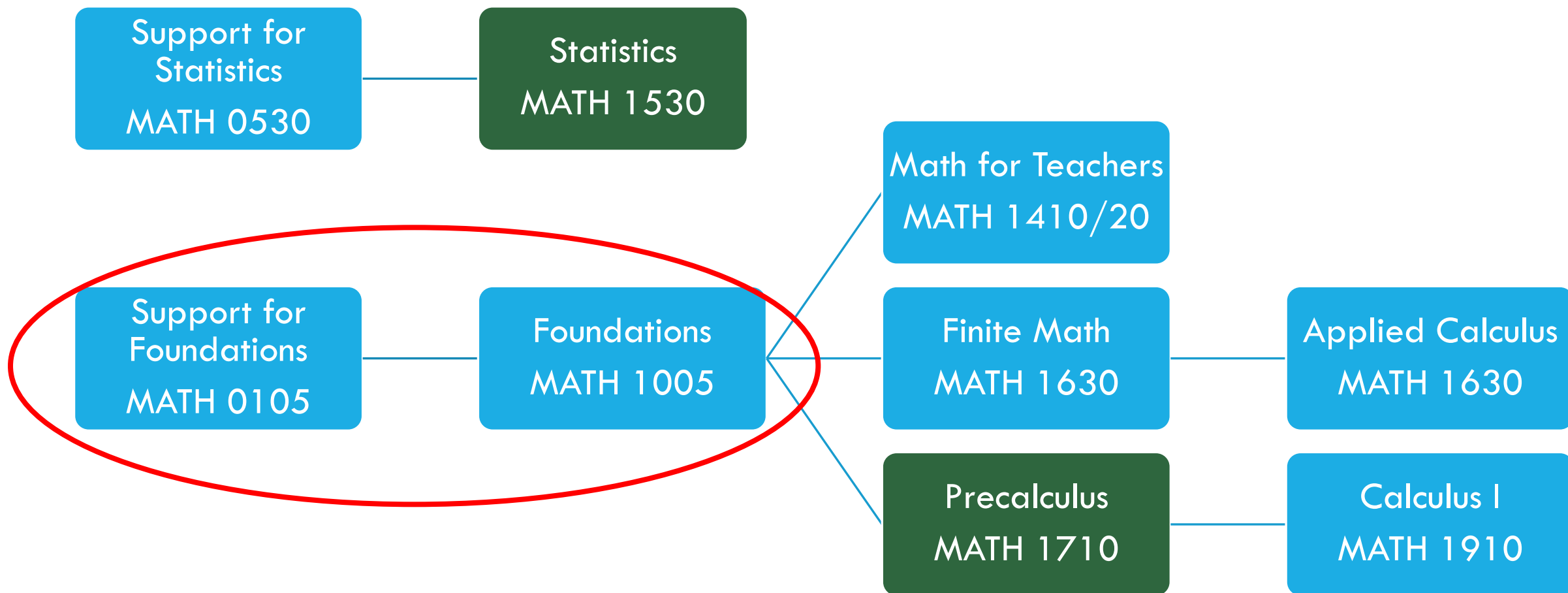
ALEKS IN A CO-REQ WORLD

Tennessee Math Summit
April 7, 2018

BEFORE ALEKS CO-REQ SUCCESS RATES (2015-16)

	Co-requisite Course Enrollment	Number Passed (D or better)	Pass Rate
MATH 0810 + MATH 1005 Foundations	42	6	14.3%
MATH 0810 + MATH 1530 Statistics	95	35	36.8%

CO-REQUISITE STRUCTURE AT DSCC



WHY ALEKS?

