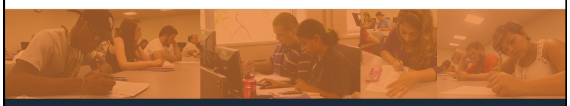
Dana Center
Mathematics
PATHWAYS

Emerging Issues in Mathematics Pathways

Connie Richardson
Charles A Dana Center

National Numeracy Network — October 14, 2018



Partner Chat

Please discuss one or both of the following:

- What you know (or want to know) about mathematics pathways.
- The current state of math pathways at your institution.

DCMP Vision

Dana Center Mathematics PATHWAYS dcmathpathways.org

The DCMP seeks to ensure that **ALL** students in higher education will be:

- **Prepared** to use mathematical and quantitative reasoning skills in their careers and personal lives,
- **Enabled** to make timely progress towards completion of a certificate or degree, and
- **Supported** and **Empowered** as mathematical learners.

Dana Center Principles for Pathways

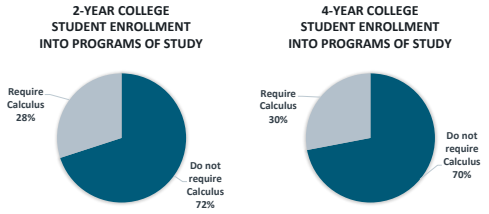
Mathematics pathways are structured so that:

1) All students, regardless of college readiness, enter directly into mathematics pathways aligned to their programs of study.
2) Students complete their first college-level math requirement in their first year of college.

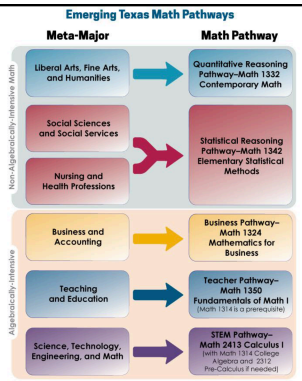
Students engage in a high-quality learning experience in math pathways designed so that:

3) Strategies to support students as learners are integrated into courses and are aligned across the institution.
4) Instruction incorporates evidence-based curriculum and pedagogy.

Who takes Calculus?



Source: Burdman, 2015; Chen & Soldner, 2013



The Problem and Two Solutions

Example of the problem:
Criminal Justice Majors at Sam Houston State University have options:

- Any Core Math (Core list starts with Precalculus)
- Students tend to choose the first course in the list (lowest number)

Examples of two solutions:

Criminal Justice Majors at University of North Texas

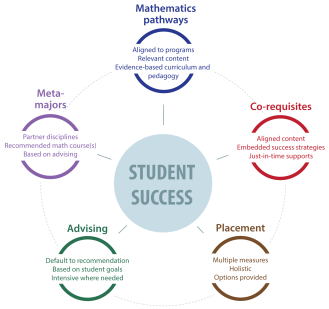
- Any Core Math (but Precalculus is not in the core!)

University of Texas at Arlington

- Math 1301 (Quantitative Reasoning) or higher
- Give QR the lowest course number so that students will choose it.

Third solution: List QR as the Required or Recommended course.

Comprehensive Redesign



Monograph: *Emerging Issues in Math Pathways*

- Faculty and Classroom Issues:
  - QR, Statistics, the path to Calculus, co-requisites
- Leadership at Campus, System, and State Levels:
  - Successes and challenges, state case studies, HS to college transition
- Policy:
  - Major state and institutional level considerations
- Equity issues
- Coming soon! Watch for the release of the monograph.

