UNIVERSITY OF CENTRAL ARKANSAS™

Webinar 1
Corequisite for Beginners

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Webinar Structure & Content

- **Webinar 1- Corequisite for Beginners**
  - Background
  - What is Corequisite and why we adopted it.
  - Placement Policies
  - Corequisite Content
- **Webinar 2 – Corequisite; A More in Depth Look**
  - Logistics of Designing and Scheduling corequisite courses
  - Attendance and Grade Policies
  - Class Assessment
- **Webinar 3 – Assessing your Corequisite design**

By the Numbers

University of Central Arkansas

- ▶ 11, 350 total enrollment
- ▶ 1,937 first-time freshmen
- ▶ 24.3 Average ACT
- ▶ 362 students in remedial math

Department of Student Transitions

- ▶ 13 full-time faculty
- ▶ 6 full-time math faculty
- ▶ 0-1 adjunct faculty for math
- ▶ Over 75 years teaching experience

Past Offerings in Transitional Math

Intermediate Algebra

- Traditional lecture based format
- Online homework component
- Departmental Online Exit Exam
- Overall success rate in IA: 67%
- 1 year success rate in the credit course: 35%

Past Offerings in Transitional Math

Progressive Mathematics

- Self Paced, Emporium Format
- Two parallel tracks:
  - 10 Modules and an Exit Exam for Quantitative Literacy
  - 15 Modules and an Exit Exam for College Algebra
- 1 year success rate in the credit course: 22%

Our Definition of Co-Requisite

Corequisite courses are planned with the intent of assisting students to be successful in college-level courses. The Department of Student Transitions defines **corequisite** as two courses that are designed to be taken together in the same semester. Students are supported in their credit-bearing course by varying approaches such as: just-in-time remediation, skills review, or coordinated curriculum. Based on certain placement guidelines from Arkansas Department of Higher Education, students are required to be enrolled in a UNIV level course. The Department of Student Transitions pairs these courses with a credit-bearing course.
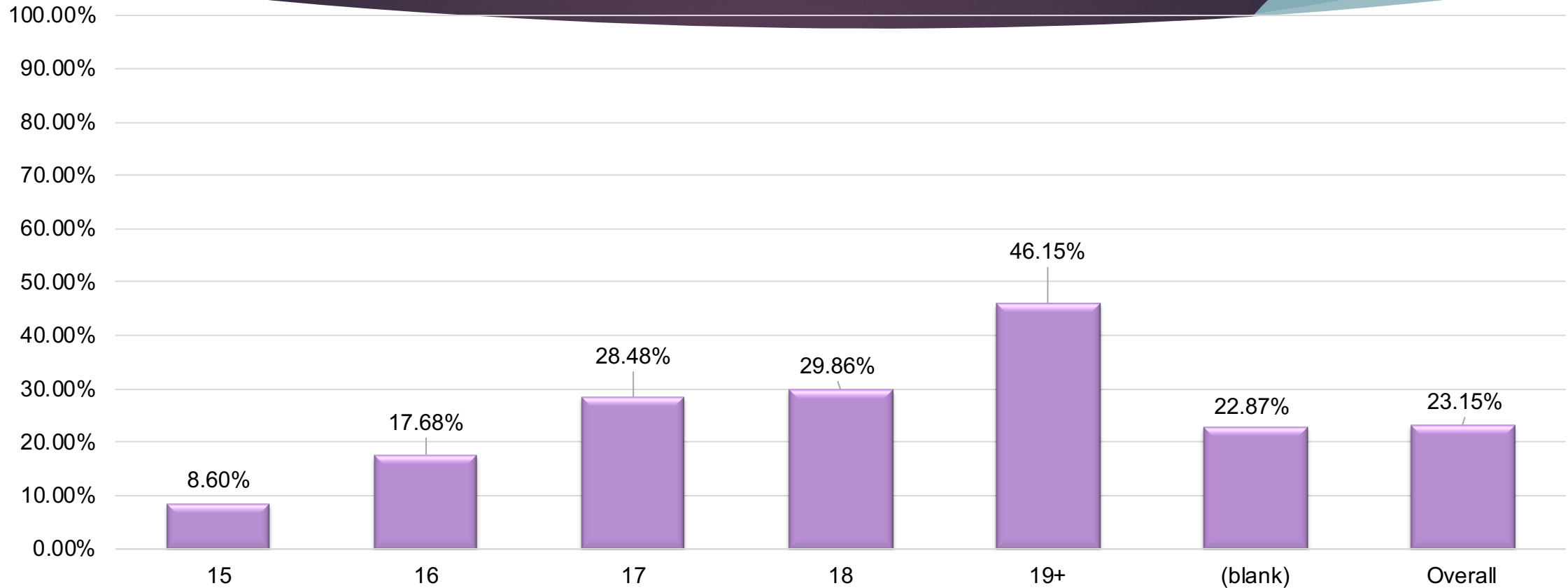
Why did we Try the Co-Requisite Model?

Why?

