

*Overcoming Institutional  
BarriCADEs to Achieve  
Acceleration in  
Developmental  
Mathematics*

Jason Pallett

CADE Conference - June 16, 2016



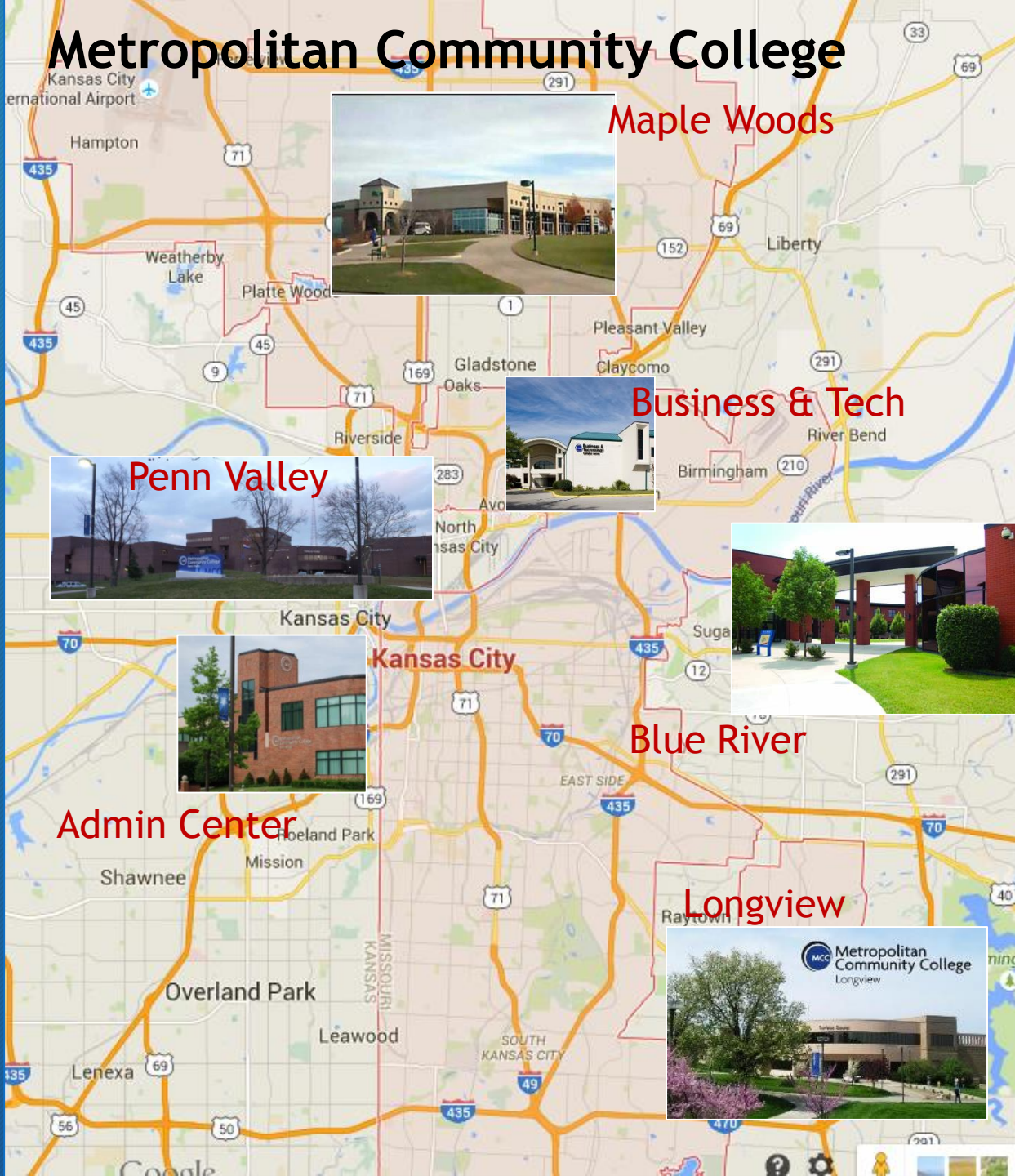
# Metropolitan Community College-Kansas City

