

Achieving NondiploMATYC Institutional Change in Developmental Mathematics

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MOMATYC Conference - April 9, 2016

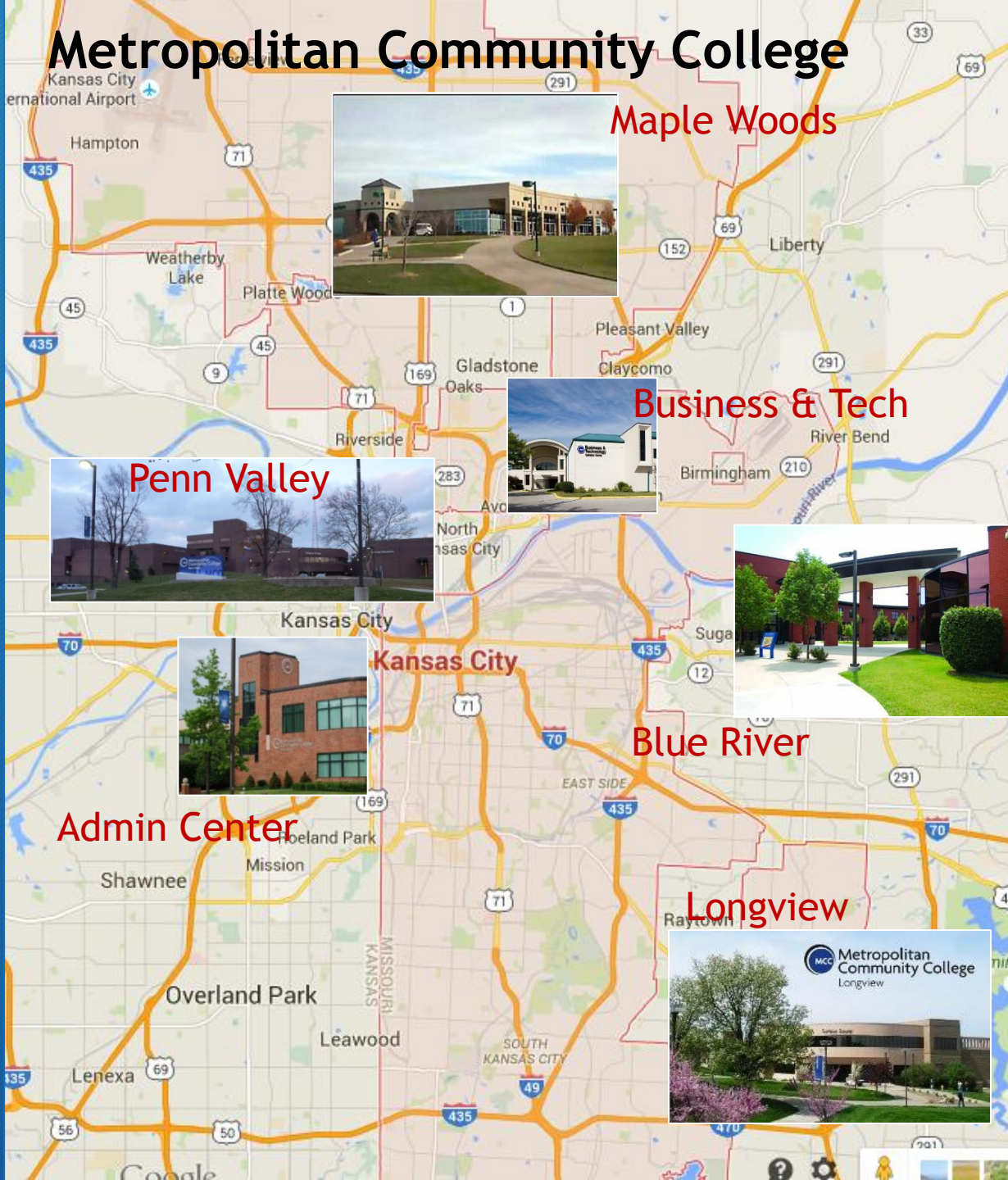


Metropolitan Community College-Kansas City

Largest community
college system in KC
- 5 campuses

92 associate
degrees, 8 transfer
degrees, and many
certificates

Mission: preparing
students, serving
communities,
creating
opportunities



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