Support your work

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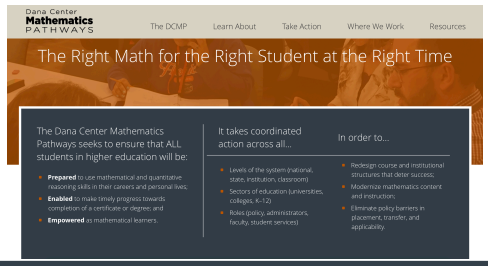
http://www.dcmathpathways.org/



Contact information

- General information about the Dana Center:
  www.utdanacenter.org
- Dana Center Mathematics Pathways Resource Site:
  www.dcmathpathways.org
- To receive monthly updates about the DCMP, contact us at:
  dcmathpathways@austin.utexas.edu
- Connie Richardson, Manager, higher education course programs
  cjrichardson@austin.utexas.edu

About the Dana Center

The **Charles A. Dana Center** at The University of Texas at Austin works with our nation's education systems to ensure that every student leaves school prepared for success in postsecondary education and the contemporary workplace.

Our work, based on research and two decades of experience, focuses on K–16 mathematics and science education with an emphasis on strategies for improving student engagement, motivation, persistence, and achievement.

We develop innovative curricula, tools, protocols, and instructional supports and deliver powerful instructional and leadership development.

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Charles A. Dana Center

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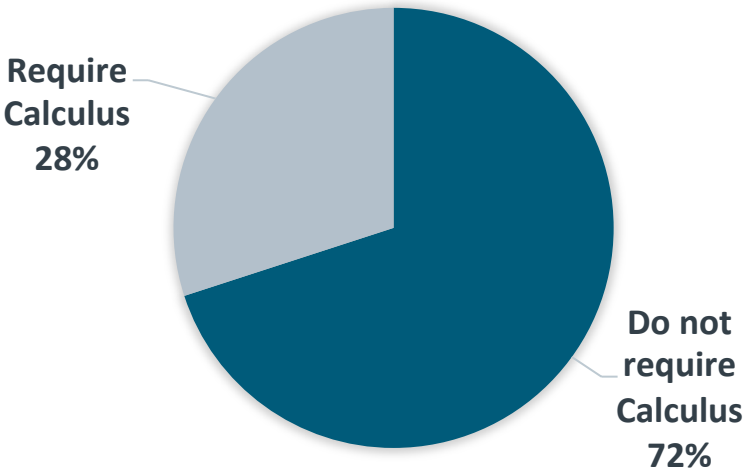
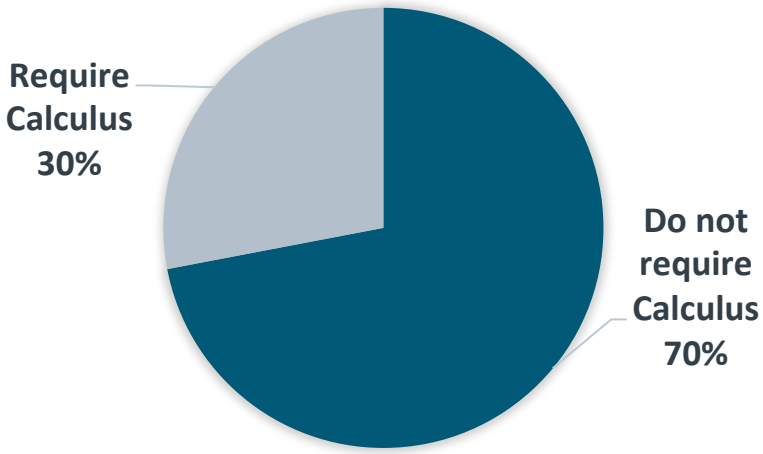
Who takes Calculus?

