



Traditional Remediation Is Not Working

Impetus for Comprehensive Change in NSHE Policy

February 2019

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A Nationwide Concern

Across the nation the number of students enrolling into remedial mathematics and/or English is high. A 2016 [report](#) issued by the National Center for Education Statistics identifies that approximately 68 percent of new freshmen at public community colleges and 40 percent in public four-year colleges enroll in at least one remedial mathematics or English course. Nevada's higher education landscape is no different with two-thirds of first-time, degree-seeking students placing into remediation at the community colleges, and 27 percent placing into remediation at the research universities.¹

In addition to the large number of students placing into remediation, their success rates are lower than their counterparts placed into college-level mathematics and English. Complete College America's landmark [report](#) "*Remediation: Higher Education's Bridge to Nowhere*" identifies four areas that deem traditional remediation a failure. These four points of failure are:

- Too many students start in remediation;
- Too few successfully complete their remediation sequences;
- Too few complete gateway courses; and
- Too few graduate.

Students who are enrolled into remediation not only face longer pathways to degree completion, but also experience the negative psychology and stigma of remedial education placement. Frustrated and disappointed about their placement, the nearly 50 percent of new students across the nation that place into remediation may never enroll or show up to classes. These students, never wanting to be enrolled in a remedial class in the first place, often never get to credit-bearing, college-level classes and quit higher education before ever starting a college-level class. With long pathways and the discouragement of remediation, a [report](#) by the Brookings Institute shows that less than 25 percent of community college students will ever end up completing college-level English and mathematics courses. At four-year institutions, little more than one-third of students placed into remediation will complete college-level English and math.

Facing challenges to earning college-level credit, the national degree attainment rates for students placed into remediation is dismal. For students placed into remedial courses in community colleges, fewer than 10 percent will earn a degree or certificate within three years, and approximately one-third of students at four-year institutions will graduate within six years. Nevada's profile of remediated students is a close reflection of national data and the four points of failure are prevalent within the System as well. With many students in the Nevada System of Higher Education (NSHE) placing into remediation, the same low progression and degree completion rates are comparable to national averages.

Can an "open access" institution be truly open access if it denies so many access to its college-level courses?

Complete College America

¹ Remediation rate of all first-time, degree-seeking students (2016 Gateway Cohort)

Understanding the Landscape

The Gateway Course Success project, a product of a 2015 [policy](#) enacted by the Board of Regents, set aggressive benchmarks for institutions to put students on pathways to complete their gateway mathematics and English courses within the first year of enrollment. This moved the needle on gateway course completions, which in turn will promote increased degree completion by NSHE students. However, after three full years of implementation it is apparent this policy is flawed. Any student deemed to have a mathematics placement level of “less than high school math” is not subject to the policy, which excludes approximately 10 to 25 percent of each community college’s gateway cohort, and placed these students on long, inaccessible pathways to gateway course completion. Students were placed (and often enrolled) in traditional remediation courses but failed to enroll in the college-level course. Throughout the implementation, several challenges including limited access to advising and lack of willingness by institutions to restrict enrollment via PeopleSoft functionality impeding the success of the policy.

This policy paper builds upon the work of the Gateway Course Success project and calls for sweeping, comprehensive change across NSHE to ensure all students, including those with high remediation needs, are placed on direct, achievable pathways to complete a degree or certificate of value starting with completion of the gateway course requirement. This paper focuses specifically on the challenges of remedial mathematics enrollment and completion. While English remediation has many of the same concerns and statistics, math remediation pathways are longer and more intensive for students and are thus the focus of this paper.

