The University of Texas at Austin
Charles A. Dana Center

Notes from the Field – February 2023

One-Time Corequisite Courses May Not Be Enough: Colleges Explore More Holistic Supports

This summary is part of the Charles A. Dana Center's "Notes from the Field" series, which highlights examples of innovative practices from colleges, universities, and systems.

TAKEAWAYS

- *Growing evidence reveals that many students enrolled in corequisite support in English and/or mathematics are struggling in their other courses.*
- *Colleges need to do more than offer one-time supports via corequisite courses for English and math gateway courses to ensure that students complete required coursework, persist in their studies to accumulate required credits, and earn degrees.*
- *A number of postsecondary systems and individual institutions are planning to include more holistic support systems, when implementing math pathways with corequisites, for incoming students' successful transition.*

Introduction

A growing body of research shows that corequisite learning supports are much more effective than traditional prerequisite remediation sequences in helping students pass gateway mathematics courses.[1] A number of postsecondary systems and individual institutions have implemented corequisites and math pathways for several years, and are monitoring patterns to determine whether these supports are sufficient and where students may need additional interventions to achieve academic success.

Analyses conducted in Georgia and New York at the system level and in Oklahoma at the institution level revealed that, in many cases, students who failed math corequisite and college-level course pairs also struggled in other subject areas during the same term. These findings aligned with similar data found in an earlier study conducted in Tennessee. Data suggest that corequisite supports alone are insufficient to promote college success for some students.

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State and institution leaders are piloting a variety of holistic strategies to identify and intervene with students who are in need of additional, often non-academic, support to be successful in their corequisite and college-level course pairs and in the remainder of their courses.

Gathering Data

Tennessee and Georgia

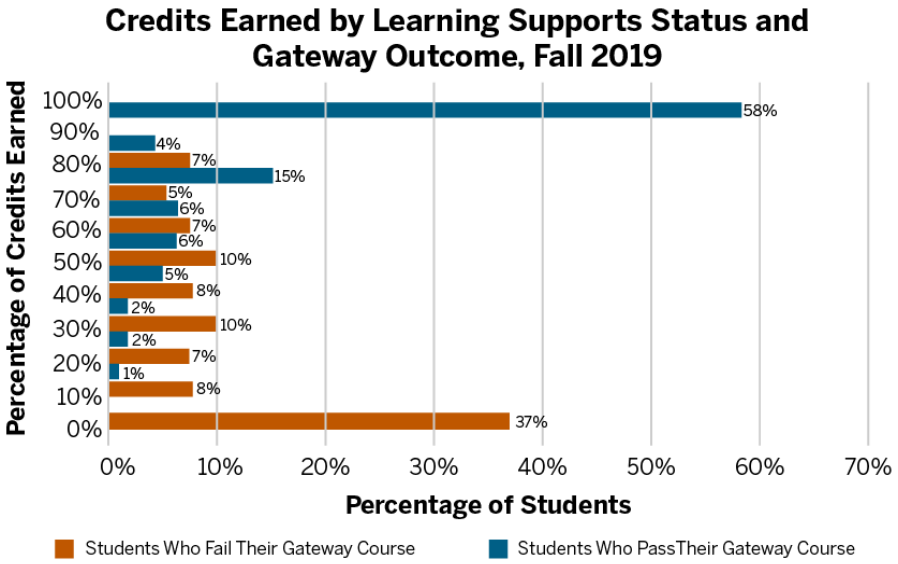
Since fall 2015, community colleges and universities in Tennessee have used a corequisite model for all students who are identified as "not college ready" in either English or mathematics. The Tennessee Board of Regents (TBR) analyzed gateway course pass rates for students enrolled in the corequisite model compared to those in the previous prerequisite model and found that corequisite support was much more effective.[2]

TBR also examined how students performed across the rest of their academic studies while enrolled in corequisite courses. The study revealed that students who were successful in their corequisite pairs were also successful in their other classes, earning roughly 85 percent of the hours that they attempted. However, students who were unable to earn passing grades in either the corequisite or the gateway course on average earned credit for only 20 percent of the hours that they attempted. In fact, more than two-thirds of those students failed every class they attempted that year.[2]