▶ Current offerings weren't adequately preparing students for QL

▶ How do we define "success"?

  ▶ A change in departmental strategy led us to not just analyze success in our transitional courses but also how successful our students were in their college credit course.

Data that may impact your design

- Current success rate in your stand alone remediation course(s)
- Current success rate in the credit bearing course immediately following your remediation course(s)
- 1 year success rate in the credit bearing course(s)
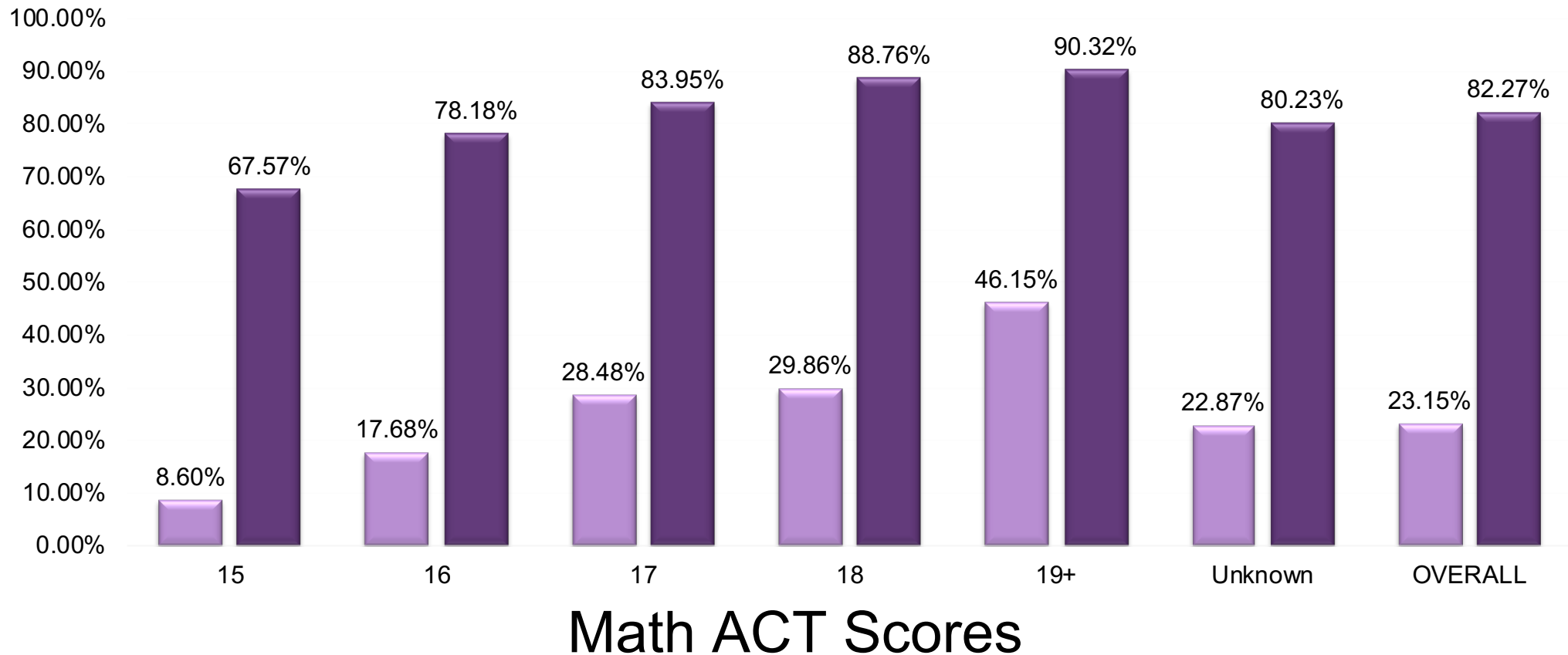
Data Before Co-requisite Design

1-year Success Rates in Dev Ed and College Algebra
Fall 2012 - Fall 2015
(Success is a D in College Algebra)

Math ACT Scores

Math ACT Score	Success Rate
15	8.60%
16	17.68%
17	28.48%
18	29.86%
19+	46.15%
(blank)	22.87%
Overall	23.15%

Placement

Goal

Provide information for you to determine a placement policy for your courses.

Current Status

► What is your current placement policy?

► What range of ACT (etc.) scores do you normally see?

Placement Challenges

- Co-requisite is not One Size Fits All
  - 2 year vs. 4 year
  - What is your CA course, end of the line or stepping stone?
  - How many math pathways do you currently have?
  - Will you have any stand alone remediation courses after the redesign?

Our Current Placement Guide

Placement Scores	Majors: Fine Arts / Communication Liberal Arts Undecided	Majors: Business, Education, Health and Behavioral Sciences, Natural Sciences and Mathematics
Math ACT < 19 (or equivalent)	UNIV 0360 – Foundations of QL **AND** MATH 1360 – Quantitative Literacy	UNIV 0390 – Foundations of CA **AND** MATH 1390 – College Algebra

Content

Goal

Provide content options for setting up a corequisite course.

