

# EMERGING ISSUES IN MATH REFORM

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SOUTHEAST TEXAS REGIONAL MATHEMATICS PATHWAYS MEETING

MAY 23, 2017

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## 2 GOALS FOR TODAY

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- Describe NASH and its role in higher education today
  - Document the shared challenge of remedial mathematics
- Describe an approach that links top-down and bottom up policy change in a university system and a state
  - Fortuitous Federal Grant Opportunity: First in the World
  - Drill down to a campus level to reveal implementation successes and challenges

# NASH: NATIONAL ASSOCIATION OF SYSTEM HEADS

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- More than **35 years** of collaboration
- System heads in **33 states**
- **Over 45** university systems
- More than **5.6 Million** students represented
- Support for **public multi-campus systems**, which enroll 75% of all students in public four year colleges and universities

# NASH: NATIONAL ASSOCIATION OF SYSTEM HEADS

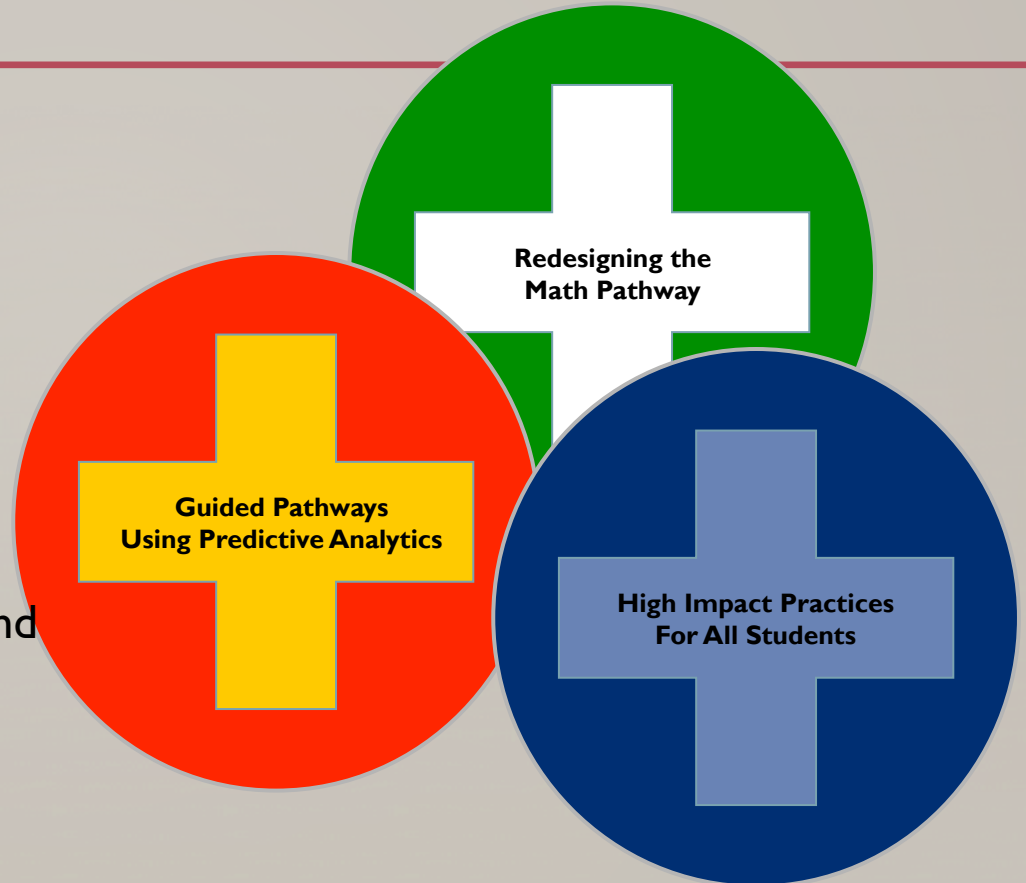
- Bring a System level approach to closing equity gaps
- Communicate the value of higher education to key stakeholders
- Promote smoother pathways for students to completion
- Partner in policy and strategy development





# TS<sup>3</sup>: TAKING STUDENT SUCCESS TO SCALE

- Interventions were chosen based on strong evidence for:
  - Improving student outcomes
  - Closing equity gaps
- TS<sup>3</sup>
  - Flexible implementation
  - Common definitions of success
  - Minimal thresholds for adoption and diffusion



