WestEd Perspectives

# Realizing the Promise of Modern Postsecondary Math Pathways

Amy Getz and Ann Edwards // 2025

**After more than a decade of work by faculty, researchers, and content experts, the math pathways movement—which promotes establishing first-year math courses such as Statistics and Quantitative Reasoning aligned with programs of study—has made great progress across the country in increasing student success in gateway college math. For example, in Tennessee, math pathways combined with corequisite supports increased success in the first college-level math course by 15 percentage points (Ran & Lin, 2022). This matters because earning a college math credit has been linked to higher rates of postsecondary completion (Wang et al., 2017), and many researchers and higher education system leaders consider completion of math in the first academic year a critical momentum point (Karp, 2018).**

**Yet the full potential of establishing math pathways designed to meet the needs of today's students and society is yet to be realized, leaving hundreds of thousands of students to face unnecessary obstacles to achieving their goals every year.** Too many students are still stuck in poorly designed course pathways, struggling to learn uninspiring content. Too many faculty are not supported well in improving instructional practice. And too many department chairs and deans lack the tools for leading transformational change.

This is a moment to apply what has been learned over the past decade to ensure that every student has the opportunity to attain a postsecondary certificate or degree. Research and experience have established what works and how to implement the changes effectively and efficiently.

## What the Research Says About Postsecondary Math Pathways

It is possible to dramatically increase student success in math, especially gateway math courses, through well-defined modern pathways with the following characteristics:

- corequisite supports that allow all students to enter directly into a college-level course aligned with their goals (Kim, 2024)
- content that aligns with programs of study leading to careers of value (Education Strategy Group & the Charles A. Dana Center, 2025; Keadle, 2022)
- courses that are transferrable and applicable to degrees across the 2- and 4-year sectors (Martin, 2022)
- evidence-based instructional practices combined with holistic student supports (Bickerstaff & Dadgar, 2023; Cho et al., 2025)

## Actions for State and Local Policymakers and Leaders

**Replace prerequisite developmental education with corequisite supports.**

Extensive evidence from states and institutions across the country consistently shows that student success in gateway math courses can be dramatically increased with the use of corequisite supports—meaning that students receive extra support to succeed in a gateway course *while they are in the course* instead of having to take one or more developmental courses as prerequisites.

**Implement math pathways that develop the knowledge and skills needed for the modern workforce and help students transition smoothly from secondary to postsecondary education and on into their careers.**

A suite of modern math pathways should include quantitative reasoning and statistics in addition to the traditional pathway to calculus. These pathways should be well aligned from high school to and through the full range of postsecondary options, with guaranteed transferability and applicability for students who choose to pursue a 4-year degree. This alignment is best accomplished through a multisector, multidisciplinary effort with math faculty working with K–12 and partner disciplines that rely on mathematics for their programs, with workforce and industry representatives, and with policy experts to address course content, structure, and alignment.

## What WestEd Can Do to Help

WestEd's services are led by math educators who have been in the classroom, and they are designed to address the unique needs of math faculty. WestEd team members have worked in every aspect of the educational experience, including curriculum development, student supports, professional learning, leadership coaching, and policy. Services include the following:

- supporting departments in implementing math pathways, corequisite supports, and improvement processes
- facilitating cross-sector work to align math pathways with K–12 and workforce needs
- facilitating professional learning communities to improve instructional practices
- building faculty capacity in topics such as online course design, the effective use of generative artificial intelligence (GenAI), and strategies to increase student motivation and persistence

**Learn more about our math work and services at www.wested.org/focus-area/mathematics-education/.**

**Support faculty and staff in implementing evidence-based classroom policies, instructional practices, assessments, and student supports.**

Once effective course structures that give students access to college-level courses are in place, instructor practice is the single most important factor in student success (Bickerstaff & Dadgar, 2023). When given the right tools through effective professional learning, faculty can not only increase student outcomes but also create learning experiences that increase motivation and persistence and inspire students to take more math.

**Do not silo improvement areas.**

The three areas of work listed above are closely linked; the most successful efforts will attend to the trifecta of building course structures within effective modernized math pathways that are taught using evidence-based practices and student supports.

## References

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