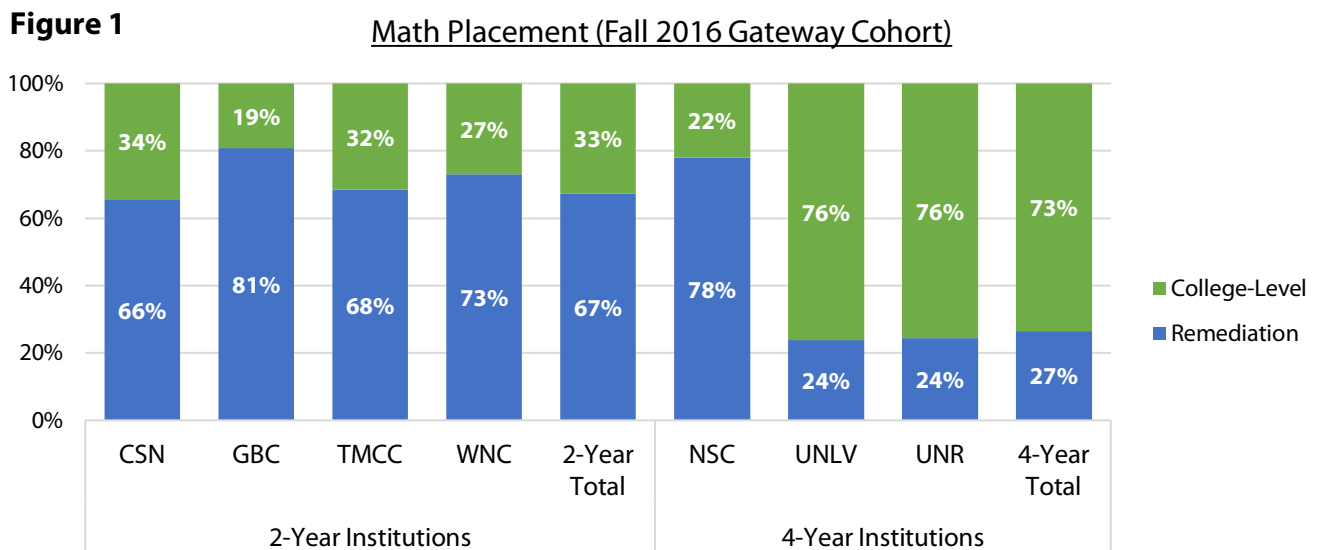
For the purpose of this paper, NSHE utilizes the following definitions:

- Gateway Course
A **Gateway Course** is, “the first college-level or foundation courses for a program of study. Gateway courses are for college credit and apply to the requirements of a degree,” as defined by a [joint statement](#) from many of the nation’s leading education reformers.
- Gateway Cohort
The **Gateway Cohorts** are defined yearly at each institution as all first-time, degree-seeking first-year students who had no previous enrollment across the System prior to their start term at the institution. This cohort includes all students, regardless of enrollment level (both full- and part-time students). However, for institutions that have jumpstart (high school dual enrollment) programs, students that were first-time and on track to receive an associates degree were also included in the cohort. Gateway Cohort math completions are published on the NSHE Institutional Research [dashboard](#).
- Remedial Education
The term **remedial education** pertains to all mathematics and related subjects (skills center, algebra math labs) numbered below 100 across the System. This includes the following courses: MATH 91, MATH 92, MATH 93, MATH 95, MATH 96, MATH 97, CTM 86, SKC 80, SKC 85, and algebra refresher courses.
- Less Than High School Math
Students who place below MATH 95 (Elementary Algebra) are defined as students with **less than high school math** placement levels. This includes the following courses: MATH 91, MATH 92, MATH 93, CTM 86, SKC 80, SKC 85, and algebra refresher courses.
- Corequisite Remediation
A **corequisite remediation** course is one in which the developmental section of the course is offered as a corequisite simultaneously during the semester, not a pre-requisite, to the credit-level gateway

course. Accelerated courses and courses in which enrollment in the remediation section is not dependent upon gateway course enrollment are not considered corequisite remediation courses.

Mass Placement into Remediation

Nationally, 50 percent of community college students [place](#) into remediation and 20 percent of students entering a four-year institution place into remediation. For many students entering higher education within NSHE, the remediation placement rates are above national averages. Figure 1 shows the remediation placement rates for each institution within the System for the Fall 2016 Gateway Cohort.



Source: NSHE Student Data Warehouse, Fall 2016 Gateway Cohort

In the Fall 2016 Gateway Cohort, 45 percent, or approximately 5,200 students out of 11,500, were placed into remediation across the System. Note, this remediation rate is a separate calculation from the rate required by Nevada Revised Statutes 396.548 which mandates remediation reporting for all recent high school graduates—Gateway cohorts include all first-time, degree-seeking students, including returning and non-traditional students. For community college students, over two-thirds of them were placed into remediation. For students entering the four-year institutions, the remediation rate was approximately 24 percent for the research institutions and 78 percent for the state college—the second highest remediation rate in the System.

Remediation Hinders Degree Completion

College completion rates of remediated students within NSHE are comparable to the national averages. Consistent with national data, for students within the System the more levels of remediation they require, the less likely they are to earn a degree or certificate of value. Overall, students who were enrolled in a college-level math as their first math course had higher degree completion rates (Table 1). Note: the four-year institutions are not shown below as Gateway Cohorts were first established in 2013 and no cohort has reached 150 percent of time-to-degree for a bachelor's degree (six years).