Largest community college system in KC  
- 5 campuses

92 associate degrees, 8 transfer degrees, and many certificates

Mission: preparing students, serving communities, creating opportunities

# Metropolitan Community College



College	
MCC Blue River	2,963
MCC Bus. & Tech	1,100
MCC Longview	4,981
MCC Maple Woods	4,445
MCC Penn Valley	4,347
Total	18,222

# Institutional Challenges

- Open admissions
- Wide economic and educational disparity in metropolitan region
- Limited student advising
- Depleted faculty professional development budget
- Low persistence rates: 46% fall-to-fall retention (55% national)
- High DFW rates in developmental and gateway courses
- Lecture primary instructional delivery method, lack of individualized instruction
- Lack of instructional technology infrastructure
- Institutional and campus culture



# Your poll will show here

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A vintage photograph of a man with dark, wavy hair and a surprised expression, looking upwards and to the right. He is wearing a dark, high-collared shirt. The photo is framed by a white border. In the background, there is a faint circular logo with the text "SATURDAY NIGHT LIVE" and "3/17" visible.

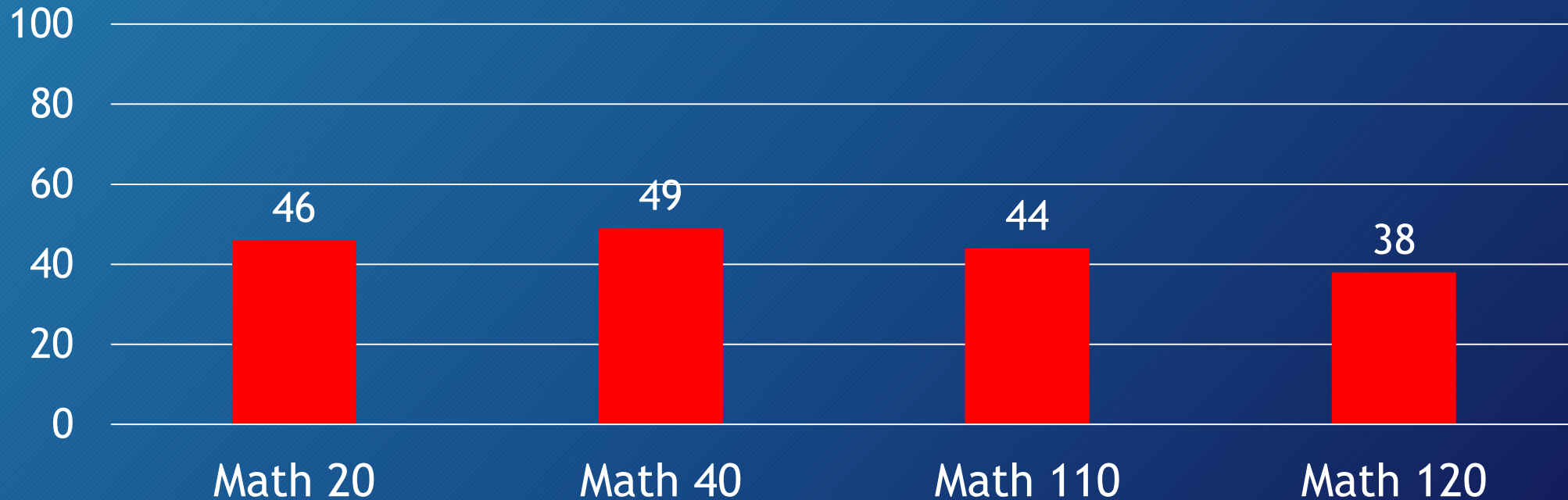
SATURDAY  
NIGHT  
LIVE  
3/17

# Developmental Math Courses at MCC

- Math 20 - Basic Mathematical Operations
- Math 40 - Introductory Algebra
- Math 110 - Intermediate Algebra
- Math 120 - College Algebra

# DFW Rates in Math at MCC

2011-2012 DFW % (from MCC IR)







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# The Solution at MCC?