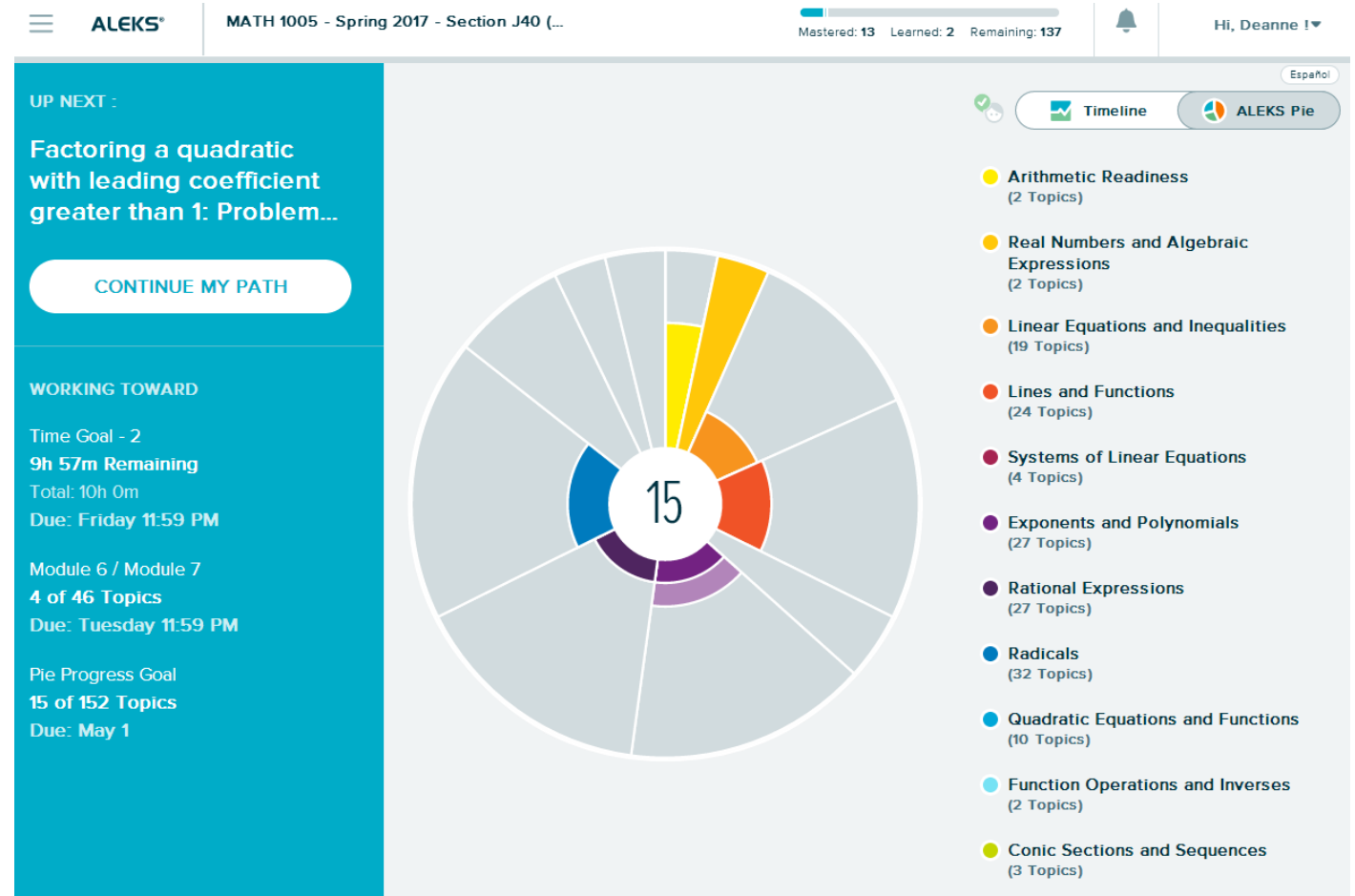
- Knowledge space is mapped out with prerequisite skills
- Topic based vs. problem based
- Assessment
 - Initial assessment
 - Continual assessment – improved retention
- Good explanations and student resources

ALEKS – KNOWLEDGE CHECK

Initial Knowledge Check

Uses roughly 30 questions to determine what students know before beginning the course.

- Gives credit for known topics
- Potentially reduces time for students
- We administer first day of class



WHAT STRUCTURE?

- Learning Support must be graded separately from the college-level course.
- Stacked content
 - 7 ½ weeks – Support content
 - 7 ½ weeks – Intermediate content
- Students must finish support content before moving on to Intermediate content.

OUR STRUCTURE

- Our goal: Prepare Learning Support students for Precalculus in one semester.
- Learning Support competency topics in one course.