2-YEAR COLLEGE STUDENT ENROLLMENT INTO PROGRAMS OF STUDY



4-YEAR COLLEGE STUDENT ENROLLMENT INTO PROGRAMS OF STUDY



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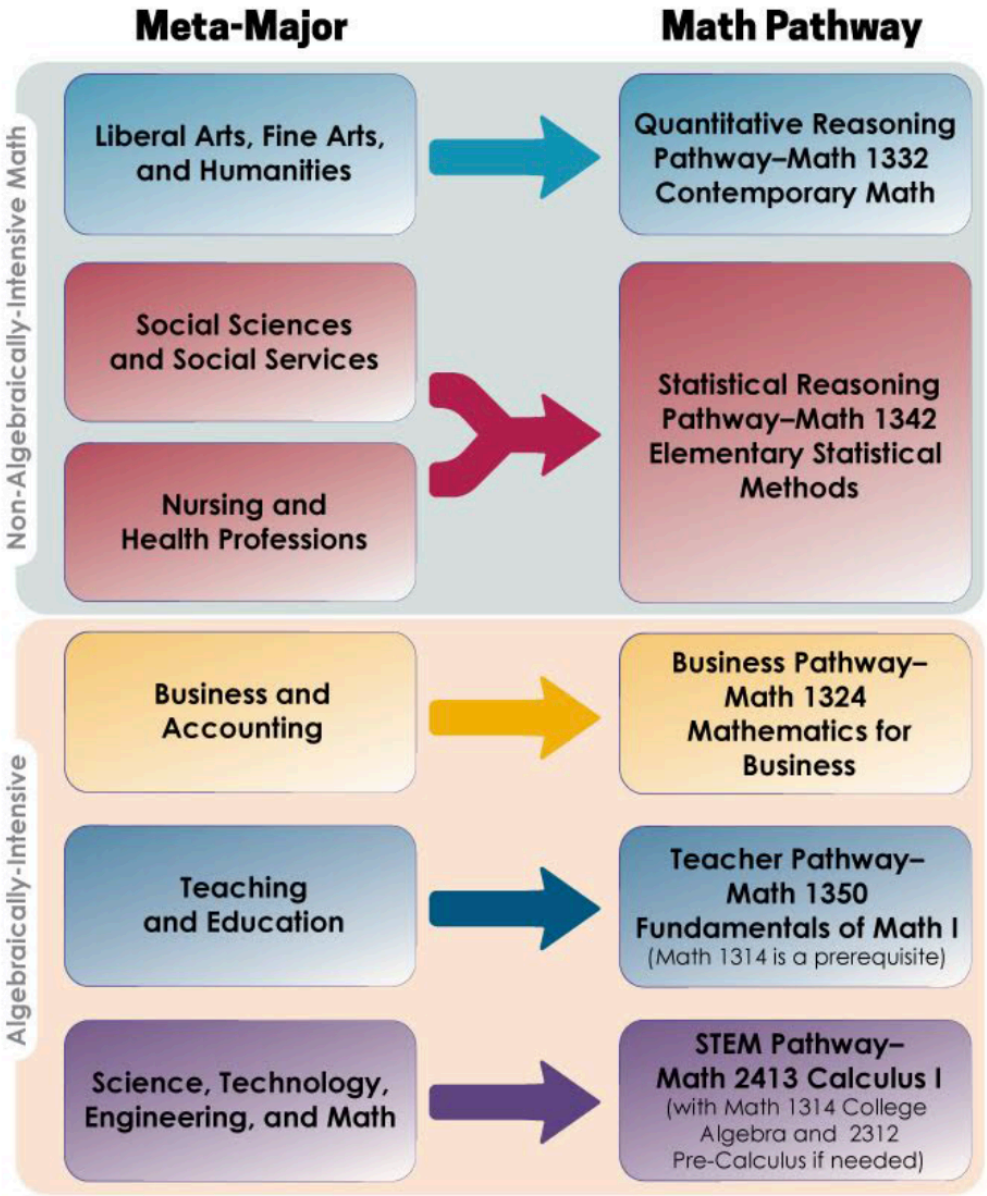
Emerging Texas Math Pathways