Administration hires consultants to write a Title III grant proposal with minimal faculty input.

*What is Title III? The program helps eligible IHEs to become self-sufficient and expand their capacity to serve low-income students by providing funds to improve and strengthen the academic quality, institutional management, and fiscal stability of eligible institutions.*

Source - <http://www2.ed.gov/programs/iduestitle3a/index.html>

# One Grant is Not Enough

- Blue River Campus Title III Grant
- Penn Valley Campus Title III Grant
- Institutional (all 5 campuses) Title III Grant -  
“F-Grant”

# Brief Overview of the F-Grant

FYE Redesign  
FOCUS Coll  
100

Advising  
Redesign

Technology  
Upgrades

Professional  
Development

Supplemental  
Instruction

Dev.Ed.  
Course  
Redesign

Gateway  
Course  
Redesign

# Grant Required Redesign in Developmental Math

- Fully Modular Math 20
- Fully Modular Math 40
- Fully Modular Math 110
- Math 40 class + lab
- Math 110 class + lab

Without warning, you are told that your developmental math offerings must be restructured to be either fully modular or have a lab component. Go!

# What We Did

## Math 91/92/93

- Emporium Style via ALEKS
- Online Assessments
- 15 Modules
- 90% on Modules and 80% on Assessments

## Math 31/32

- Emporium Style via ALEKS
- Written Assessments
- 10 Modules
- 90% on Modules and 80% of Assessments