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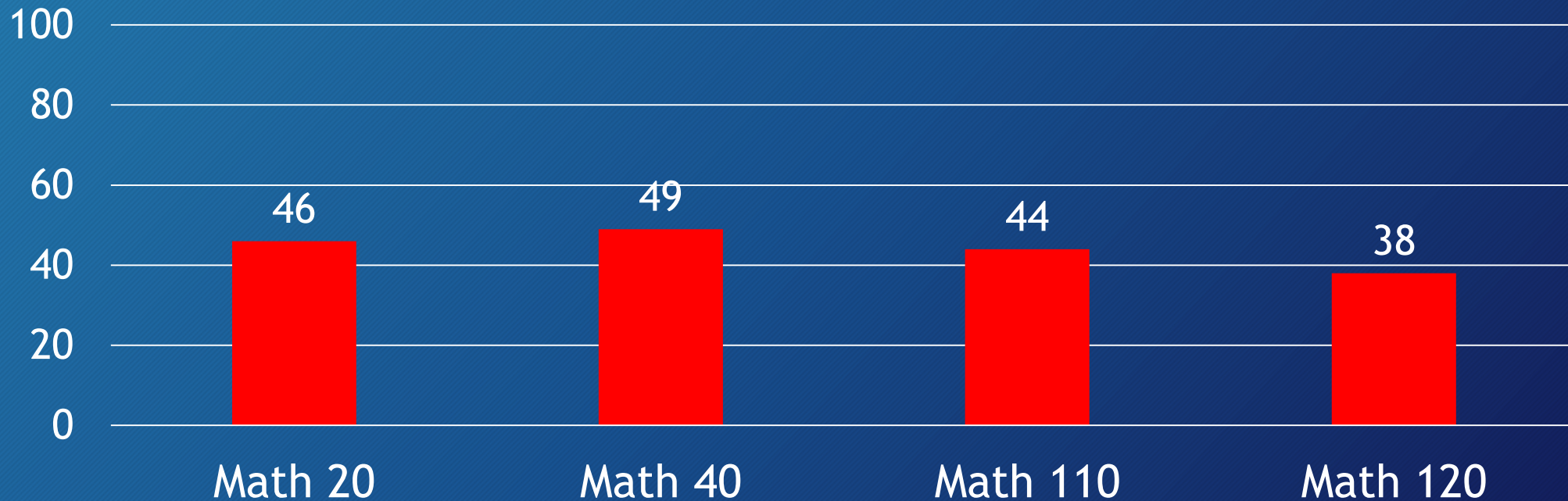


Developmental Math Courses at MCC

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

- Fully Modular Math 20
- Fully Modular Math 40
- Fully Modular Math 110
- Math 40 class + lab
- Math 110 class + lab
- Gateway courses (College Algebra, Stats, etc.) are to be “...infused with strategies and tools that increase engagement.” - Basic Skills Reinforcement, Flipped Classroom, Active & Inquiry-Based Learning, etc.