Table 1**150% Graduation Rates by First Math Enrollment in Year 1, 2013-15 Gateway Cohorts**

| | | 2013 Cohort | | | 2014 Cohort | | | 2015 Cohort | | |
|-------------|-----------------------|---------------|------------------|--------------|---------------|------------------|--------------|---------------|------------------|--------------|
| | | Enrolled # | Degree Earned | | Enrolled # | Degree Earned | | Enrolled # | Degree Earned | |
| | | | # | % | | # | % | | # | % |
| CSN | Less than MATH 95 | 417 | 39 | 9.4% | 356 | 45 | 12.6% | 340 | 43 | 12.6% |
| | MATH 95-98 | 467 | 56 | 12.0% | 646 | 92 | 14.2% | 528 | 95 | 18.0% |
| | College-Level | 597 | 88 | 14.7% | 775 | 156 | 20.1% | 944 | 170 | 18.0% |
| | No Math First Year | 2,890 | 40 | 1.4% | 2,415 | 32 | 1.3% | 1,928 | 51 | 2.6% |
| | Gateway Cohort | 4,371 | 223 | 5.1% | 4,192 | 325 | 7.8% | 3,740 | 359 | 9.6% |
| GBC | Less than MATH 95 | 70 | 20 | 28.6% | 80 | 14 | 17.5% | 90 | 13 | 14.4% |
| | MATH 95-98 | 36 | 9 | 25.0% | 48 | 14 | 29.2% | 50 | 15 | 30.0% |
| | College-Level | 31 | 13 | 41.9% | 41 | 25 | 61.0% | 42 | 25 | 59.5% |
| | No Math First Year | 50 | 1 | 2.0% | 55 | 0 | 0.0% | 56 | 2 | 3.6% |
| | Gateway Cohort | 187 | 43 | 23.0% | 224 | 53 | 23.7% | 238 | 55 | 23.1% |
| TMCC | Less than MATH 95 | 269 | 32 | 11.9% | 245 | 25 | 10.2% | 262 | 37 | 14.1% |
| | MATH 95-98 | 344 | 55 | 16.0% | 381 | 93 | 24.4% | 380 | 66 | 17.4% |
| | College-Level | 154 | 52 | 33.8% | 193 | 73 | 37.8% | 262 | 99 | 37.8% |
| | No Math First Year | 392 | 4 | 1.0% | 398 | 5 | 1.3% | 477 | 7 | 1.5% |
| | Gateway Cohort | 1,159 | 143 | 12.3% | 1,217 | 196 | 16.1% | 1,381 | 209 | 15.1% |
| WNC | Less than MATH 95 | 30 | 9 | 30.0% | 14 | 3 | 21.4% | 21 | 8 | 38.1% |
| | MATH 95-98 | 251 | 47 | 18.7% | 303 | 50 | 16.5% | 308 | 57 | 18.5% |
| | College-Level | 168 | 64 | 38.1% | 236 | 82 | 34.7% | 330 | 131 | 39.7% |
| | No Math First Year | 141 | 4 | 2.8% | 140 | 1 | 0.7% | 106 | 3 | 2.8% |
| | Gateway Cohort | 590 | 124 | 21.0% | 693 | 136 | 19.6% | 765 | 199 | 26.0% |

Source: NSHE Student Data Warehouse

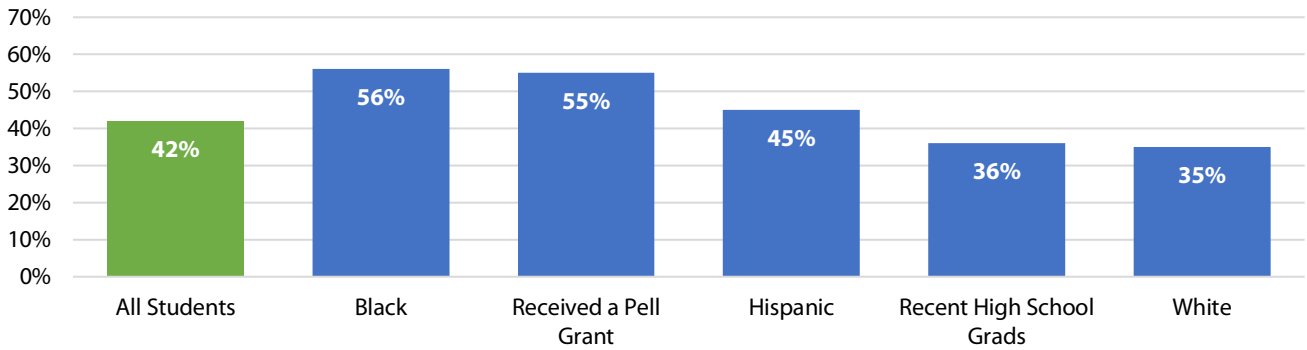
While students that enroll into any mathematics course within their first year graduate at higher rates than those that do not, the degree completion rates for students enrolling directly into a college-level mathematics course are significantly higher. For GBC, TMCC, and WNC students that enroll into college-level mathematics courses graduate at rates higher than the national average, an indicator that first math enrollment is a strong indicator for future student success.