## Co-Requisites

- Triangle Model for Math 20/Math 40
- Triangle Model for Math 40/Math 110

# The Original Design - LV 2014

## Math 91/92/93 (712 topics)

Math 20

~Modules 1-5

295 topics

Math 40

~Modules 6-10

205 topics

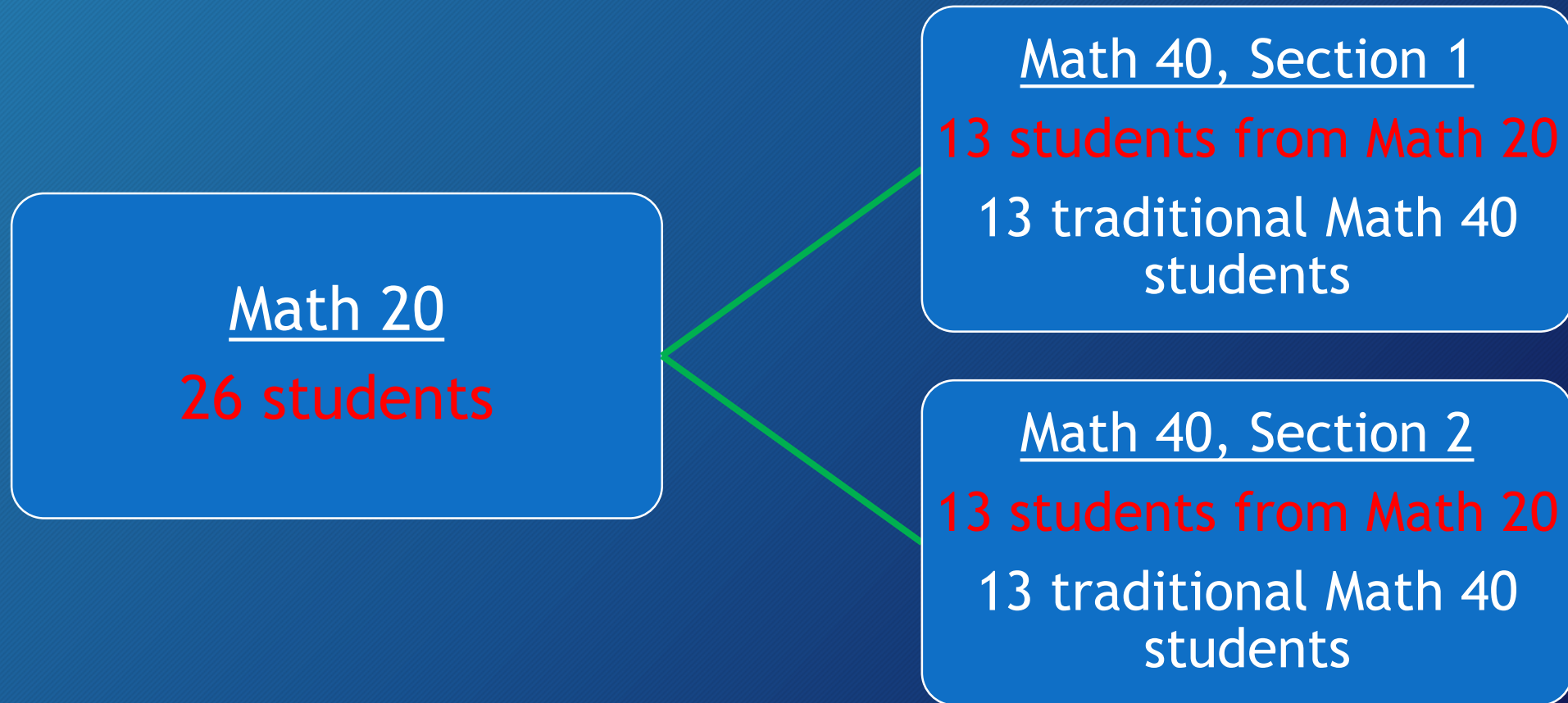
Math 110

~Modules 11-15

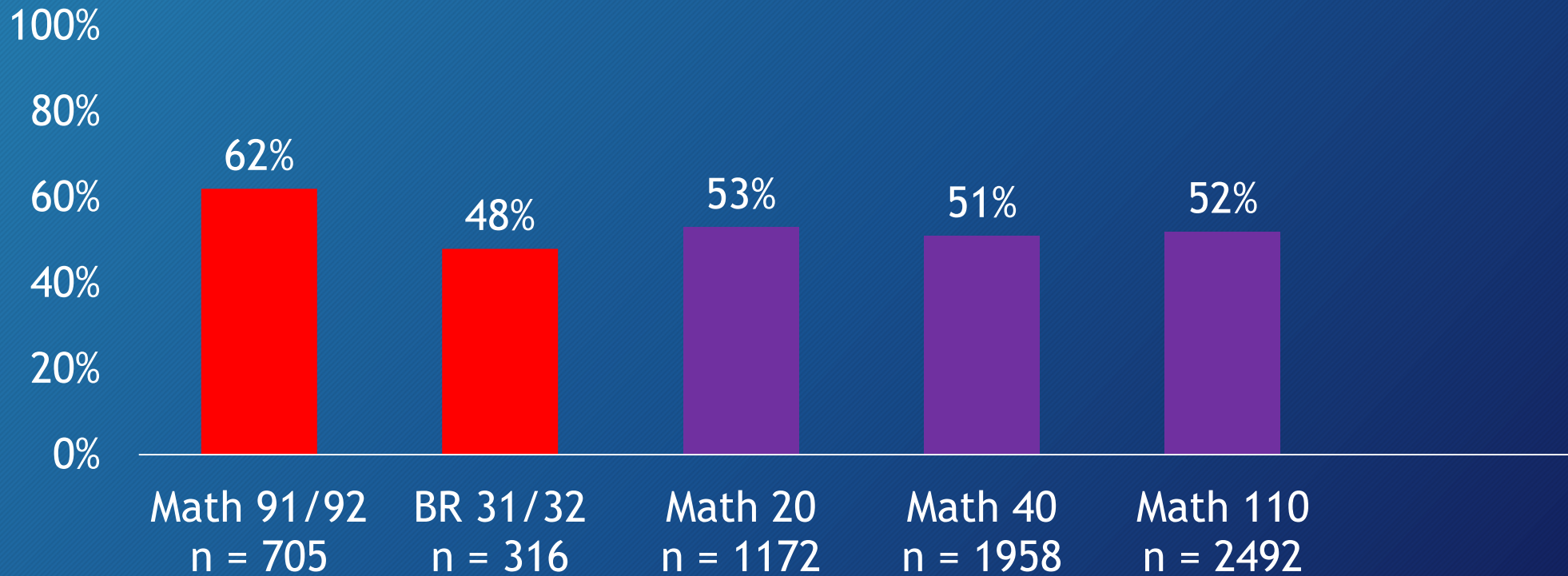
255 topics



# Triangle Co-Requisite Design

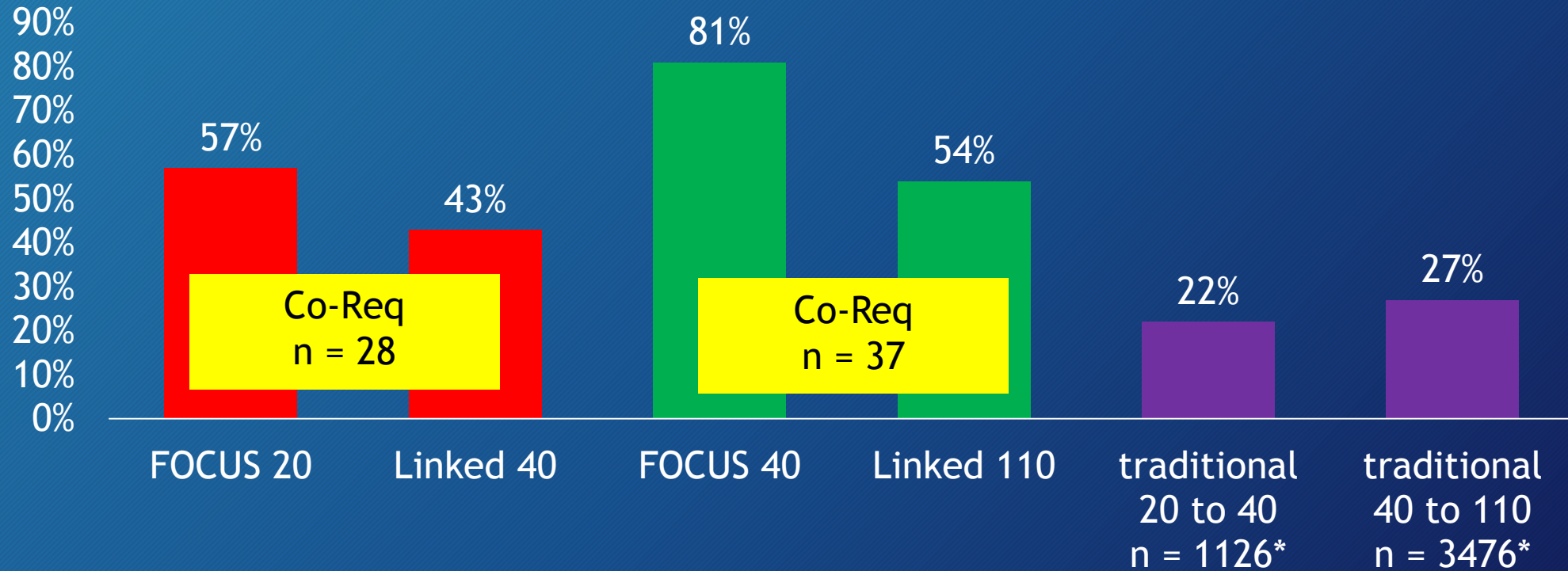


# Overall Student Success in Math 91/92/93 Fall 2014 - Spring 2015



# Data for Co-Requisites at Longview campus

\*data from MCC 2009-2010 cohort



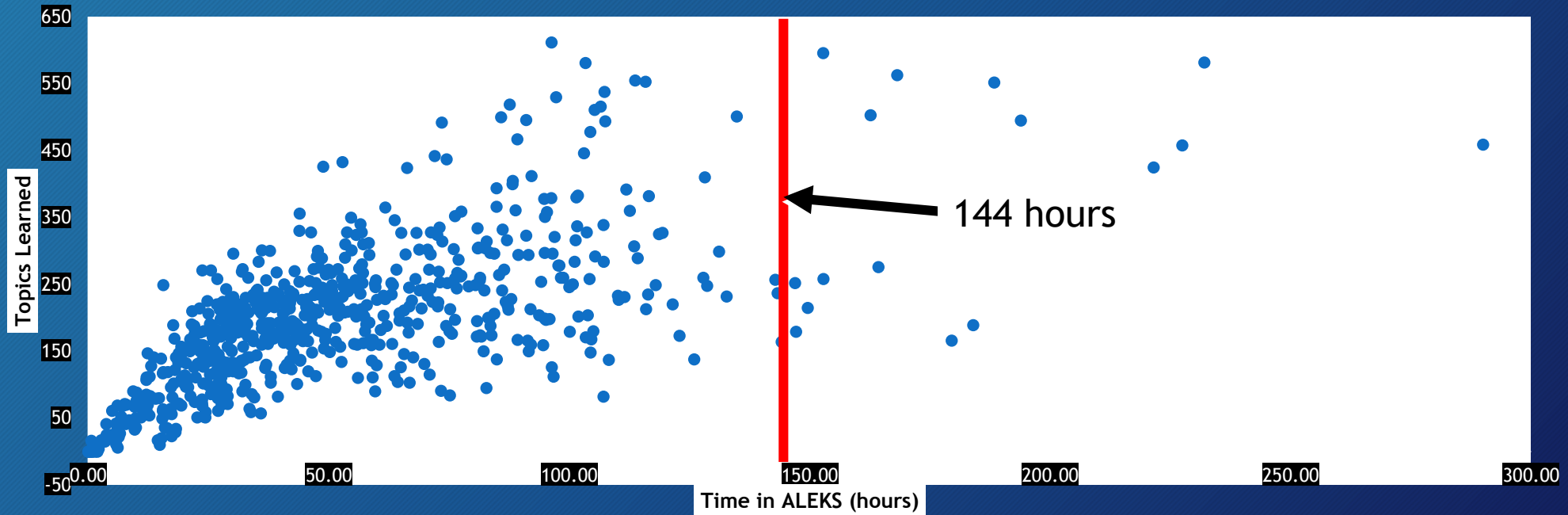
# Student Performance Comparison

These numbers include only students from Fall 2014 and Spring 2015

	Traditional Math 20 - Math 40 - Math 110 Path	Redesigned Math 91/92/93 path