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

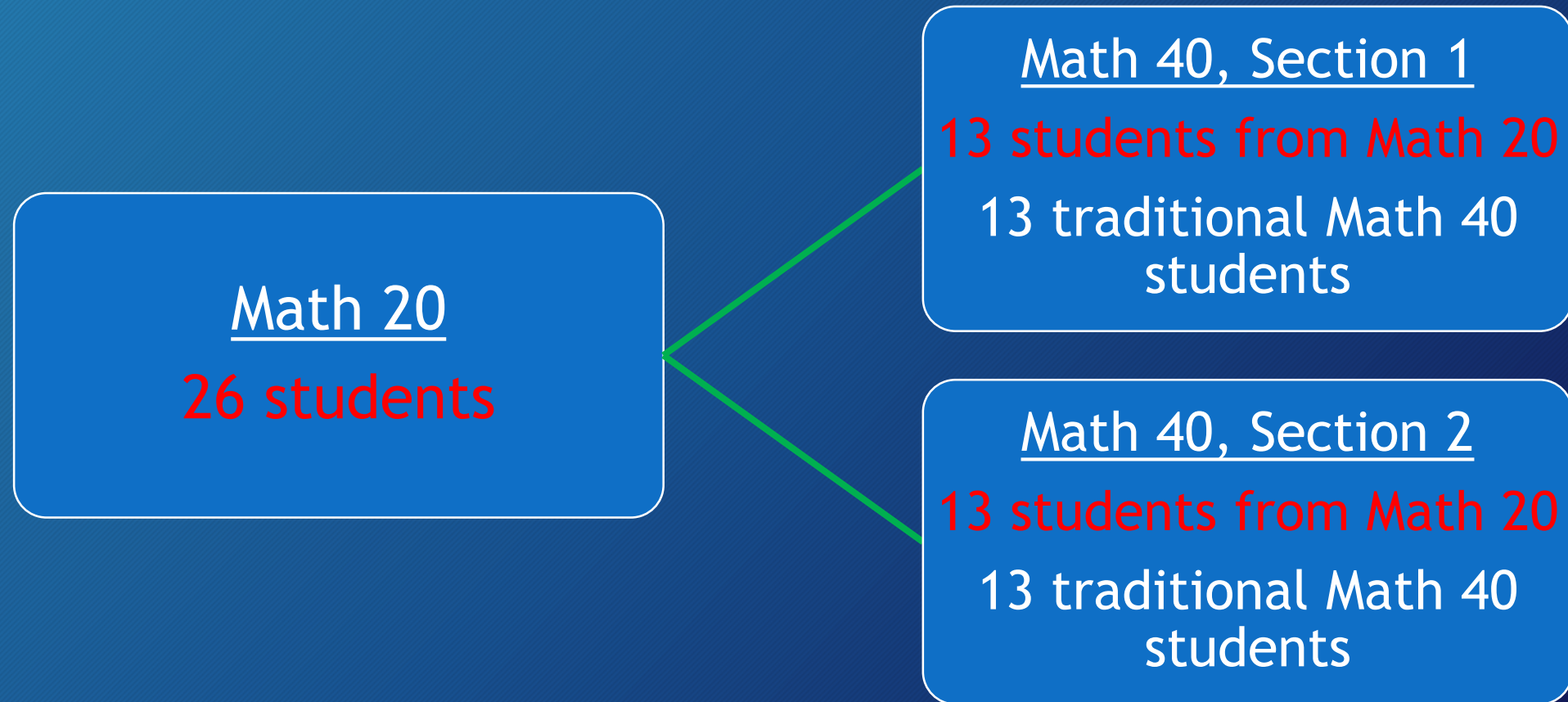
205 topics

Math 110

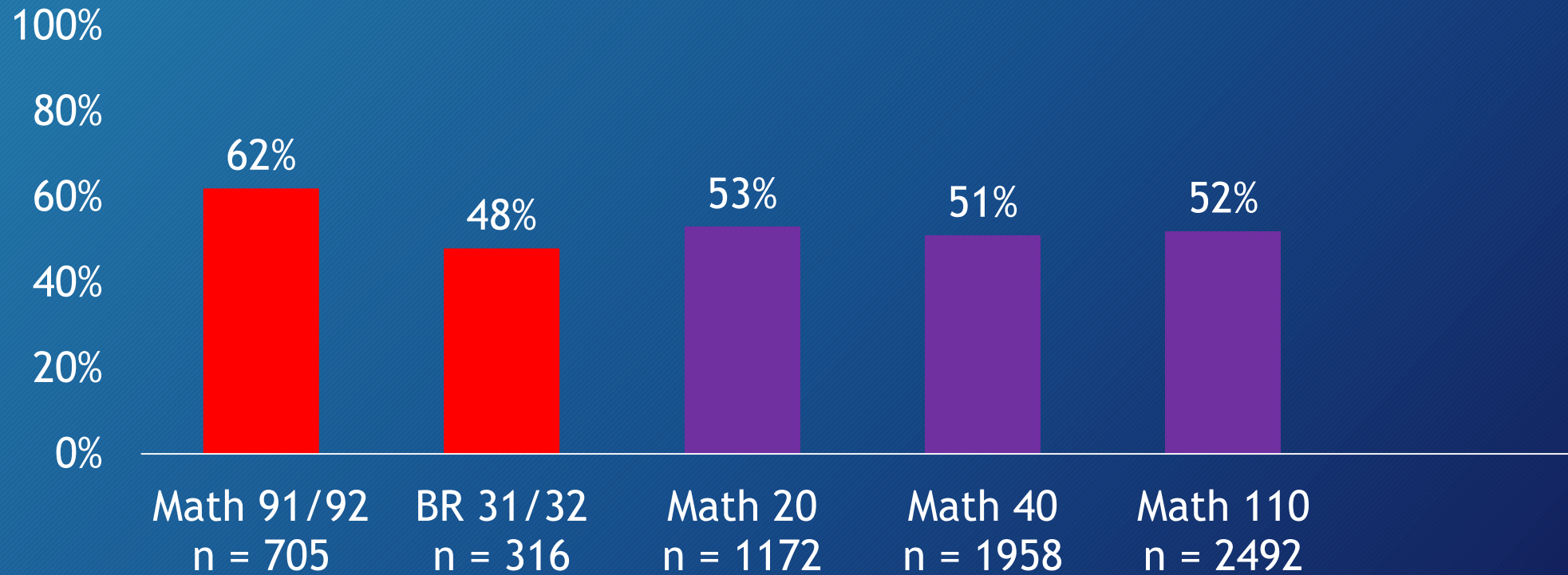
~Modules 11-15

255 topics

Triangle Co-Requisite Design

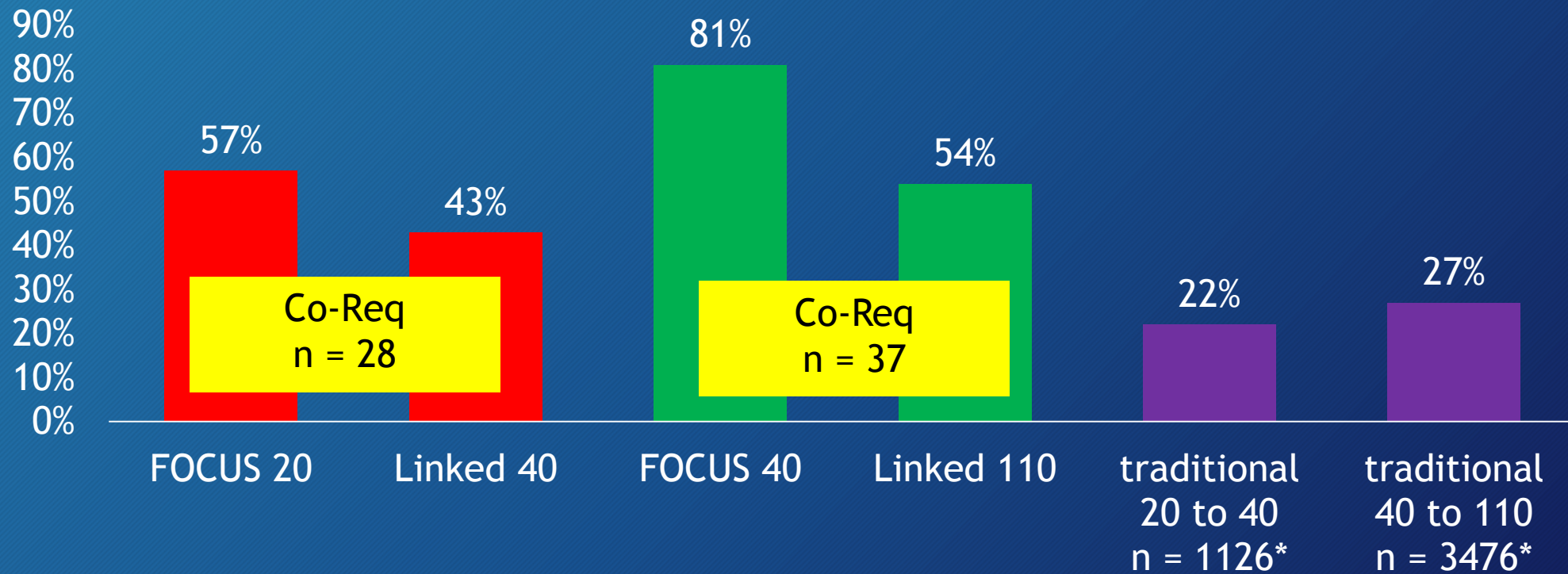