Minority Populations are Overrepresented in Remedial Education

Across the nation historically disadvantaged minority populations are overrepresented in remedial education according a Complete College America [report](#) (Figure 2). With a larger percent of ethnic minorities being placed and enrolled into remediation compared to their white counterparts, their retention and degree completion rates are reflective.

Figure 2

National Data:
Percent of Select Subgroups Enrolled in Remediation (2014 CCA Cohort)

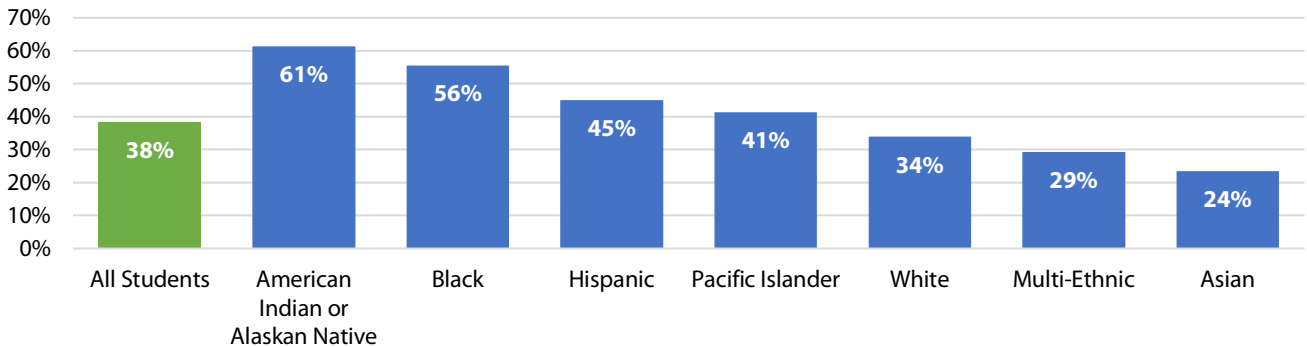


Source: Complete College America, "Corequisite Remediation: Spanning the Completion Divide"

Within NSHE the disparity among ethnicities is also prevalent. Nearly two-thirds of American Indian/Alaskan Native students enroll into remediation compared to about one-third of white students. For black students, the percentage aligns with the national average—over half are enrolled into remediation (Figure 3).

Figure 3

NSHE Data:
Percent of Minority Subgroups Enrolled in Remediation (2016 Gateway Cohort)



Source: NSHE Student Data Warehouse, Fall 2016 Gateway Cohort

Across NSHE, historically disadvantaged ethnic minorities are overrepresented in remedial education placement compared to their white and Asian counterparts. More minority students are enrolling into unsuccessful traditional models of remediation. This population also has historically low degree completion rates.

Underprepared or Under Placed?

For students that are enrolled into remediation, a Complete College America [study](#) shows that these students are better off being enrolled into a college-level course with no support rather than enrolling into a traditional remedial course. In addition, the Community College Research Center from the Teachers College at Columbia University [found](#) that upwards of 50 percent of students who are placed in remedial education could earn a "C" or better in a college-level math course.

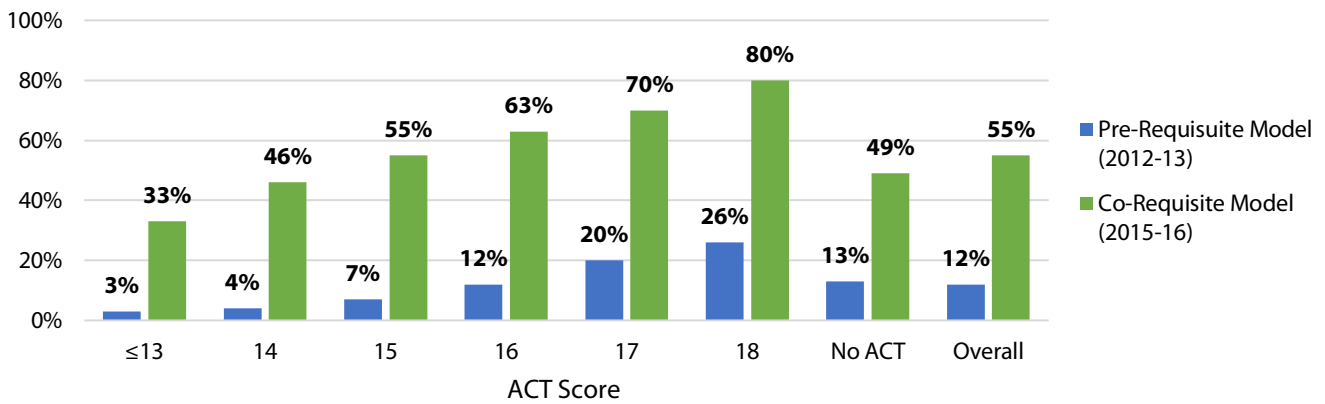
Based on these reports, some systems and institutions are transforming their remedial education by mandating corequisite remediation and seen high levels of success.