Dates	Objective
	Prerequisite Topics (18 topics)
01/15/2018 - 01/24/2018	1. MLS 1 (44 topics)
01/25/2018 - 01/31/2018	2. MLS 2 (42 topics)
02/01/2018 - 02/07/2018	3. MLS 3 (24 topics)
02/08/2018 - 02/14/2018	4. MLS 4 (25 topics)
02/15/2018 - 02/28/2018	5. MLS 5 (12 topics)

MLS 1 (44 topics, due on 01/24/2018)

- Order of operations with whole numbers [?](#)
- Order of operations with whole numbers and grouping symbols [?](#)
- Order of operations with whole numbers and exponents: Basic [?](#)
- Equivalent fractions [?](#)
- Simplifying a fraction [?](#)
- Fraction multiplication [?](#)
- Fraction division [?](#)
- Converting a decimal to a proper fraction in simplest form: Basic [?](#)
- Converting a decimal to a proper fraction in simplest form: Advanced [?](#)
- Converting a decimal to a mixed number and an improper fraction in simplest form: Basic [?](#)
- Converting a fraction with a denominator of 100 to a percentage [?](#)
- Converting a percentage to a fraction with a denominator of 100 [?](#)
- Introduction to converting a percentage to a decimal [?](#)
- Introduction to converting a decimal to a percentage [?](#)
- Converting between percentages and decimals [?](#)
- Converting a mixed number percentage to a decimal [?](#)
- Converting between percentages and decimals in a real-world situation [?](#)
- Converting a percentage to a fraction in simplest form [?](#)

OUR STRUCTURE

- Our faculty refined by choosing only topics necessary for Precalculus.

Dates	Objective
	Prerequisite Topics (6 topics)
01/15/2018 - 03/19/2018	1. Module 1 (18 topics)
03/20/2018 - 03/26/2018	2. Module 2 (16 topics)
03/27/2018 - 04/03/2018	3. Module 3 (22 topics)
04/04/2018 - 04/11/2018	4. Module 4 (27 topics)
04/12/2018 - 04/18/2018	5. Module 5 (25 topics)
04/19/2018 - 04/23/2018	6. Module 6 (25 topics)
04/24/2018 - 04/30/2018	7. Module 7 (13 topics)

Module 1 (18 topics, due on 03/19/2018)

- Finding slope given two points on the line [🔗](#)
- Finding the slope of horizontal and vertical lines [🔗](#)
- Finding the slope and y-intercept of a line given its equation in the form $y = mx + b$ [🔗](#)
- Finding the slope and y-intercept of a line given its equation in the form $Ax + By = C$ [🔗](#)
- Writing an equation of a line given its slope and y-intercept [🔗](#)
- Writing an equation in slope-intercept form given the slope and a point [🔗](#)
- Writing an equation in point-slope form given the slope and a point [🔗](#)
- Writing an equation of a line given the y-intercept and another point [🔗](#)
- Writing the equation of the line through two given points [🔗](#)
- Writing the equations of vertical and horizontal lines through a given point [🔗](#)
- Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form [🔗](#)
- Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$ [🔗](#)
- Writing equations of lines parallel and perpendicular to a given line through a point [🔗](#)
- Domain and range from ordered pairs [🔗](#)

STRUCTURE - JUST IN TIME

- Prerequisite content can be loaded just before the college-level content.
- ALEKS “pulls forward” the prerequisite topics a student needs to complete the current module.

Dates	Objective
08/09/2017 - 08/21/2017	1. Prerequisite Module 1 (42 topics)
08/22/2017 - 09/05/2017	2. M1: Linear Functions (49 topics)
09/06/2017 - 09/06/2017	3. Prerequisite Module 2 (23 topics)
09/07/2017 - 09/18/2017	4. M2: Quadratic Functions (36 topics)
09/19/2017 - 09/20/2017	5. Prerequisite Module 3 (20 topics)
09/21/2017 - 10/04/2017	6. M3: Power Functions (42 topics)
10/05/2017 - 10/05/2017	7. Prerequisite Module 4 (12 topics)
10/06/2017 - 10/15/2017	8. M4: Rational Functions (22 topics)
10/16/2017 - 10/25/2017	9. M5: Advanced Functions (11 topics)
10/26/2017 - 11/12/2017	10. M6: Exp./Log Functions (31 topics)
11/13/2017 - 11/15/2017	11. Prerequisite Module 7 (3 topics)
11/16/2017 - 11/29/2017	12. M7: Systems and Circles (9 topics)

STRUCTURE — EMBEDDED SUPPORT


Prerequisite support topics are available and “called forward” when needed to complete a college-level topic.