In 2018, the University System of Georgia (USG) also fully scaled their systemwide corequisite model for college English and math. USG reviewed initial pilot data in 2017 from across its 26 public universities and colleges, and discovered findings similar to those of Tennessee. Compared to results from previously used developmental models in Georgia, the corequisite approach doubled success rates in freshman mathematics while increasing the success rates in freshman writing by 50 percent. These improvements held true for students at every preparation level and in every demographic segment.[3]

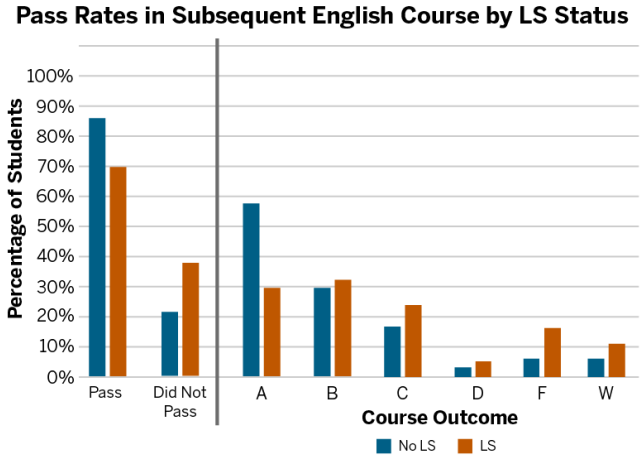
USG measured corequisite outcomes and overall student success for students in fall 2019 and found a clear relationship: Students who passed their gateway courses were much more likely to complete 100 percent of their credits in the same semester, and students who failed their gateway courses were much more likely to complete 0 percent of their credits.

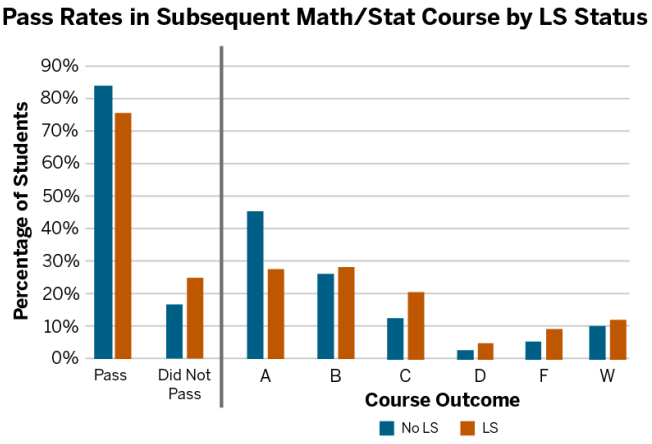
Figure 1. Corequisite Outcomes and Overall Success



USG also found that students initially identified as requiring learning supports (LS) were more likely to struggle in their subsequent courses than their peers, with over 30 percent of them failing their subsequent English classes and 25 percent failing their subsequent math classes. Associate Vice Chancellor for Student and Faculty Success in the Office of Academic Affairs at USG, Jonathan Hull, stated that "corequisites represent a part of a larger solution."

Figure 2. Outcomes in Subsequent Courses





City University of New York System

Another university system, the City University of New York (CUNY), which comprises 25 campuses across New York City, observed similar trends to those found in the Tennessee and Georgia analyses. Researchers at CUNY examined the outcomes of almost 5,000 students enrolled in math corequisite courses in fall 2019. Of the 36 percent of students who failed the corequisite math courses, almost half of them failed all of their other courses that semester, and only 55 percent continued their studies the following semester.

Table 1. CUNY Students[4]

Corequisite Math Outcome	Passed Corequisite (64%)	Failed Corequisite (36%)
Mean GPA (not including corequisite)	2.54	1.19
% Failing all courses other than corequisite	6%	40%
% Retained next semester	83%	55%

Oklahoma State University Institute of Technology

In a study at the institution level, Oklahoma State University Institute of Technology (OSUIT) found that 81 percent of students who failed their corequisite math courses also failed most—if not all—of their other courses in the same semester.

> *The problem is larger than just corequisite and gateway courses.*
>
> - Dr. Heather Ortiz
> Oklahoma State University
> Institute of Technology

To understand student outcomes in gateway math and English more broadly, the School of Arts, Sciences, and Health (SASH) examined key leading data indicators (momentum metrics) for students who graduated and those who did not (either inactive or stopped out). Dr. Heather Ortiz, the assistant dean of SASH, reviewed data of 213 students who began the program in fall 2019 and found that 27 percent of students who graduated by summer 2022 had been identified as "academically underprepared" by OSUIT academic placement guidelines, and 74 percent of graduating students had completed their gateway English and math courses in the first year of college. On the other hand, 60 percent of students who had not graduated by summer 2022 had been identified as "academically underprepared," with 15 percent completing their gateway English and math courses in the first year of college.