Content Challenges

How much of your current prerequisite content is **directly correlated** with College Algebra?

How to Determine the Content for the Corequisite course

Forget all of the "Pre-College Algebra" Content!

- ▶ This is not an Intermediate Algebra and College Algebra course combined!

- ▶ Research exactly how many of your College Algebra students go on to take a higher math course.

Identify Prerequisite Skills – Backward Mapping

▶ Forget all "Pre-College Algebra" Content
  ▶ Go section by section, problem by problem and build a list of prerequisite skills needed.
  ▶ You will want to cover these skills as you get to each section/problem as opposed to covering them all at the beginning of the course as a type of review.

If it doesn't relate to **your** College Algebra objectives it doesn't get included!

UCA's College Algebra Content Chapter 2

This content is set by the College Algebra Coordinator in the Math Department.

2.1 – Increasing, Decreasing, and Piecewise Functions
- Find relative maximums and minimums using technology
- Determine intervals of increasing, decreasing and constant
- Maximizing/Minimizing Applications

2.2 – The Algebra of Functions
- Find the Sum, Difference, Product and Quotient of two functions and determine the domains of the resulting function

2.3 – The Composition of Functions
- Find the composition of two functions and the domain of the composition.

2.5 – Transformations
- Identify the basic parent function
- Identify transformations such as: vertical shifts, horizontal shifts, reflections, vertical stretches and horizontal stretches

Foundations of College Algebra Content

The individual instructors are given the discretion to determine this content and how it is delivered. (i.e. mini lessons, worksheets, activities, etc.)

2.1 – Increasing, Decreasing, and Piecewise Functions

- Find relative maximums and minimums using technology
- Determine intervals of increasing, decreasing and constant
- Maximizing/Minimizing Applications

o *Graphing a function in the calculator and adjusting the window*

o *Domain and Range of a function/graph*

o *Interval Notation*

2.2 – The Algebra of Functions

- Find the Sum, Difference, Product and Quotient of two functions and determine the domains of the resulting function

o *Domain and Range of a function/graph*

o *Add/Subtract polynomials ; combining like terms*

o *Multiply polynomials; FOIL*

o *Simplifying rational expressions*

2.3 – The Composition of Functions

•Find the composition of two functions and the domain of the composition.

- o   *Using order of operations to simplify expressions*
- o   *Domain and Range of a function*
- o   *Divide two fractions*
- o   *Simplify Complex Rational Expressions*

2.5 – Transformations

- •   Identify the basic parent function
- •   Identify transformations: vertical shifts, horizontal shifts, reflections, vertical stretches and horizontal stretches
- o   *Graph a function with technology*
- o   *Adjust window settings in calculator*

Corequisite Content for a more Content Heavy College Algebra

Additional content is underlined.

2.1 – Increasing, Decreasing, and Piecewise Functions

- Find relative maximums and minimums using technology
- Determine intervals of increasing, decreasing and constant
- Maximizing/Minimizing Applications
- <u>Evaluating and Graphing Piece-wise Functions</u>

o *Graphing a function in the calculator and adjusting the window*
o *Domain and Range of a function/graph*
o *Interval Notation*
o <u>*Order on the Number Line*</u>
o <u>*Meaning of Inequalities*</u>
o <u>*Evaluating expressions*</u>
o <u>*Graphing functions by hand and with technology*</u>

2.2 – The Algebra of Functions

- Find the Sum, Difference, Product and Quotient of two functions and determine the domains of the resulting function
- <u>Find the different quotient for a function</u>
  - o   *Domain and Range of a function/graph*
  - o   *Add/Subtract polynomials ; combining like terms*
  - o   *Multiply polynomials; FOIL*
  - o   *Simplifying, adding, subtracting, multiplying and dividing rational expressions*
  - o   <u>*Simplifying complex rational expressions*</u>
  - o   <u>*Factoring polynomials***</u>
  - o   <u>*Function notation*</u>

2.3 – The Composition of Functions

- Find the composition of two functions and the domain of the composition.
    - *Using order of operations to simplify expressions*
    - *Domain and Range of a function*
    - *Divide two fractions*
    - *Simplify Complex Rational Expressions*
    - *Function notation*

2.4 – Symmetry

- Determine whether a function is symmetric with respect to the x-axis, y-axis or origin.
- Determine whether a function is even, odd or neither.
  - o   *Simplifying expressions with exponents*
  - o   *Function notation*

2.5 – Transformations

- Identify the basic parent function
- Identify transformations: vertical shifts, horizontal shifts, reflections, vertical stretches and horizontal stretches
  - o   *Graph a function with technology*
  - o   *Adjust window settings in calculator*

What does a Foundations class look like compared to a College Algebra class?

- Ideally, you should not be able to look in the classroom and tell a difference.
- We keep College Algebra mostly lecture based.
- Our Foundations of CA allows for more time on task through previewing material, teaching prerequisite skills, reviewing old materials and group activities, etc.
- The beauty of this design is that it is customizable to your students needs.

Questions?

Thank you!

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