Dates	Objective
	Prerequisite Topics (193 topics)
01/15/2018 - 02/11/2018	1. Ch.2-Functions and Relations (146 topics)
02/12/2018 - 03/04/2018	2. Ch.3-Polynomial and Rational Functions (76 topics)
03/05/2018 - 03/25/2018	3. Ch.4-Exponential and Logarithmic Functions (66 topics)
03/26/2018 - 04/08/2018	4. Ch.5-Systems of Equations and Inequalities (49 topics)
04/09/2018 - 04/22/2018	5. Ch.6-Matrices and Determinants and Applications (20 topics)

STRUCTURE — EMBEDDED SUPPORT

Prerequisite support topics can be graded and given specific attention.

After the due date are “called forward” when needed to complete a college-level topic.



Dates	Objective
01/15/2018 - 02/11/2018	1. PreRequisites (193 topics)
02/12/2018 - 03/04/2018	2. Ch.2-Functions and Relations (146 topics)
03/05/2018 - 03/25/2018	3. Ch.3-Polynomial and Rational Functions (76 topics)
03/26/2018 - 04/08/2018	4. Ch.4-Exponential and Logarithmic Functions (66 topics)
04/09/2018 - 04/22/2018	5. Ch.5-Systems of Equations and Inequalities (49 topics)
04/23/2018 - 05/06/2018	6. Ch.6-Matrices and Determinants and Applications (20 topics)

ALEKS — ASSESSMENT

Competency Tests (Graded) Support Course

- Five tests — one for each competency
- Must pass with a 75% or better

Intermediate Algebra

- Four scheduled knowledge checks

Knowledge Checks (Ungraded)

- Triggered by 5 hours working in the system and learning 20 topics
- Completion of objectives
- Can gain and lose topics

ALEKS – OBJECTIVES

Objectives contain topics to learn.

Students can choose any “Ready to Learn” topic from their carousel.

- Explanation before every topic.
- Good student support

The screenshot displays the ALEKS interface. At the top, a teal header bar contains a menu icon, the text 'Ready to Learn', '30 Topics', 'Filters', and the user name 'Deanne'. Below the header, a carousel shows a 'Ready to Learn' topic with a progress bar. To the right, a topic detail view is shown for 'Real Numbers and Algebraic Expressions', specifically 'Combining like terms: Whole number coefficients', with a 'Tags: Video' label. A vertical sidebar on the left lists five 'MLS' (Master Learning Set) items with their respective counts and completion percentages.

MLS	Ready to Learn	Completed
MLS 1 (With Objective Completion Knowledge Check)	12	39%
MLS 2 (With Objective Completion Knowledge Check)	5	2%
MLS 3 (With Objective Completion Knowledge Check)	1	4%
MLS 4 (With Objective Completion Knowledge Check)	3	8%
MLS 5 (With Objective Completion Knowledge Check)	1	0%

ALEKS – OBJECTIVES

☰ REAL NUMBERS AND ALGEBRAIC EXPRESSIONS
Ordering integers

2 in a row! Double credit!

Deanne ▾

Español



Use $<$, $>$, or $=$ to compare the following numbers.

2	<	6
-4	<	0
-1	>	-7

<input type="checkbox"/> < <input type="checkbox"/>	<input type="checkbox"/> > <input type="checkbox"/>	<input type="checkbox"/> = <input type="checkbox"/>
✖	↶	?