Table 2 highlights momentum metrics for the fall 2019 SASH cohort. Dr. Ortiz concluded that "the problem is larger than just corequisite and gateway courses."

Table 2. OSUIT Fall 2019 Cohort

		Momentum Metrics					
	Required ENGL and/or MATH corequisite support	Completed Gateway ENGL and MATH in first year	Completed at least 15 semester credit hours (SCH) in first year	Completed at least 24 SCH in first year	Completed at least 30 SCH in first year	Persistence rate Fall-Spring	One year retention rate Fall-Fall
Graduated (46% of the cohort)	27%	74%	94%	50%	34%	99%	96%
Inactive or Stopped Out (44% of the cohort)	60%	15%	35%	22%	7%	61%	32%

Findings from the postsecondary systems in Georgia and New York, along with results from OSUIT, aligned with data found in the earlier analysis by the Tennessee Board of Regents (TBR). These studies add to a growing body of research suggesting that, while corequisite courses are more effective than prerequisite courses, there is much more that institutions can and should do to support and develop the skills of incoming students.

Corequisite Design Strategies

Several systems and institutions have decided, based on the data above, to analyze their current corequisite structures and content, and to implement strategies intended to support students who are at risk of failing their corequisite and college-level math and/or English courses.

A more holistic approach, for example, is embedded in how USG approaches placement into learning supports. Students admitted to USG institutions are assumed to need learning supports unless they have evidence indicating otherwise, such as high school GPA, test scores, or placement exams—an approach contrary to conventional placement. The assumption is that all students could benefit from some personalized attention and help, whether academic or non-academic.

Hull said the need is particularly high for what is referred to as "Gen C" (or "Generation Covid"). Incoming students who spent at least some of their high school years in remote learning during the COVID-19 pandemic may not only have academic learning gaps, but they also appear to have more general skill gaps. Hull and his colleagues have observed that these students are less likely to ask questions and seek help, less comfortable working in groups with peers, and less likely to see themselves as self-directed, confident learners. These new cohorts of students seem tentative and anxious, are often deterred by any kind of setback, and may choose to withdraw from classes rather than persevere.

Hull also noted that, although corequisite support can be delivered in a variety of ways, USG found that structural choices (e.g., cohort vs. comingle model, alignment of content, using same vs. different instructors) impact student outcomes. Research shows that there should be strong alignment and linkages to the gateway course material, especially in math, which is very fact and process based. An effective strategy in Georgia is having the same faculty teach both the gateway course and the corequisite section so they can reinforce core concepts and provide just-in-time supports. If there are strong connections between the two courses, students are more likely to see them as valuable and fully participate. These findings are being used to make improvements in corequisite design at institutions in the state.

At OSUIT, SASH faculty who teach the math and English corequisite courses are making pedagogical revisions such as encouraging notetaking, identifying questions or concerns through exit tickets, and "flipping" classwork so that students can do some of the initial learning on their own at home to minimize the amount of time that teachers lecture. Corequisite support faculty are also normalizing well-being discussions to deepen relationship-building opportunities with students who need more support.

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"Students tend to form lasting relationships with one another and their instructors when placed in corequisite courses within their first-year experience," Susie Mauldin, math faculty at OSUIT, explained. "The support they receive helps to empower their mathematical learning and increase their self-esteem."

Strategies That Go Beyond Corequisites

In addition to examining the efficacy of the structures and content of the corequisite courses, systems and institutions are designing and implementing non-academic supports for corequisite students. These students often have needs beyond the academic content that are preventing them from passing the courses and being retained to the following semester.

USG faculty, for example, are committed to making adjustments to their learning support class structures and elements to help more students be successful. Some of their approaches include adding more time in the support course, supporting students' academic mindsets, and focusing on specific psychosocial skill development needs such as time management, notetaking, and how to ask for additional help.

Hull noted, "We have an opportunity now to take what we are seeing in these targeted courses and take it across the first-year curriculum so that all students are not only being exposed to core academic content but also to the knowledge, skills, and abilities it takes to be successful college learners." He shared an example from South Georgia State College where faculty from across different disciplines were trained on promoting growth mindset and are revising their syllabi to help students recognize that their academic abilities are not fixed but, in fact, can be improved over time.