The Tennessee Board of Regents published a [report](#) on the full-scale implementation of corequisite remediation across the state. Overall, students that were educated through the corequisite model had higher pass rates of the gateway mathematics course than those in the traditional model of remediation (Figure 4).

“Students with skills that were closest to college ready were the most discouraged from pursuing postsecondary education after a remedial placement.”

NBER Working Paper, Scott-Clayton & Rodriguez

Figure 4 Traditional versus Corequisite Remediation and Gateway Course Completion



Source: Tennessee Board of Regents, Denley 2016

Across all levels that traditionally place into remediation, students were more successful in earning college-level credit in a corequisite math course than in the traditional pre-requisite remediation model. According to the Tennessee report, for students at the lowest levels of academic preparedness—those with an ACT score of less than 15—their success rates for the corequisite remediation model was 11 times higher than traditional remediation. Tennessee is one of a handful of states that have substantially transformed remedial education curriculum.

Apart from the work in Tennessee, California has also seen preliminary success in their corequisite remediation scaling. At [Cuyamaca College](#), one-year completion of transfer-level math jumped from 10 percent to 67 percent after the implementation of corequisite courses. San Diego Mesa College and Los Medanos College have both seen success with English corequisite remediation as well, among the many others. Other systems or states that have begun this process include City University of New York, California State University, Florida, Montana, University System of Georgia, and West Virginia.