Placed into Math 20 and completed through Math 110 in one semester	0%	0.35% (1 / 287)
Completed two or more courses in one semester	0%	4% (21 / 498)
Placed into and Passed Math 20 in One Semester	54% - IR 2012	51% (146 / 287)
Place into Math 20 and Pass Math 40 within 2 Semesters	22% - IR 2012	15% (32 / 214)
Placed Math 40 and Pass Math 110 within 2 Semest.	27% - IR 2012	19% (31 / 163)

# Time Spent in ALEKS

Math 91/92 Time vs. Topics Learned Fall 2014 & Spring 2015



# New Design - One Semester Courses

Math 31 (282 topics)  
8 Modules

Math 20  
~Mods 1-3  
132 topics

Math 40  
~Mods 4-8  
152 topics

Math 110 (213 topics)  
8 Modules

Math 40  
~Mods 1-3  
93 topics

Math 110  
~Mods 4-8  
120 topics

# Course Setup

## Math 31

- 8 Modules
- S/U Grading
- 95% Module Completion
- 80% on End of Module Assessment

## Math 110

- 8 Modules
- A,B,C,D,F Grading
- 450 points total
  - Module Completion - 20 pts
  - End of Mod Assessment - 20 pts
  - Written Assessment - 10 pts
  - Written Final - 50 pts

# Co-Requisite Design for Fall 2016

Math 40

26 students

Math 110

26 students from Math 20

9 traditional Math 110  
students



# Main Grant Challenges

- Faculty resistance across all disciplines
- “Old School” Mathematicians at MCC
- LV campus drops co-requisites due to scheduling trouble
- Lack of institutional support
- Depleted IR staff
- Minimal grant team staff

# Moving Forward

- Sustain Co-Requisites - good success so far; MO participates in CCA Co-Requisite at Scale Initiative;
- Continue to revise Math 31
- Address College Algebra - high DFW rate; no uniformity across classes

Questions

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