



# AAMU Mathematics Pathways Task Force Report

By

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# AAMU Mathematics Pathways Taskforce Charge and Background

**National peer-reviewed research shows that traditional post-secondary mathematics courses serve as significant obstacles to student success and equity (Getz, Ortiz, Hartzler, & Leahy, 2016).**



# AAMU Mathematics Pathways

## Taskforce Charge and Background

**According to Gordon (2008), "Each year in colleges and universities across the United States, approximately 1,000,000 students enroll in college algebra; and each year approximately 50% of these students fail to pass this course with a grade of C or better" (as cited by Ganter & Haver, 2011, p. 49).**



# AAMU Mathematics Pathways

## Taskforce Charge and Background

**In a study by the John N. Gardner Institution for Excellence in Undergraduate Education, researchers examined DFW rates at 13 two-year and four-year institutions and found that 90 percent of students who were dismissed from the institution for academic reasons took College Algebra and received a D, F, withdrawal or incomplete in the course (Gardner, 2014).**



# AAMU Mathematics Pathways Taskforce Charge and Background

**There is a need to impact student learning and success in mathematics across all disciplines, further supporting the need for pathways design.**





# AAMU Mathematics Pathways

## Our Design for Academic Core

### STEM

MTH 112 – Pre-Calculus  
Algebra

MTH 113 – Pre-Calculus  
Trigonometry or  
MTH 115 – Pre-Calculus  
Algebra & Trigonometry

MTH 125 – Calculus I

### Quantitative Reasoning

MTH 109 – Quantitative  
Reasoning\*  
or  
MTH 110 – Finite  
Mathematics

### Statistics/ Big Data

MTH 111 – Elementary  
Statistics I\*

MTH 324 – Elementary  
Statistics II  
(Pre-requisite of MTH  
112 or MTH 1XX)

MTH 327 – Regression  
Analysis



\*New to the  
Academic Core

# AAMU Mathematics Pathways

## Bachelors Majors Recommendations

### STEM

Animal Bio-Health Sciences, Food Science, Environmental Science, Forestry, Computer Science, Civil Engineering, Mechanical Engineering, Construction Management, General Studies, Biology, Plant Biotechnology, Mathematics, Chemistry, Physics, Psychology, Business Administration, Entrepreneurship, Logistics and Supply Chain Management, Management, Marketing

### Quantitative Reasoning

Communications Media, Urban and Regional Planning, Special Education (K-6), Elementary Education, Physical Education Teaching and Coaching, Family and Consumer Sciences, English Language and Literature, General Studies, Sport Management, Criminal Justice, Social Work, Political Science, Sociology, General Art, Visual Art, Music

### Statistics/ Big Data

Urban and Regional Planning, Special Education (K-6), Special Education (6-12), Elementary Education, General Studies, Psychology, Social Work, Political Science, Sociology, Business Administration, Entrepreneurship, Marketing





# AAMU Mathematics Pathways

## Purpose of our Pathways

### STEM

Pathway to start the students with an Algebra Based background in preparation for Calculus and its applications

### Quantitative Reasoning

Our Quantitative Reasoning course is organized around big mathematical and statistical concepts. The course's nontraditional treatment of content will help students develop conceptual understanding by supporting them in making connections between concepts and applying previously learned material to new contexts. The course will help to prepare students for success in future courses, gain skills for the workplace, and participate as productive citizens in our society.

### Statistics/ Big Data

Our Big Data Pathway provides the foundation for a strong understanding of Data Science and its applications



# AAMU Mathematics Pathways

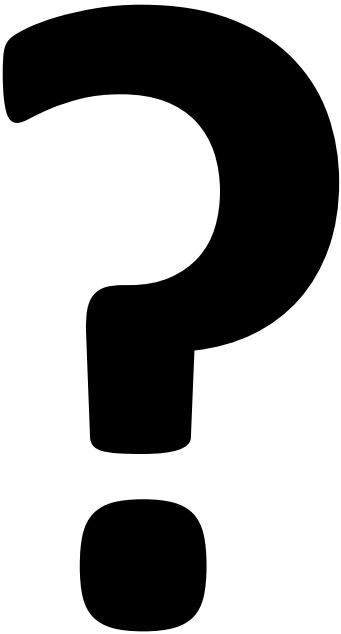
## Takeaways and Timeline

### **Key takeaways and timelines**

1. 2 new courses (Quant Reasoning & Elem Stat I) and prerequisite to MTH 324 – Elem Stat II were approved at the April ASCC
2. We requested that all academic programs identify a pathway that best served their needs.
3. We met with all Academic Advisors for Mathematics Pathways Briefing and Training in April 2024
4. Programs submitted Mod Forms for adopting the pathway and course(s) before the April ASCC Meeting to implement in Fall 2024.
5. We will launch the Mathematics Pathways Initiative in the Fall 2024.
6. We will collect and analyze Fall 2024 data of DFW rates in the core Mathematics courses and report compare and contrast findings by mid-semester Spring 2025