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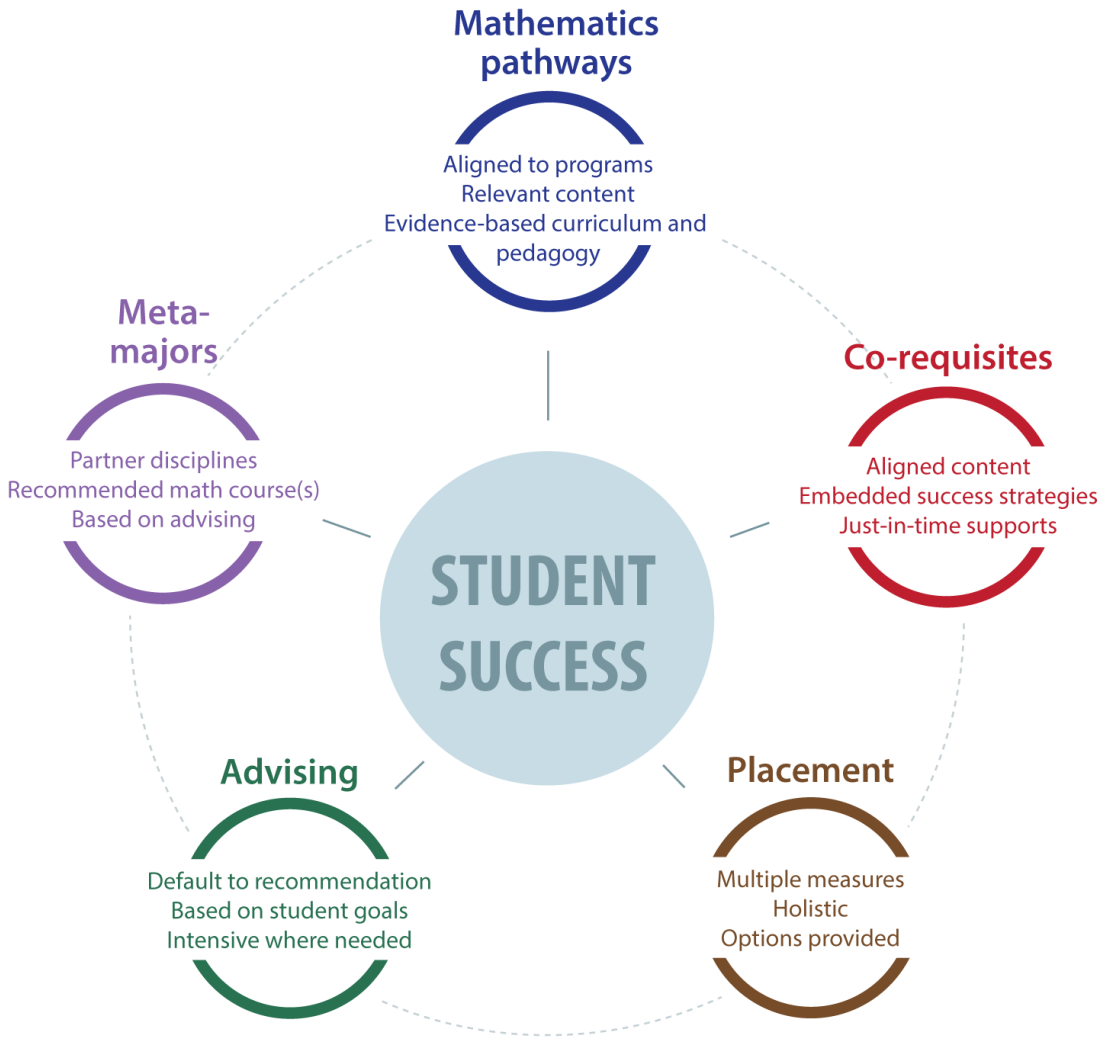

Types of Quantitative Reasoning

- Campus-wide initiatives to improve students' quantitative reasoning skills.
- Individual instructor efforts to improve course success by improving students' quantitative reasoning skills.
- Required capstone/gen ed course or assessment for all students.
- Freshmen-level course for math credit, for programs that don't have specific algebraic or statistical needs.