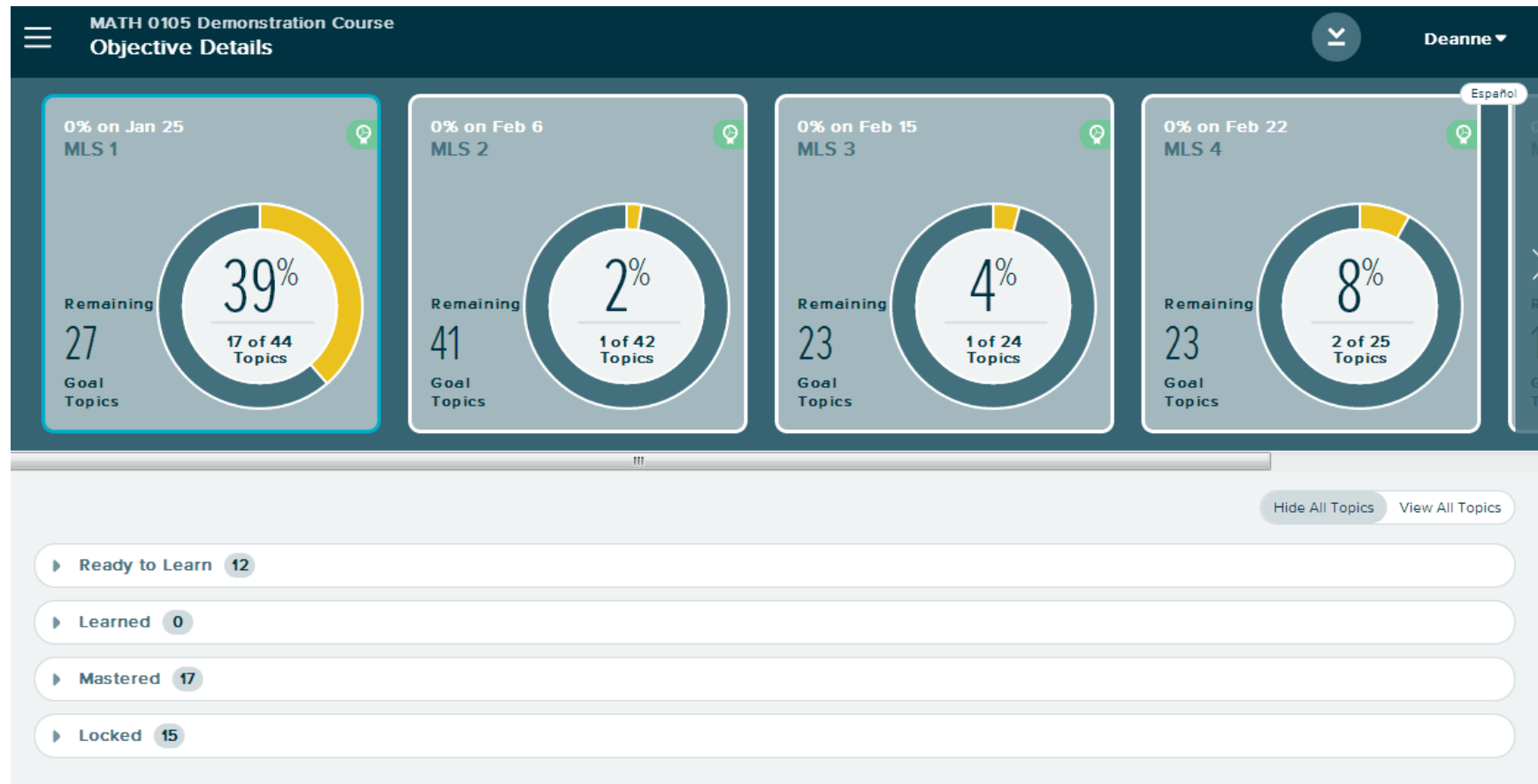
Learning topics:

- Bars are added for correct answers and removed for incorrect answers
- Students must answer multiple questions correctly in succession
- Switched to a different topic after 5 incorrect attempts – this keeps students working and reduces frustration

REPORTS

Objectives Report:

- Students can clearly see progress
- Know which topics they are Ready to Learn
- Can see which topics they Learned, Mastered, and which are Locked