Overall Student Success in Math 91/92/93 Fall 2014 - Spring 2015



Data for Co-Requisites at Longview campus

*data from MCC 2009-2010 cohort



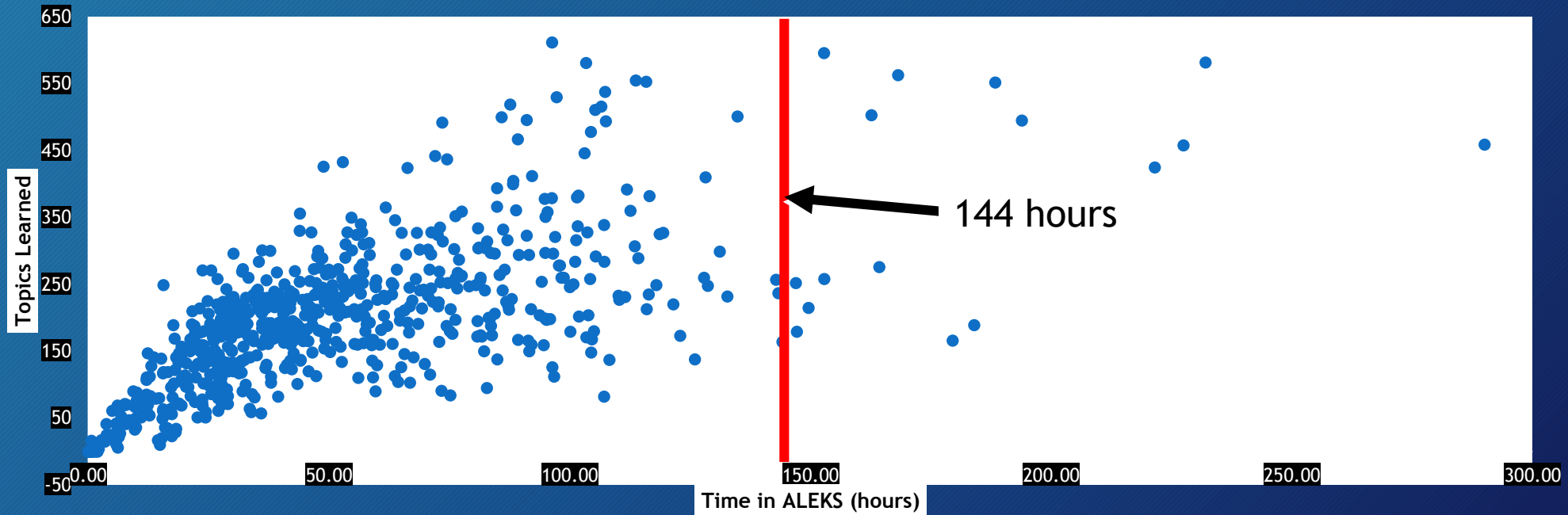
Student Performance Comparison

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 Fall 2014 & Spring 2015



Time Spent in ALEKS

	Fall 2014	Spring 2015	Fall 2015
Average hours spent in ALEKS	44	60	48
Spent more than 48 hours total in ALEKS	12%	57%	32%
Spent more than 100 hours total in ALEKS	7%	14%	8%

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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