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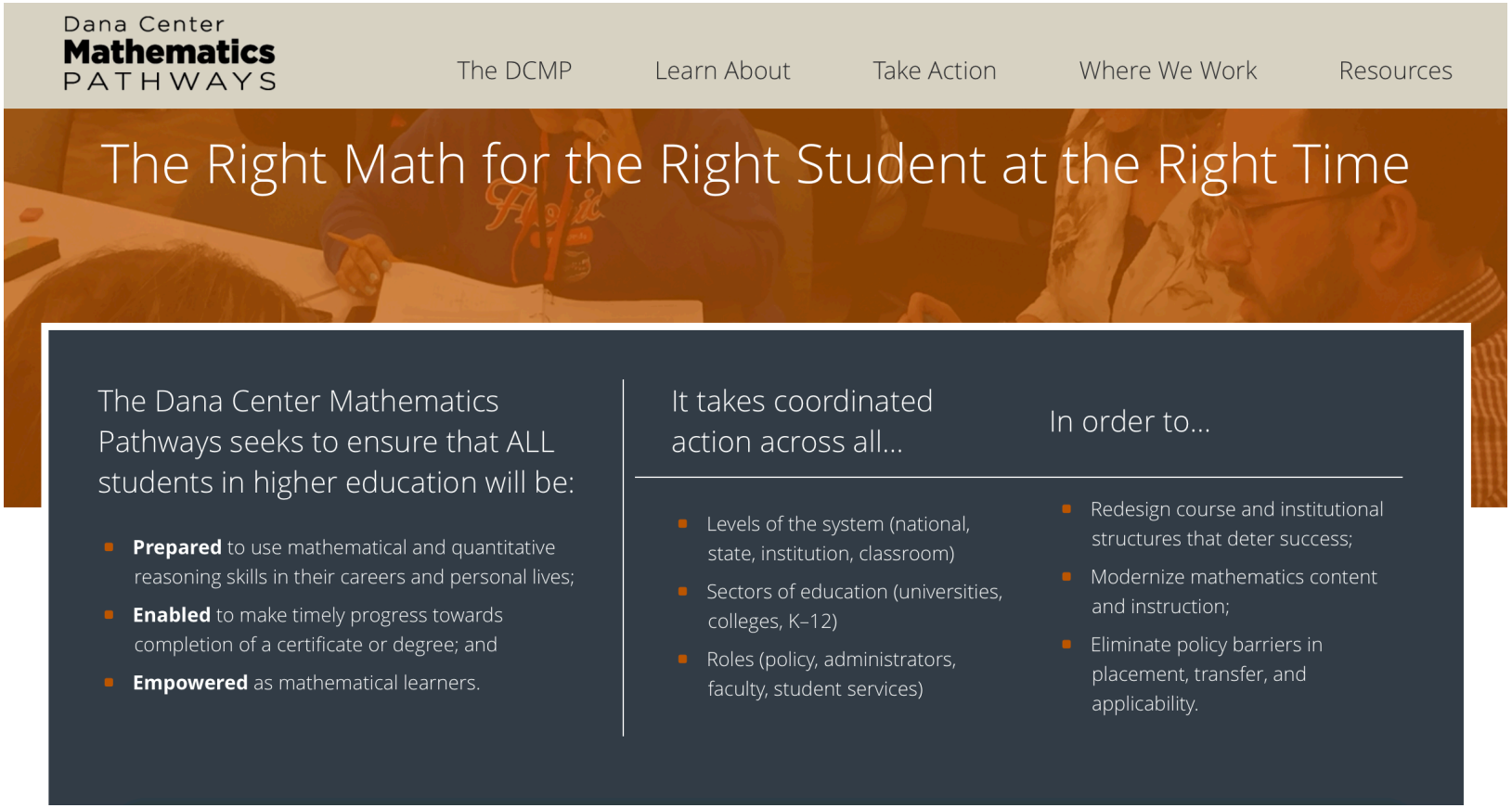

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