# NASH TS<sup>3</sup> PARTNERS



UNIVERSITY SYSTEM  
of MARYLAND



THE UNIVERSITY  
of TEXAS SYSTEM

UNIVERSITY OF  
NORTH TEXAS  
SYSTEM



UNIVERSITY  
of HAWAII®  
SYSTEM



Minnesota  
STATE COLLEGES  
& UNIVERSITIES



# NASH DRIVES “COLLECTIVE IMPACT”

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*Τηε χομμιτιμεντ οφ α γρουπ οφ ιμπορταντ αχτορσ φρομ διφφερεντ  
σεχτορσ το α χομμον αγενδα φορ σολωινγ α σπεχιφιχ σοχιαλ  
προβλεμ*

**NASH serves as the backbone to drive collective impact on college completion by:**

- ✓ Working with systems to develop a shared vision for success within their communities
- ✓ Establishing standard definitions and metrics to build evidence and compare results
- ✓ Centrally managing and tracking data
- ✓ Facilitating the sharing of best practices across systems
- ✓ Engaging systems in collaborative problem solving on how to address challenges



# 8 WHAT PROBLEM ARE WE TRYING TO SOLVE IN MARYLAND?

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- ✧ Intermediate Algebra is the “graveyard” for non-STEM majors
- ✧ Approximately 71% of Maryland’s community college students and 24% of four-year university students test into developmental math courses
  - ✧ Existing regulations drove community college students toward math courses that did not align with the requirements of their majors and resulted in high failure and drop-out rates
  - ✧ USM institutions had multiple mathematics pathways, but community colleges did not



# MARYLAND'S GOALS FOR UNDERGRADUATE MATHEMATICS

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- Reduce the number of students taking remedial math
- Increase the percentage of students who successfully complete remedial math within their first year of college
- Increase the percentage of first year freshmen who successfully complete a math course that fulfills a general education requirement in their first year
- Develop math pathways to place students in more appropriate courses for their educational goals and for success in their degree program area
- Provide better advising for incoming freshmen and returning non-traditional students

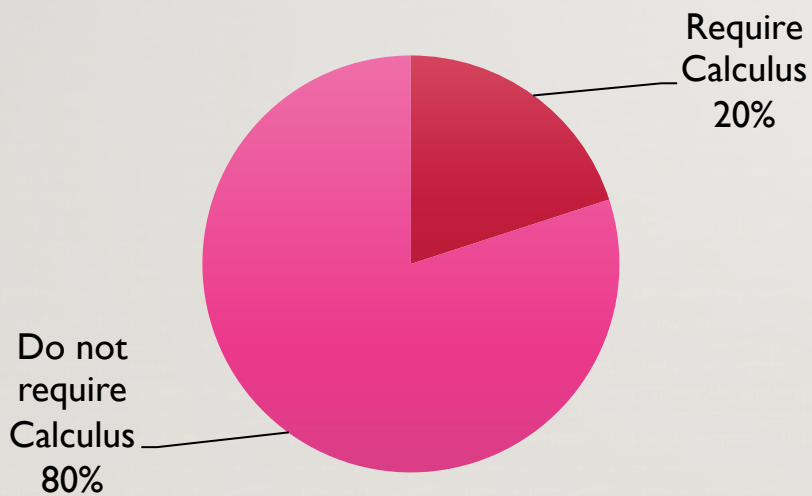
# ACHIEVING BUY-IN FOR POLICY CHANGES

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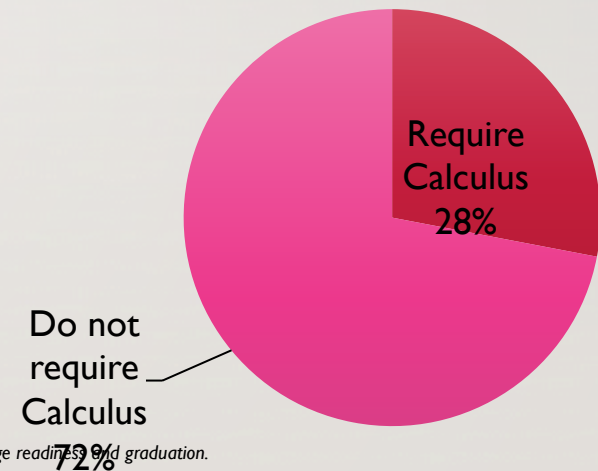
- ✧ Leadership from the top
  - Intersegmental Chief Academic Officers
- ✧ Engaging Faculty
  - Statewide Mathematics Group
  - Campus-level committees and task forces

# WHAT IS THE “RIGHT MATH”?

## Community College Student Enrollment into Programs of Study



## Four-Year Student Enrollment into Programs of Study



Burdman, P. (2015). *Degrees of freedom: Diversifying math requirements for college readiness and graduation*. Oakland CA: Learning Works and Policy Analysis for California Education.