Questions



# Launch Years Initiative

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## Moving Modern Mathematics to Scale

Frank Savina, Charles A. Dana Center, The University of Texas at Austin

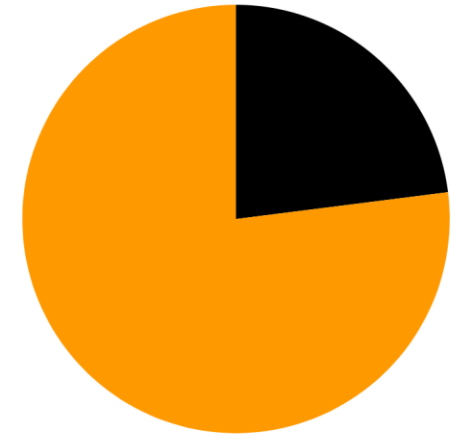
April 2024

# Content – Gateway Level Math

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Current curriculum

Only ~20% of majors require Calculus



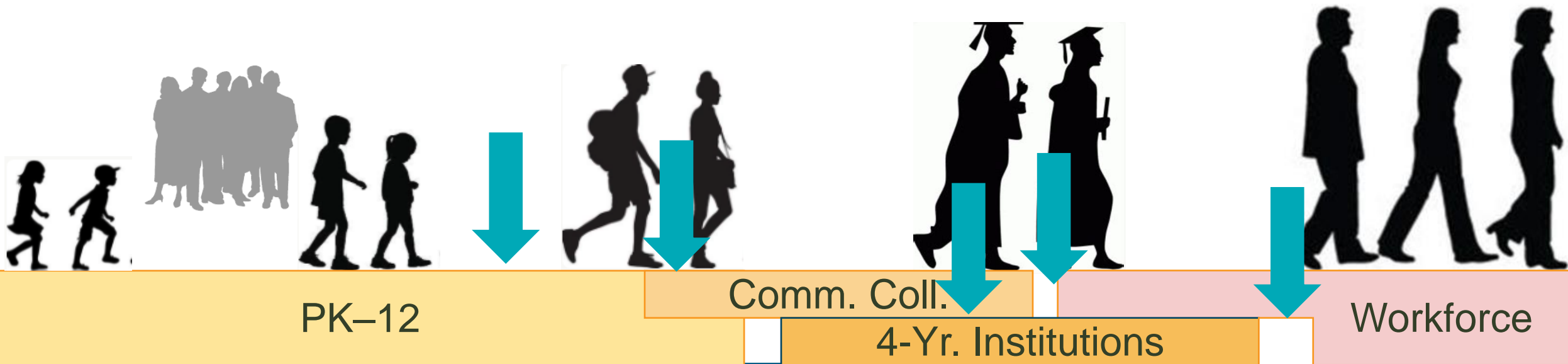
Need more:

- Statistics
- Quantitative Reasoning
- Data Science

# Alignment – Gateway Level Math

Critical transitions are key:

- Worse for minoritized students
- Worse for under-resourced students



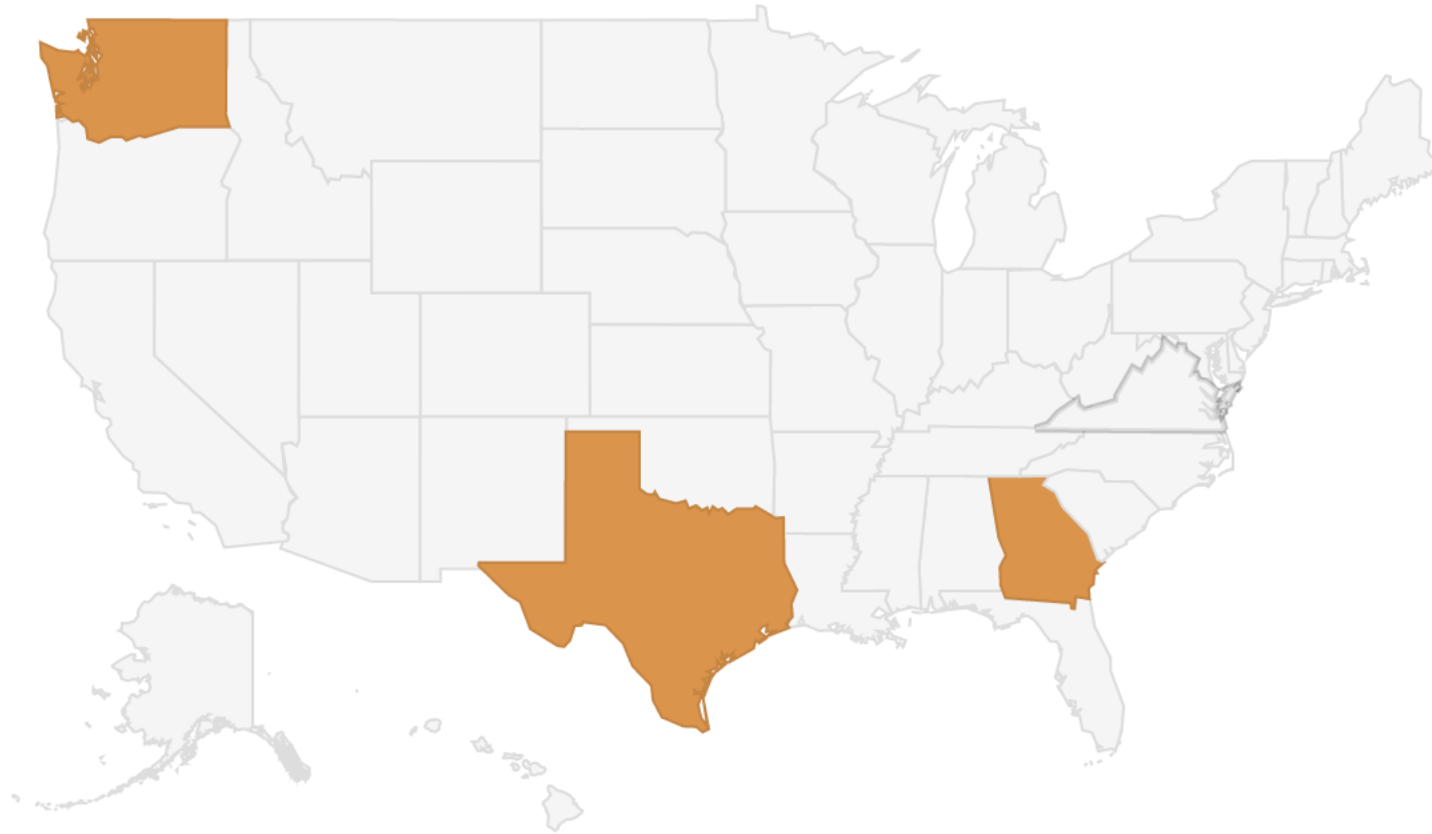
# Launch Years Initiative

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The Launch Years Initiative supports the scaling of mathematics pathways aligned to students' goals and aspirations, from high school through postsecondary education and into the workplace.