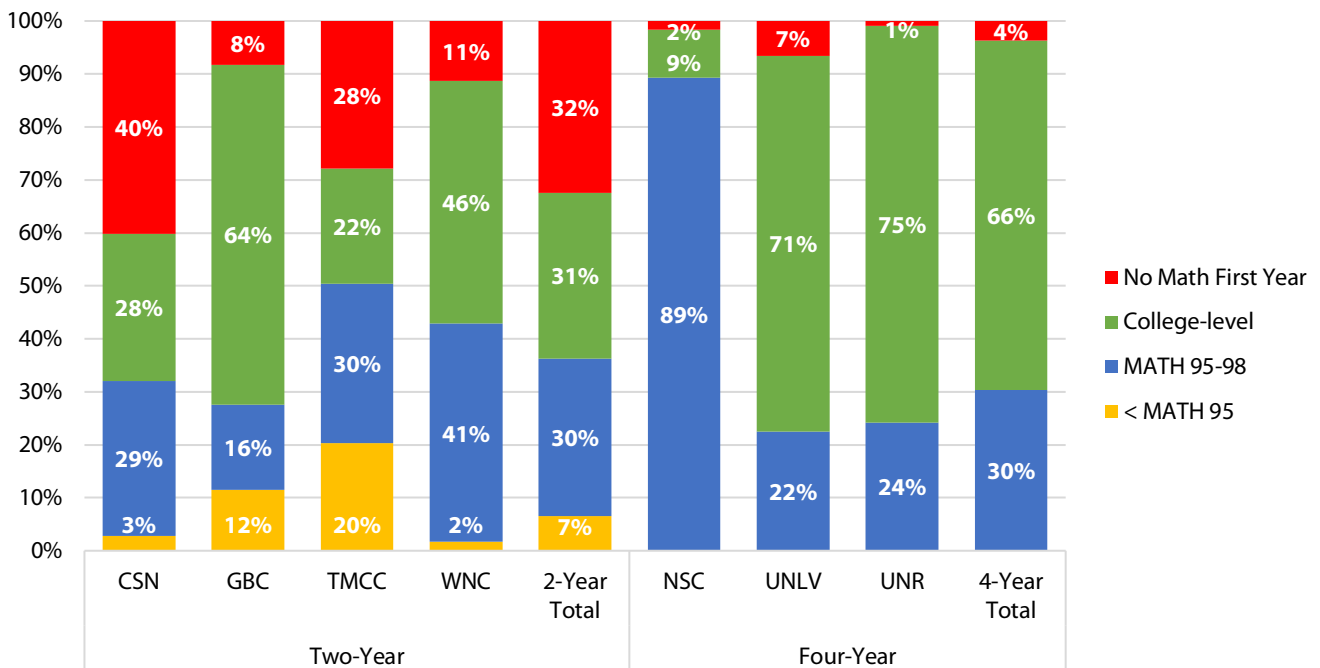
NSHE Math Pathways are Long and Complex

Not all students who place into remediation have similar pathways or timelines of completing their college-level mathematics courses. NSHE students at the lowest levels of remediation—those placing into math courses that are less than MATH 95 (below high school level)—may take multiple semesters of remediation before reaching their first college-level gateway course. The four community colleges are the only NSHE institutions to offer mathematics courses for students below high school level. At the four-year institutions, the lowest class available is MATH 95. Since there is no minimum placement score required to

enroll in the class, students at the lowest levels of math preparedness will place into MATH 95. Remedial math courses are offered year-round, including early remediation courses offered in the summer (summer bridge).

Across the System, remediation pathways are institution specific and students with similar placements scores are placed differently depending upon institutional policy. For the community colleges, as many as 20 percent of the 2016 Gateway cohort’s students were placed on multi-course remediation pathways (Figure 5). In addition, institutions have differing success rates when it comes to students enrolling in a math course in their first year. The students who did not enroll in any mathematics course (shown below in red) are not on track to complete a college-level math course within the first year of enrollment, per Title 4, Chapter 16, Section 1 of [Board Policy](#).

Figure 5 First Math Enrollment (Fall 2016 Gateway Cohort)