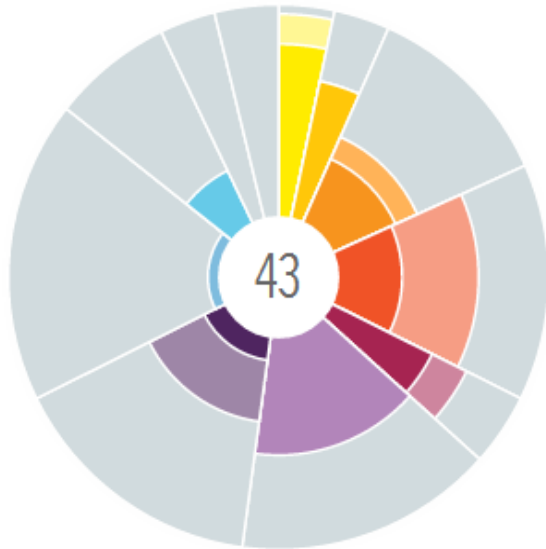
IN THE CLASSROOM

Number of Students Included in This Report: 15 ⓘ

Tips ⓘ

Show: Current Progress ▾

Downloads ▾



Select Slice to See Progress

0%

ALEKS Pie Progress
12.4 Mastered, 31 Learned,
108.6 Remaining Topics

29%

Current Objective:
Module 6 and Module 7
(03/28/2017)

Top Ready to Learn Topics

● Simplifying a ratio of univariate monomials	67%
● Factoring a quadratic in two variables with leading coefficient 1	67%
● Solving an equation written in factored form	67%
● Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$	67%

ALEKS Pie Report:

- Use to create a mini-lecture of the top four Ready To Learn topics
- Can quickly identify and effectively teach the topics students need that day

IN THE CLASSROOM

Worksheets:

- Ability to create personalized review or ready to learn worksheets
- Used in classroom in small groups to review topics
- Used as lecture notes

Student Name :

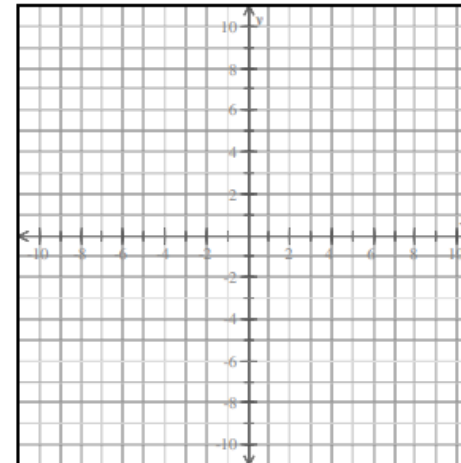
Date:

Login Name :