The Charles A. Dana Center  
at the University of Texas at Austin

THE  
New Mathways  
PROJECT

Texas Association of  
Community Colleges

## POLICY TAKEAWAYS

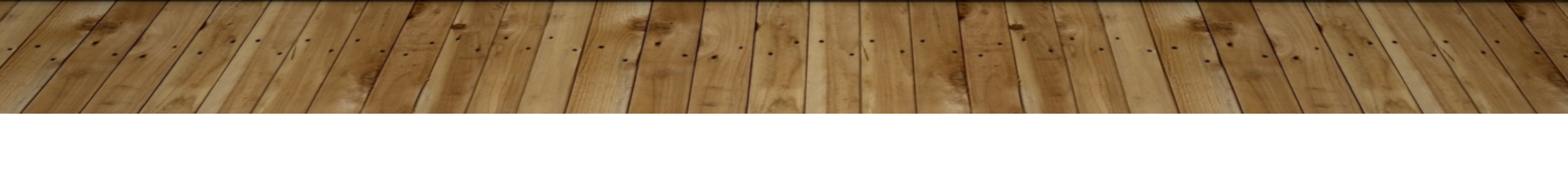
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- Take advantage of existing structures and relationships
- Space or forum for open and frank dialogue is key
- Essential Conditions
  - *Common understanding of the problem*
  - *Shared belief that the problem is important and needs to be addressed*

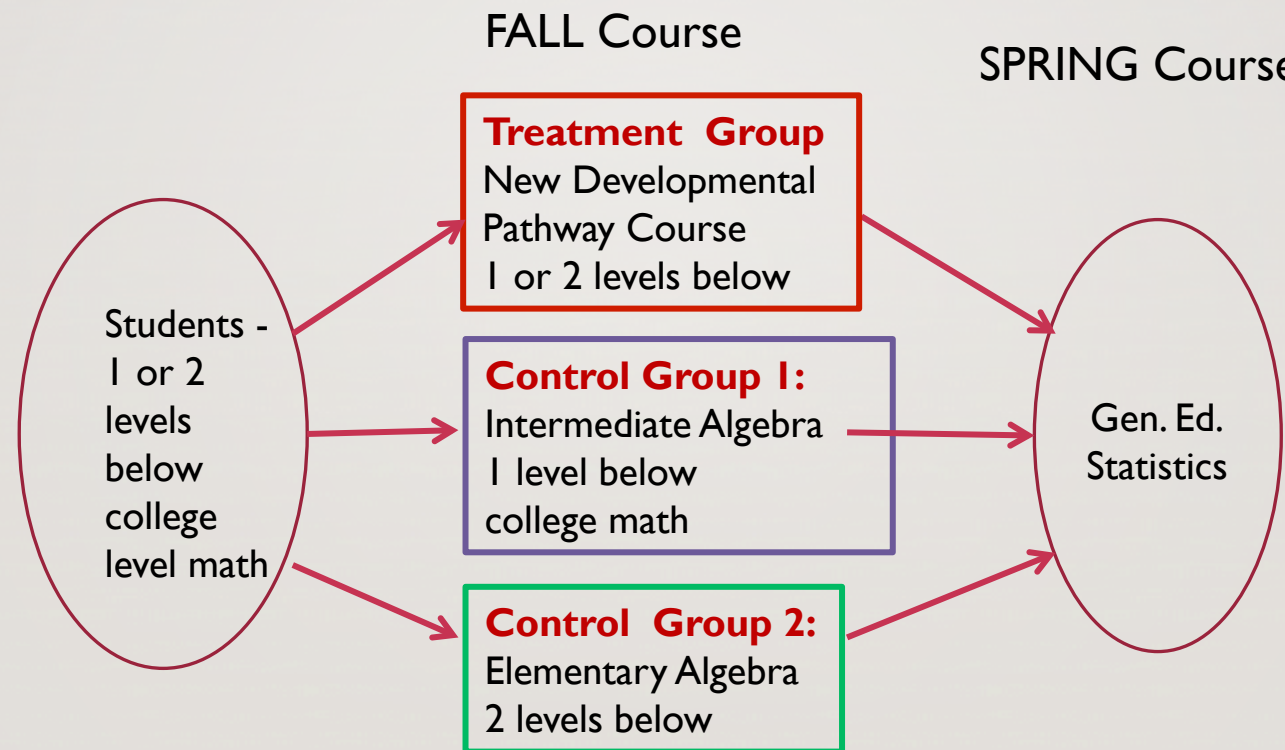


# 3 MMRI-FITW PARTNER CHARACTERISTICS

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- Five 4-Year Baccalaureate Degree Institutions
  - Seven 2-Year Community Colleges
  - Ten Institutions with open or non-competitive acceptance
  - One HBCU
  - Two Institutions w/ Majority Non-traditional Freshmen
  - Four Rural-Serving Institutions
  - Three Research-Oriented Institutions
  - Institutional Enrollment Ranging from 3,100 to 85,000
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# MARYLAND FITW RESEARCH DESIGN