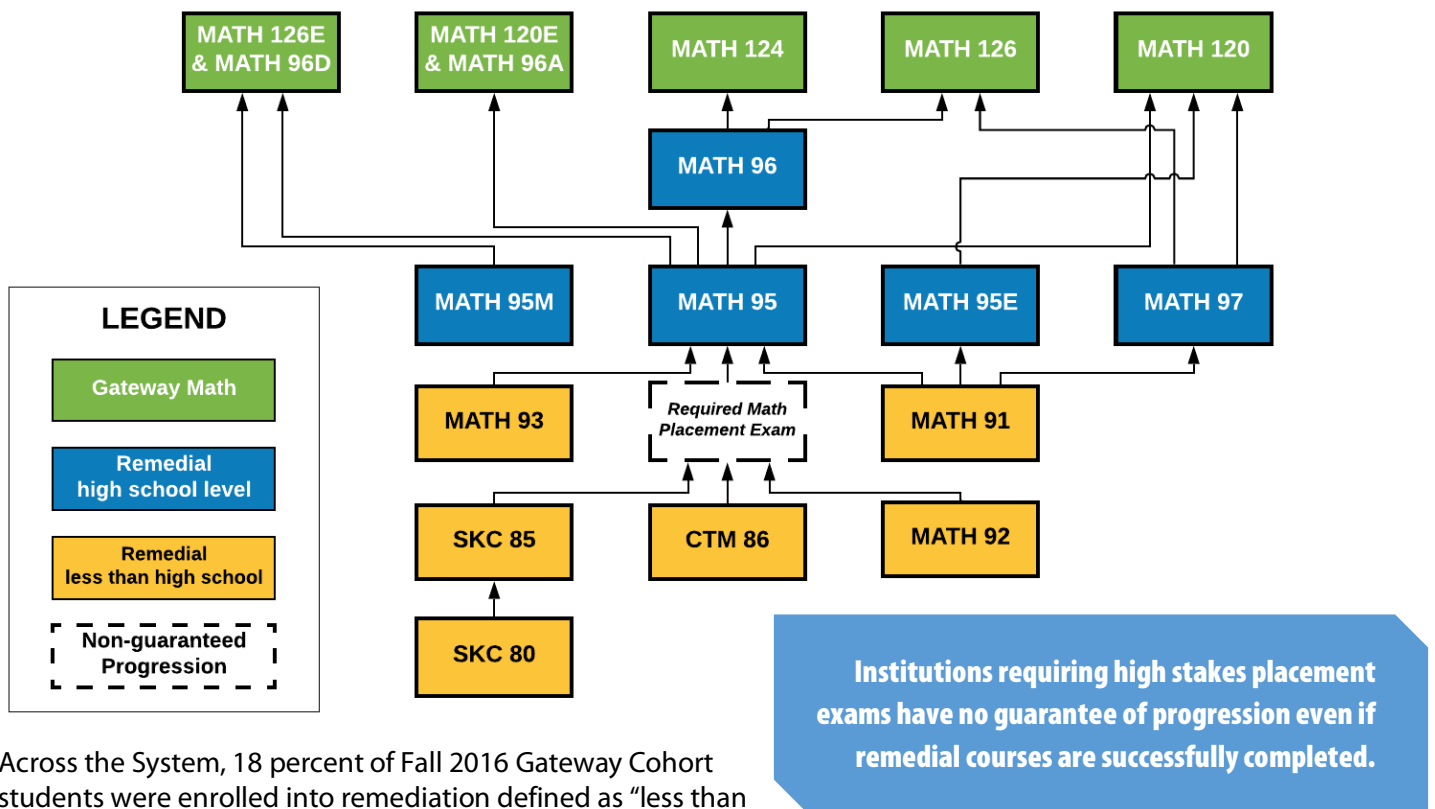


Source: NSHE Student Data Warehouse, Fall 2016 Gateway Cohort

Across the System, there are many math courses and math pathways (Figure 6). For students enrolled in courses deemed less than high school level, the pathway to completion of a college-level mathematics course may require up to four separate remedial courses. For students at a two-year institution, this could mean at least four courses of remediation before taking any college-level mathematics course.

Figure 6

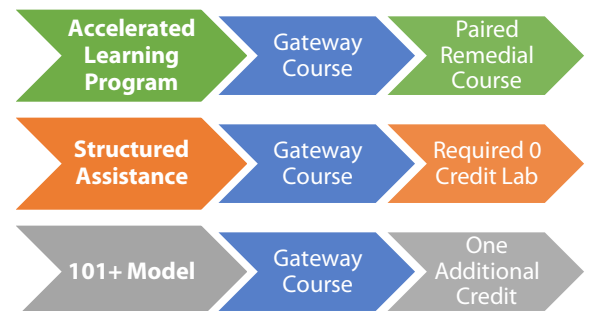
All Existing Math Pathways across NSHE as of January 2019



Across the System, 18 percent of Fall 2016 Gateway Cohort students were enrolled into remediation defined as “less than high school”—the yellow shaded courses in Figure 6. This percentage does not include the combined 20 percent of students in the entire cohort who did not enroll into any math course during their first year, many of whom are suspected to have a high need for remediation. For students who place into the lowest forms of remediation, including SKC 80, SKC 85, CTM 86, MATH 92 and math module courses, the pathway to complete a college-level mathematics course can take multiple semester of remediation. Additionally, in some cases students are required to successfully complete a required math placement exam before moving on to MATH 95, despite having passed previous remedial coursework. For students that begin in traditional remediation, regardless of participating in summer bridge (early enrollment), their outcomes of completing gateway courses remain low.

The Case for Corequisite Remediation

The restructuring of remedial education is currently widespread across the United States. As systems and schools adopt more sweeping mandates that call for the elimination of traditional forms of remediation, corequisite remediation models have emerged as proven tactics to transform remedial education. A [report](#) by Complete College America’s Dr. Bruce Vandal states that corequisite remediation is, “more than a remedial education technique; it is a fundamental redesign of the system of support for academically underprepared students.” Corequisite remediation has three successful models of implementation:



- Accelerated Learning Program (ALP)
The **Accelerated Learning Program** is a corequisite remediation model where the gateway course is paired with a remedial course component.
- Structured Assistance
The **Structured Assistance** model has the gateway course taught in alignment with a required zero credit lab in which students may spend time outside of instructional hours in mandatory tutoring or math centers where academic support specialists work in direct alignment with gateway course curriculum.
- 101+ Model
Through the **101+** corequisite remediation model, a mandatory one-credit additional instructional support course is offered as a mandatory corequisite to the traditional gateway course.

Within NSHE, few institutions have piloted corequisite remediation and implemented the model. Currently, UNR and NSC have many corequisite offerings of these courses, while GBC and TMCC have limited offerings of the ALP corequisite model. Out of the 11,500 students in the 2016 Gateway cohort, only 1,047 students were enrolled in corequisite remediation courses.

Within NSHE, there are two corequisite remediation courses that are fully implemented. Both were developed by UNR and, due to early success, were supported by NSHE's 2015 Math Task Force [report](#). Currently, the corequisite mathematics models are for pre-calculus (MATH 126) and college mathematics (MATH 120):

- MATH 126E: Pre-Calculus Expanded (5 credits)
The MATH 126E course is an ALP model of corequisite remediation for pre-calculus mathematics where a two-credit mandatory remediation course, MATH 96D, is paired with a college-level course, MATH 126E. Individual grades are awarded in each section, but the courses are completed simultaneously and treated as one course with one instructor and one meeting pattern. Successful completion of MATH 126E fulfills any core curriculum requiring pre-calculus and is equivalent to the traditional MATH 126 course.