Class Name : MATH 0105 Corequisite Fall 2017 - 81441

Review Questions

1. Graph the line whose y-intercept is -9 and whose x-intercept is -9 .



2. Evaluate.

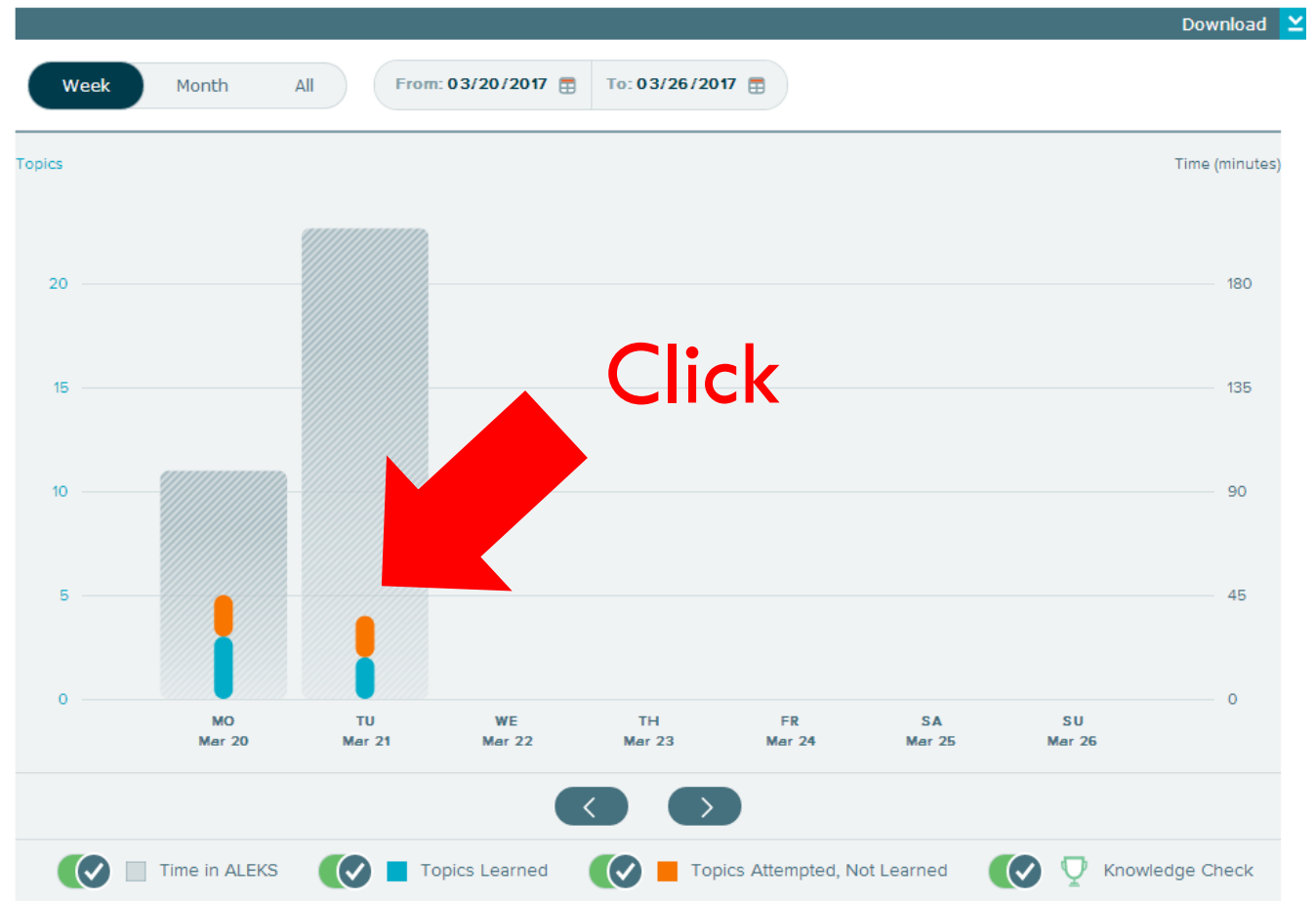
$$-(3 \cdot 2)^2 - (3 - 1)^2$$

3. A store is having a sale on chocolate chips and walnuts. For 3 pounds of chocolate chips and 8 pounds of walnuts, the total cost is \$21. For 5 pounds of chocolate chips and 2 pounds of walnuts, the total cost is \$18. Find the cost for each pound of chocolate chips and each pound of walnuts.

IN THE CLASSROOM

Time & Topic Report:

- See when the student worked
- What topics were learned (blue)
- What topics were not learned (orange)
- Can quickly identify and review the topics that students did not understand