# MARYLAND FITW TIMELINE

Fall 15  
Project  
Begins;  
Planning &  
Kickoff  
Events

Spring-Summer 16  
Development of  
curriculum and  
placement, advising,  
& registration  
processes

Fall 17 –  
Spring 18  
Evaluation  
Cohort  
Enrolled

Jan 16  
Course  
Outcomes  
Defined

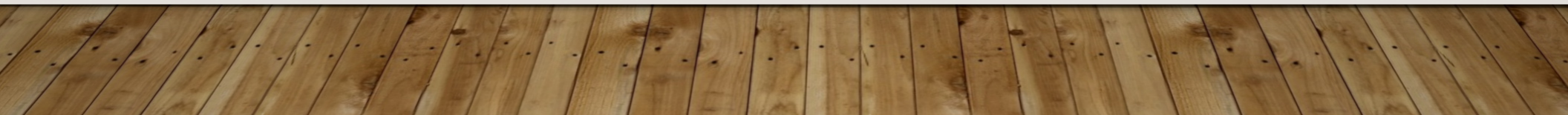
Fall 16  
Spring 17  
**New Statistics  
Pathways  
Launch**  
**Pilot Cohort  
Enrolled**

Fall 17-  
Spring 20  
Data  
Collection,  
Analysis,  
Dissemination

# NEWLY-DESIGNED COURSE OUTCOMES AND FRAMEWORKS FOR NON-STEM MAJORS

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- Developmental Mathematics Course
- General Studies Statistics
- Topics for Mathematical Literacy: Liberal Arts Math





# POLICY AND IMPLEMENTATION QUESTIONS

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- How To Best Place Students Into The Most Appropriate Mathematics Courses
  - Registrar, Advisors, Department Chairs, Faculty
- How To Lead Faculty Discussions About Rigor of Different Mathematics Courses?
  - External and internal facilitators, math faculty, testing office
- How should Developmental Mathematics Transfer?
  - Transfer coordinators, admissions advisors, transfer advisors, math faculty

## 8 INVESTMENT IN CURRICULAR DEVELOPMENT AND INNOVATION

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- Resources (Faculty Summer Salaries)
- Elementary Statistics Course Revision
- Study Skills Integration
- Best Practices (active learning, real-world projects, lecture/computerized formats)

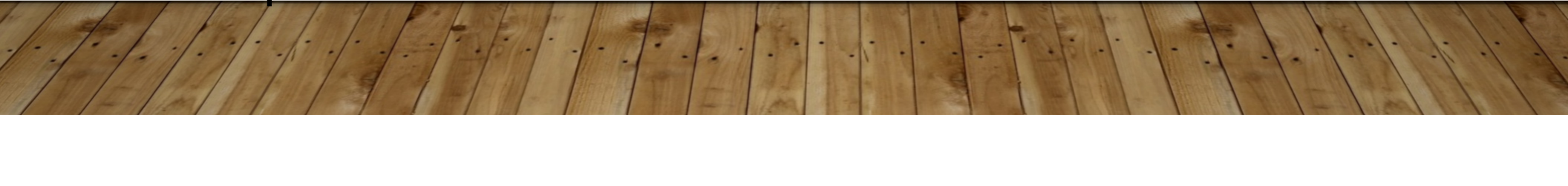
# 9 PROJECT BENEFITS (SO FAR)

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- Accelerated option for students 2 levels below College Math
- Developmental course aligned to program of study
- Data collection/analysis to assist with evaluation of current courses, success rates, streamlining efforts
- Engagement of faculty (ground up efforts)
- Collaboration across institutions (2 and 4-year)
- Opportunities for improvement (course content, delivery and student success rates)
- Access to FITW Senior Advisors (Dr. Uri Treisman to visit AACCC April 21, 2016)

# 0 PROJECT CHALLENGES (SO FAR)

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- Tight timeframe for course development, recruitment and implementation
  - Internal negotiation about where this reform fits with other campus level reform efforts
  - Advising challenges/multiple choices and pathways for students—  
is the advisor's responsibility/obligation to the student?
  - Working with disciplinary faculty from across campus to align mat requirements.
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# WHERE ARE WE NOW?

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- Courses have been developed (Summer and fall 2016) and piloted (Spring 2017)
- Pilot data has been analyzed to inform data collection process and advising procedures
- FITW courses will roll out in Fall 2017
  - Faculty identified to teach newly developed courses
  - Faculty creating and sharing course materials for fall implementation
  - Initial advising and admission has taken place, and pilot results are being shared with partners

# QUESTIONS?

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