Corequisite models save students time and money by eliminating multi-semester sequences of remediation and reducing the total required credits of remediation.

This corequisite pathway saves students at least one semester of traditional remediation (by not taking MATH 96 in one semester then MATH 126 in the next) as well as saves the student from paying an additional credit of tuition and fees as the corequisite model is five credits, MATH 126E (3 credits) and MATH 96D (2 credits), and the traditional remediation model is six credits, MATH 96 (3 credits) and MATH 126 (3 credits). Pre-calculus math sequences are typically for students who are in non-liberal arts fields, including business, STEM, some health sciences, and some education degrees.

- MATH 120E: College Mathematics Expanded (4 credits)
The other ALP model being utilized within NSHE is for students on a liberal arts pathway. MATH 120E is a paired corequisite remediation course in which a student is enrolled in a one-credit MATH 96A course while being simultaneously enrolled in a three-credit MATH 120E course. Alike MATH 126E, completion of this course fulfills the core requirement and is equivalent to MATH 120.

This pathway typically saves students at least one semester of remediation coursework. This course also saves at least two credits of enrollment, as the corequisite course is four credits, MATH 120E (3 credits)

and MATH 96A (1 credit). In traditional remediation pathways, students would take MATH 95 or MATH 96 in the first semester (3 credits) and MATH 120 (3 credits) in the second semester, totaling at least two semesters and six credits.

Conclusion

The research conducted throughout this paper finds three key takeaways for stakeholders to act upon:

➤ **Traditional remediation is not working**

Both within NSHE and across the nation, traditional models of remediation are failing. For the small subset of students that will end up passing their remedial course, even fewer will go on to graduate. With more than 45 percent of the System's students placing into remediation, degree completion rates cannot aggressively improve under the current structure.

Challenged with both the psychological impacts of remediation as well as the reality of long, non-guaranteed pathways to completing their gateway mathematics courses, too many students drop out. At the community colleges, nearly 70 percent of students are placing into these remediation pathways. For students facing up to four classes of remediation and/or high stakes placement tests, the cost and time-to-degree makes higher education unattainable.

This issue is even more severe for ethnic minorities. In order to close the achievement gap among underrepresented minorities in higher education, remediation must be rethought. Over half of American Indian/Alaskan Native and Black students and nearly half of Hispanic students are placed into remediation which is inconsistent with their white and Asian counterparts. These historically disadvantaged minorities are enrolling into faulty models of remediation—and their graduation rates reflect this.

➤ **Corequisite remediation results in much higher student success outcomes**

Placing students in a college-level course where academic support is provided just-in-time better facilitates long term student success. These types of corequisite remediation models, piloted both at UNR and across the country, have shown success in promoting gateway course completion. In turn, these gateway course successes will lead to higher degree completion rates.

Additional effort is needed to bring these successful models of remediation to scale across the System and ensure that every student needing remediation has access to just-in-time academic support for completing their college-level mathematics courses.

➤ **Regardless of academic preparation, success levels are higher for students in corequisite remediation**

In a presentation to the NSHE Board of Regents in January 2019, Dr. Bruce Vandal of Complete College America [stated](#), "research shows placing academically underprepared students with other academically underprepared students does not work." Even students at the lowest levels of academic preparedness—those with an ACT score of less than 15— are successful in corequisite remediation models.

Corequisite models assist in closing the achievement gap of underrepresented minorities and alleviate the curriculum gap between students graduating high school and the mathematics skills necessary to complete a college degree or certificate of value.

Recommendation: Bringing Corequisite Remediation to Scale

Sweeping policy revisions are needed to transform education for one of the System's highest risk populations. For many students in the remediation sequences, they get lost in the process and withdraw from higher education-- this is particularly true of community college students. Community college students are sensitive to barriers of admission, reentry, enrollment, and degree attainment. This is in part due to the nature of students who enter community colleges-- returning adults, working students, students with family obligations, and first-generation students among many others. Corequisite remediation shortens obstacles of completion for students and is successful in ensuring students are adequately prepared for subsequent courses building upon corequisite courses.

With success data from across the nation and preliminary reports of success for NSHE's corequisite remediation, it is strongly recommended that the NSHE Board of Regents consider mandating corequisite remediation for all students. Transforming remedial education across the System improves the success of minority and historically underrepresented populations in higher education and supports their gateway course completion and degree completion. In addition, transforming remediation through full-scale corequisite implementation will support the Board's goal of graduating more students—a benefit to the student, the System, as well as the state.

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