This shared approach across courses and disciplines gives students common messages and shows that reinforcement is effective: The more classes that students have with this embedded mindset messaging, the higher the students' grades. These data correlated with previous research that showed how a growth mindset positively influenced academic performance.[5]

Another example of innovation to support student success can be found at Columbus State University in Georgia where the university has eliminated academic probation. When a student's GPA falls below

2.0, advisors perform an assessment of the student's needs and challenges, and develop a plan with that student to ensure the necessary supports are provided (e.g., access to transportation, mental health services, academic tutoring, time management skills). This more personalized approach helps students to stay in school and on track towards earning a degree.

At OSUIT, several strategies have been implemented to help students become aware of and access the wide range of academic resources and community connections available. Dr. Ortiz emphasized the importance of including student voices in possible solutions. When students at SASH were asked if they sought supports and found ways to get involved on campus, many reported that they did not know how or did not feel confident enough. Students appreciated the openness of faculty and staff but felt that accessing supports was not always easy.

Another approach being implemented at OSUIT to support students more holistically, especially academically underprepared students, is redesigning the first-year experience. OSUIT recently joined Complete College America's Policy, Equity, and Practice (PEP) initiative,[6] which involves campuses in Oklahoma, Arkansas, and Montana, and is planning several changes to increase student success and persistence. These changes are currently being tested and will be fully implemented by the end of 2023. One redesign strategy is to have SASH academic advisors proactively, and at times intrusively, communicate with students, asking them what they might need in order for advisors to identify roadblocks quickly and offer immediate support.

Adrian Tuggle, program support specialist and academic advisor, said, "Our school recently restructured the advisor–student caseload so that it is much more manageable, which is important for both quality and time when I connect with students. As advisors, we are working together to set policies and processes that align with evidence-proven advising practices to support students. It's exciting to see the changes we have made so far and where we are going."

Additionally, advisors serve as "allies" for an early alert program called "Dropout Detective." When faculty send an alert, allies communicate with students and connect them with necessary resources, tools, and supports to address both academic and non-academic issues.

Other strategies to improve the first-year experience at OSUIT include:

- Setting a registration hold for all incoming first-time freshman, first-time transfer, and readmit students to meet with their advisors to enroll in the appropriate courses aligned to their programs of study.
- Redesigning the "Cowboy Up!" new student orientation and the first-year success course (called "College Strategies") to streamline and reinforce timely, necessary information and skills needed for first-year success.
- Establishing and monitoring a SASH priority for students, especially academically underprepared students, to enroll and complete their gateway math and English courses in the first year of college.

These strategies at OSUIT are all part of an effort to establish what the school calls a "community of care" to help students know where to turn when they need help.

Conclusion

The need to support students beyond placing them in corequisite courses is a challenge that will not be going away anytime soon. College enrollment is on the decline, and those students who do enroll will need more supports to help them succeed in the first year, persist, and graduate. Colleges and universities must acknowledge the new reality and adjust accordingly.

Hull emphasized that postsecondary faculty will need to: adjust their teaching and learning strategies; promote student engagement, motivation, and well-being; and use teaching methods aligned with the research on learning science to support student success. The different examples identified in this brief provide other systems, institutions, and faculty with ideas for continuous improvement of their own corequisite support models.

Endnotes

[1] https://ccrc.tc.columbia.edu/easyblog/future-of-corequisite-remediation.html

[2] https://www.tbr.edu/sites/default/files/media/2017/02/TBR%20CoRequisite%20Study%20-%20Full%20Implementation%202015-2016_1.pdf

[3] https://www.completegeorgia.org/scaling-co-requisite-developmental-education

[4] Presented at the National Conference on Acceleration in Developmental Education, 2021.

[5] http://studentexperiencenetwork.org/wp-content/uploads/2015/09/What-We-Know-About-Growth-Mindset.pdf

[6] https://completecollege.org/pep/

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About the Dana Center

The Charles A. Dana Center at The University of Texas at Austin develops effective mathematics and science innovations that support educators, administrators, and policymakers in creating equity-minded improvements at scale for students throughout K–12 and postsecondary education, especially those who are underserved.

The Center is known for its success in developing and implementing equity-minded innovations in STEM education policy and practice that lead to student success in education and career.