Corequisite Mathematics Toolkit

Policy Typology

State and higher education system policy is an increasingly important factor driving the adoption and scale of corequisite mathematics. Since these policies have the power to define what counts as "corequisite mathematics" and establish the rules for how institutions scale student supports, it is imperative they account for the evidence-based best practices identified in the Corequisite Design Principles.

Author: Jeremy Martin and Bruce Vandal, The Charles A. Dana Center at The University of Texas at Austin

Contact: dcmathpathways@austin.utexas.edu

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Every student deserves a strong start in their first year of college. This toolkit is part of a SSTF three-part series, providing resources to assist postsecondary leaders design and implement reform strategies that support equitable outcomes for students who are marginalized and racially minoritized.

The University of Texas at Austin
Charles A. Dana Center

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State and higher education system policy is an increasingly important factor driving the adoption and scale of corequisite mathematics. In a national survey from 2019, researchers at MDRC asked respondents to identify the most influential factors driving their institutions' decision to adopt corequisites.[6] The results found that, on average, state policy is cited less frequently than other factors. However, in states that have strong mandates for corequisites (such as Tennessee, Georgia and Texas) policy is identified as an essential driver for scaling reforms.

Since state- and system-level policies have the power to define what counts as "corequisite mathematics" and establish the rules for how institutions scale student supports, it is imperative that policies account for the evidence-based best practices identified in the Corequisite Design Principles. To that end, this typology uses policy-relevant criteria derived from the Corequisite Design Principles to evaluate whether or not state policies establish standards for high-quality, equitable corequisite structures. There are more than a dozen states and systems included in the analysis, each of which is funded by SSTF.

The analysis primarily considers official documents, such as state legislation or administrative rules, that explicitly mandate that institutions of higher education adopt corequisite mathematics. Since many of the states and systems that we reviewed are voluntarily adopting corequisite math supports in the absence of a policy mandate, there are relatively few examples of policies that meet the high standards established in the Corequisite Design Principles. However, the examples that do exist can offer valuable lessons for policy leaders to consider while formulating corequisite mathematics policies.

The sections below offer a summary of the key findings from the state policy scan. The full dataset can be found here.

Rutschow, E. Z., Cormier, M. S., Dukes, D., & Zamora, D. E. C. (2019). The Changing Landscape of Developmental Education Practices: Findings from a National Survey and Interviews with Postsecondary Institutions. Center for the Analysis of Postsecondary Readiness.
Retrieved from https://www.mdrc.org/publication/changing-landscape-developmental-education-practices.

Corequisite Design Principle	Policy Criterion	Analysis	State Example
1. Objective	The policy articulates that the goal of the reforms are to: • Increase student success in college-level math courses in their first academic year. • Enroll students in college-level math courses that are aligned to a student's program of study. • Deliver corequisite supports that would increase the likelihood of students completing the college-level course.	Policies intended to scale corequisite math should include language that specifically articulates objectives identified in the criteria. Policies that do not include a clear statement of purpose run the risk of having institutions designing interventions that may focus on only some of the essential elements of a corequisite strategy, employ corequisites without fidelity to the primary objective, or focus on entirely different objectives altogether. Among the policies examined, very few met all three components of the established criteria. Consequently, implementation and results achieved may not be aligned with the benefits of the intervention. Without the policy focusing on enrolling students in college-level math courses aligned to their academic goals, institutions may engage in advising and registration practices that could track students into programs of study misaligned with their goals. This creates the possibility for inequitable access for Black, Latinx and other racially minoritized communities. Without expressly articulating that corequisites should be implemented to support students who require additional academic support, students may still be placed into either prerequisite remedial courses or other interventions that don't have the evidence base to support student success.	The Colorado Commission on Higher Education Approved Policy, Section 1, Part E articulates that the objective of the state policy to implement corequisite supports and multiple measures for placement is to increase student success in college-level math courses in the first academic year, and to deliver corequisite supports to increase the likelihood that students complete a college level course. The policy does not specifically articulate the objective to make sure students are placed in the appropriate gateway course aligned to a student's program of study. As a result, it is possible that students could be placed into math courses that are not aligned to a student's postsecondary goals.