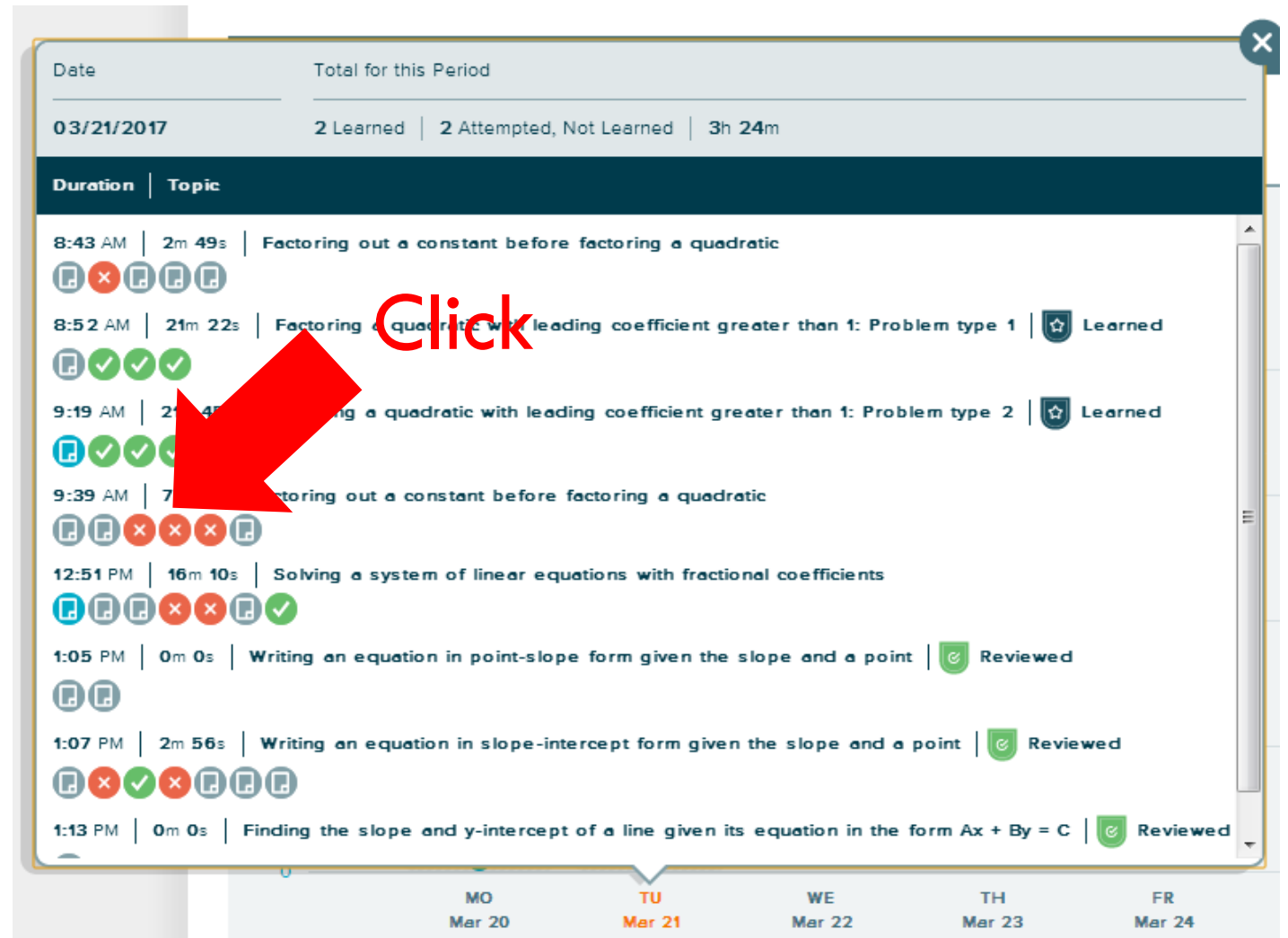


Enroll Date	Hours per Week	Total Time in this Class	Total for this Period
03/06/2017	3.7	11h 10m	5h 3m 5 Learned 3 Attempted, Not Learned

IN THE CLASSROOM

Time & Topic Report:

- Detailed timeline
- See what the student is getting correct
- Help identify what they are not learning



IN THE CLASSROOM

Time & Topic Report:

- See the question and answer for EVERY attempt
- Allows the instructor to diagnose issues quickly

Factoring out a constant before factoring a quadratic



Incorrect

Your answer is incorrect.

Correct answer:

$$5(w^2 + 8w - 10)$$

Factor completely.

$$5w^2 + 40w - 50$$

Answer submitted:

$$5(w - 5)(w + 2)$$

THE RESULTS

ACADEMIC YEAR (2016-17)

	Course Enrollment	Number Passed (D or better)	Pass Rate
Support Course (ALEKS)	113	85* (*C or better)	75.2%*
Co-Requisite (ALEKS)	113	67	59.3%
Stand-alone (MyLabsPlus)	188	124	66.0%

THE RESULTS

FALL 2017

	Course Enrollment	Number Passed (D or better)	Pass Rate	Average G.P.A.
Support Course (ALEKS)	69	55* (*C or better)	79.7%*	3.06
Co-Requisite (ALEKS)	69	51	73.9%	2.53
Stand-Alone (ALEKS)	43	37	86.0%	2.49
Stand-alone (MyLabsPlus)	58	43	74.1%	1.88

PERFORMANCE NEXT SEMESTER ACADEMIC YEAR (2016-17)

	Course Enrollment	Number Passed (D or better)	Pass Rate
Statistics	17	8	47.1%
Pre-Calculus	28	19	67.9%

CONTACT INFO

Deanne Williams
Director of Learning Support
Math Coordinator
Dyersburg State Community College
dwillia@dsc.edu