# Launch Years Initiative – Phase 1 (2019–2022)

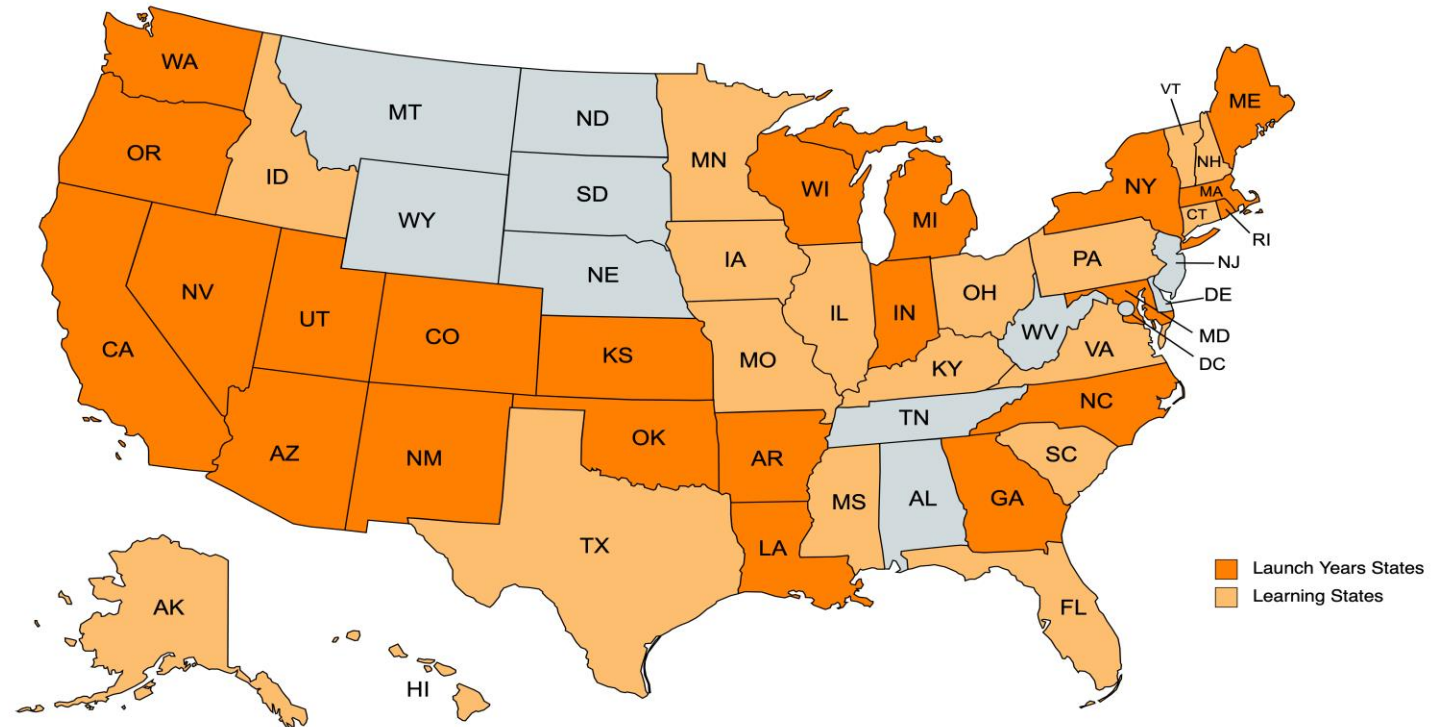
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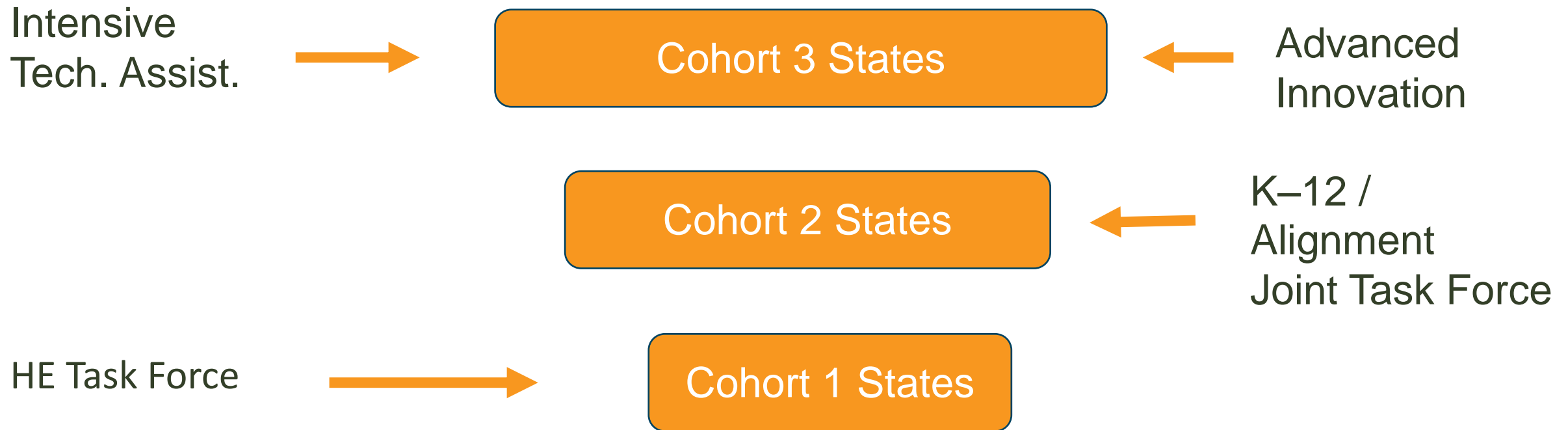


# The Dana Centers Launch Years Initiative

The states that are a part of the Launch Years Initiative are: Arizona, Arkansas, California, Colorado, Georgia, Indiana, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Nevada, New Mexico, New York, North Carolina, Oklahoma, Oregon, Rhode Island, Utah, Washington, and Wisconsin



# State-Level Modern Math Pathways Work



# Next steps?