Corequisite Design Principle	Policy Criterion	Analysis	State Example
2. Design Process	The policy: • Makes clear that traditional pre-requisite remediation models are ineffective and have a disproportionately negative impact on Black, Latinx, Indigenous or other students from minoritized communities. • Eliminates the use of ineffective and inequitable prerequisite remedial courses. • Defines scaled implementation as placing students in the college-level math course aligned to their program of study and/or the corequisite supports that will maximize their likelihood of completing the college-level math course in their first academic year. • Clarifies when an institution should fully implement reforms. • Expects implementation to result in both improved and equitable outcomes for students.	In order to make the case for reform, policies should articulate the evidence-based rationale for change and provide actionable guidelines for implementing, scaling and evaluating the policy. In particular, research demonstrating how traditional prerequisite remediation contributes to educational inequity for racially minoritized students needs to be made clear to those responsible for implementation. Likewise, the strong evidence in support of corequisite supports, above all other interventions, suggests that policies that allow for other interventions without a similar evidence base risk not maximizing the impact of the interventions. There are several excellent examples of specific design process components, but no states fully met the criteria. Most fall short by not being clear about their definition of scale. Some still allow for some prerequisite remedial education, while others don't guarantee access to the college-level course in their program of study or that the goal is to complete the college-level course in the first academic year. Finally, the policies did not expressly set a goal of achieving more equitable outcomes.	The University System of Georgia's Corequisite Learning Support Manual clearly articulates that because of the ineffectiveness traditional remedial education, the system will end the practice of prerequisite remedial education and implement corequisite supports. The policy also makes clear that the result of the reforms will be improved and more equitable outcomes. The policy does not specify that students should be placed into the course aligned to their program of study.

Corequisite Design Principle	Policy Criterion	Analysis	State Example
3. Elements	The policy: • Clearly defines a corequisite course as enrolling students in college-level courses and providing just-in-time academic support while the student is enrolled in the college-level course. • Articulates design elements for corequisites that are consistent with research and evidence-based practice. • Allows for varied implementation based on institutional capacity, institutional resources and the students they serve.	Policies should strike a balance between a clear definition of the term "corequisite" to include the implementation of evidence-based practices that have proven to improve student success, while allowing flexibility for faculty to implement corequisite supports within their particular context — mindful of constraints such as institutional resources and student enrollments. Most of the policies had clear definitions requiring corequisite supports to occur in the same semester as a student enrolls in a college-level course. Some of the definitions were either unclear or explicitly allowed academic support to precede delivery of the content in the college-level course. As a result, some policies allow for models that permit several weeks of remedial content to be delivered, followed by the college-level content. Many of the policies did not meet that standard. Very few policies articulated evidence-based design elements; but those that did made sure to outline the number of credits for a corequisite course, and in some cases made clear how to align instruction between the college-level course and the corequisite.	California State University System Executive Order 1110 provides a clear definition of a corequisite course as enrolling a student in college-level courses and providing just-in-time academic support while the student is enrolled in the college-level course. The policy articulates design elements that are consistent with research and evidence-based practice, but also provides for varied implementation by institutions.

Corequisite Design Principle	Policy Criterion	Analysis	State Example
4. Enrollment	The policy: • Ensures students have access to the college-level math course aligned to their program of study. • Uses assessment to design and deliver instruction that will maximize the likelihood of student success in the college-level math course. • Articulates the use of multiple measures to include high school GPA and/or high school performance in math courses to determine whether enrollment in corequisite supports will increase the likelihood that students will pass the college-level course. • Mandates corequisite supports when evidence-based measures demonstrate they will increase the likelihood that a student will pass the college-level course.	Course enrollment practices should focus on ensuring that students have equitable access to college-level math courses aligned to their chosen program of study. Assessment policies should not focus on finding precise measurements to "accurately" place students into prerequisite remedial education. Because no single measure or combination of measures can precisely determine whether or not a student should be placed into a college-level course, institutions should use assessments to assist students in their choice of a program of study. Institutions can enroll them in the college-level course for their chosen program of study and design instruction that will maximize their likelihood of passing the college-level course. Most of the policies implemented some form of multiple measurement system using high school performance to assess readiness in college-level courses. However, most did not clarify that the assessment data would be used to ensure access to college-level courses aligned to their program of study. None of the policies articulated that assessment data should be used to design and deliver instruction.	Nevada System for Higher Education Co-Requisite and College-Ready Gateway Policy clearly articulates that institutions should use multiple measures to include high school GPA to determine placement in corequisite supports. The policy also mandates the use of corequisite supports for students who do not place directly into the college-level course. The policy does guarantee access to a college-level math course, but not necessarily the math course aligned to a student's program of study. The policy does not require assessment data be used to design and deliver instruction.

Corequisite Design Principle	Policy Criterion	Analysis	State Example
5. Student success	The policy: • Clarifies that corequisite supports in college-level courses should be implemented along with multiple math pathways that are aligned to programs of study at the institution. • Outlines that corequisite supports should be implemented in a manner that complements and/or encourages the adoption and implementation of other evidence-based student success strategies.	Given that the goal of policy is to ensure access and equitable success in gateway math courses, math pathways and other student support strategies should be aligned to the implementation of corequisite math. Institutions should design a comprehensive success strategy to include math pathways. Once math pathways are established, institutions must advise students on choosing a program of study; enrolling them in the appropriate gateway math course; providing clear degree maps; and engaging in ongoing advising to ensure students make progress toward completion. Policy should clarify that implementation of multiple measure assessment and placement practices and corequisite supports may increase access and success in gateway math, but other support structures should be designed to assist students with both choosing and progressing through their program of study. Few of the policies examined included language connecting assessment and placement or corequisite supports to broader student success strategies. Those that did make reference to other student support strategies emphasized the necessity of combining corequisites with math pathways and the importance of connecting choice of a gateway math course to their chosen program of study.	Texas Administrative Code, Chapter 4, Subchapter C for the Texas Success Initiative clarifies that the implementation of multiple measures placement should be combined with the implementation of other student success strategies to include math pathways, career advising, student support services, degree plans and proactive advising.

Corequisite Design Principle	Policy Criterion	Analysis	State Example
6. Continuous improvement	The policy: • Articulates that institutions will collect and/or report data on student enrollment in gateway math courses and corequisite courses. • Articulates that institutions will collect and/or report success in gateway math courses in student's first academic year, disaggregated by students who receive corequisite supports and those who do not receive corequisite supports. • Requires the state system, state higher education executive officer or other designated state entity to issue a report on the implementation of state/system policy and outcomes achieved. • Articulates that data collected and reported by institutions and systems should contribute to continuous improvement efforts.	State and system policies should establish common metrics for institutional data collection and reporting in order to evaluate the impact of the policy. In the case of corequisite math implementation, data systems should track student enrollment and completion of college-level math without supports, with corequisite supports, and with prerequisite developmental math. Policy should require public reporting of data to a primary governing body. However, it is equally important that the policy articulate the need for data to drive continuous improvement practices at institutions. Many of the policies studied had data collection and reporting requirements, outlined regular reporting, and, most importantly, articulated the importance of using data to drive continuous improvement.	Nevada System of Higher Education Corequisite Implementation Task Force Corequisite Implementation Action Plan - Part 2 articulates that institutions will collect and report data on student enrollment in college-level and corequisite courses, success in gateway courses in the first academic year that is also disaggregated by students who receive corequisite supports and those enrolled directly in college-level courses. The plan also makes clear that the Nevada System of Higher Education will produce a report on the implementation of the policy and that data should drive continuous improvement efforts.

Corequisite Design Principle	Policy Criterion	Analysis	State Example
7. Equity	The policy: • Requires all data that is collected and/or reported to be disaggregated by race/ethnicity, Pell status, age and gender. • Sets expectations for institutions to develop plans for addressing any inequities in access to college-level courses or student success in college-level courses.	Given the disproportionately negative impact that developmental education has had on Black, Indigenous, and other racially minoritized student populations, policies should emphasize that reforms will address historic inequities generated from previous developmental education policy. New policy should require that institutions report student-level data that is disaggregated by as many demographic categories as feasible for meaningful equity analysis. In addition, policy should support institutions in using the data to engage in continuous improvement practices to ensure equity of impact across student groups. The policies that were examined often articulated the importance of disaggregating data by race/ethnicity, age, gender and other student demographics, but few required institutions to use data to develop plans for ensuring equity.	Tennessee Board of Regents Fundamental Features of Co-requisite Remediation does not explicitly require the disaggregation of data by race/ethnicity, gender, age or Pell status, but makes clear that institutions should develop plans to ensure that reforms will generate equitable outcomes.
8. Professional development	The policy: • Outlines the obligations of postsecondary systems and institutions to support professional development or other support for faculty and other stakeholders responsible for implementation of policies.	As institutions shift from the delivery of traditional prerequisite remedial instruction, faculty will need professional development opportunities to support the design and implementation of corequisite courses. In some cases, faculty who had previously taught remedial courses may require additional learning in order to meet accreditation requirements for teaching college-level courses. Policy should articulate the obligations of the system and institutions to ensure faculty receive the professional development needed to implement corequisite reforms by utilizing evidence-based instructional practices. While many of the policies examined were silent on the question of professional development, several articulated clear obligations and plans for ensuring faculty are supported as they transition to a new instructional model.	Developmental Education Strategic Roadmap from Minnesota state specifically articulates that improving student success in developmental education will require investments in professional development for faculty, staff and administrators.

About This Toolkit

The development of this toolkit was guided by the advice of a national advisory panel made up of experts who have worked deeply with corequisites across a variety of roles and contexts. The panel includes researchers, policymakers, faculty members, equity advocates and curriculum experts who collectively articulated a consensus statement on the foundational core of this toolkit, the "Corequisite Design Principles" document and vetted the associated resources.

About The Authors

Project Lead

Connie Richardson, Course Program Manager, The Charles A. Dana Center at The University of Texas at Austin

Connie leads the curriculum development team for the Dana Center Mathematics Pathways, a transformative redesign to modernize entry-level college mathematics programs through working with states, systems, universities and colleges. She also supports the development of DCMP's professional learning offerings related to curricular redesign, corequisite supports and pedagogy. In this work, Connie collaborates with faculty to identify best practices and disseminate to the field.

Contributors

- **Amy Getz,** Dana Center
- **Jeremy Martin,** Dana Center
- **Afi Wiggins**, Dana Center
- **Jen Dorsey,** Dana Center
- **Ophella Dano,** Dana Center
- **Bruce Vandal,** Principal, Bruce Vandal Consulting
- **Karon Klipple,** Senior Director, Carnegie Math Pathways

National Advisory Panel

- **Tristan Denley,** Executive Vice Chancellor for Academic Affairs and Chief Academic Officer, University System of Georgia
- **Nikki Edgecombe,** Senior Research Associate, Community College Research Center, Teachers College, Columbia University
- **Karon Klipple,** Senior Director, Carnegie Math Pathways
- **Connie Richardson,** Course Program Manager, The Dana Center
- **Anders Stachelek,** Assistant Professor, Mathematics, Hostos Community College
- **Bruce Vandal,** Principal, Bruce Vandal Consulting

About The Charles A. Dana Center

The Dana Center works to dismantle barriers in education systems to ensure all students—especially those who have historically been underserved—have equitable access to and success in an excellent math and science education. Our higher education work focuses on strategies and tools that support faculty and institutions in creating more seamless transitions from high school to and through gateway mathematics courses.

About Strong Start to Finish

Strong Start to Finish is a network of policy and research partners, institution and systems leaders, and foundations advancing system reforms in developmental education, so every student can succeed in their first year of college. In particular, we support college success for Black, Brown, Asian American, Indigenous students, adult learners, and students with low incomes, who have been underserved by the education system for too long. We work to scale the use of proven, proactive strategies that remove barriers that typically impede these students from earning essential college credits in English and Math courses in their first year. Education Commission of the States is the host of the Strong Start to Finish network.

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