

BOARD OF HIGHER EDUCATION

REQUEST FOR COMMITTEE AND BOARD ACTION

COMMITTEE: Academic Affairs

NO.: AAC 19-23

COMMITTEE DATE: March 5, 2019

BOARD DATE: March 12, 2019

2019 COMMON ASSESSMENT POLICY

MOVED: The Board of Higher Education (BHE) hereby adopts the "2019 Common Assessment Policy." The BHE further charges the Commissioner to work with institutions of public higher education to build upon work already underway to transform developmental education.

The 2019 Common Assessment Policy is effective upon adoption by the Board and will supersede any past policies or practices of the BHE governing the same subject.

VOTED: Motion approved by AAC 03/05/2019; Motion adopted by the BHE 03/12/2019

Authority: Massachusetts General Laws Chapter 15A, Sections 6, 9, and 32
Contact: Elena Quiroz-Livanis, Chief of Staff and Director of Academic Policy and Student Success
Patricia A. Marshall, Deputy Commissioner of Academic Affairs and Student Success

Introduction

In 1998, the Academic and Campus Affairs Committee of the Board of Higher Education (BHE) called upon the Chancellor to develop a two-tiered system of assessment to be administered to students attending an institution of public higher education. The Board hoped to create a systematic approach to the assessment of students and the Task Force on Assessment made a series of recommendations on common instruments and cut scores for entering students. The new system was implemented in Fall 1999. Students who scored below the agreed upon cut scores in reading, writing, and mathematics were required to complete the appropriate developmental coursework. Students with certain SAT Verbal scores were exempt from the reading and writing assessment. It was not until the formation of the Task Force on Transforming Developmental Mathematics Education in 2012 that the 1998 Common Assessment Policy was evaluated and changes were recommended.

The Department of Higher Education (DHE) and the Board, in partnership with public higher education institutions in Massachusetts, is focusing its efforts to increase the numbers of students graduating with degrees and certificates. More recently, the BHE has adopted an enhanced focus on advancing equitable outcomes for students attending public higher education institutions in the Commonwealth. The Board seeks to significantly raise the enrollment, attainment and long-term success outcomes among underrepresented student populations. The Board intends to use an equity lens priority to guide campus and system performance measurement and promote initiatives and policies that collectively expand success for residents and for our economy and society.

One of the most pressing issues that affects both college retention and graduation rates, particularly for traditionally underserved students, is the significant number of students who are required to enroll in developmental education courses despite the fact that they have successfully met all high school graduation requirements. Moving this important work forward and using an equity lens will ensure all students, especially those from underrepresented backgrounds, have a stronger chance at earning a postsecondary credential.

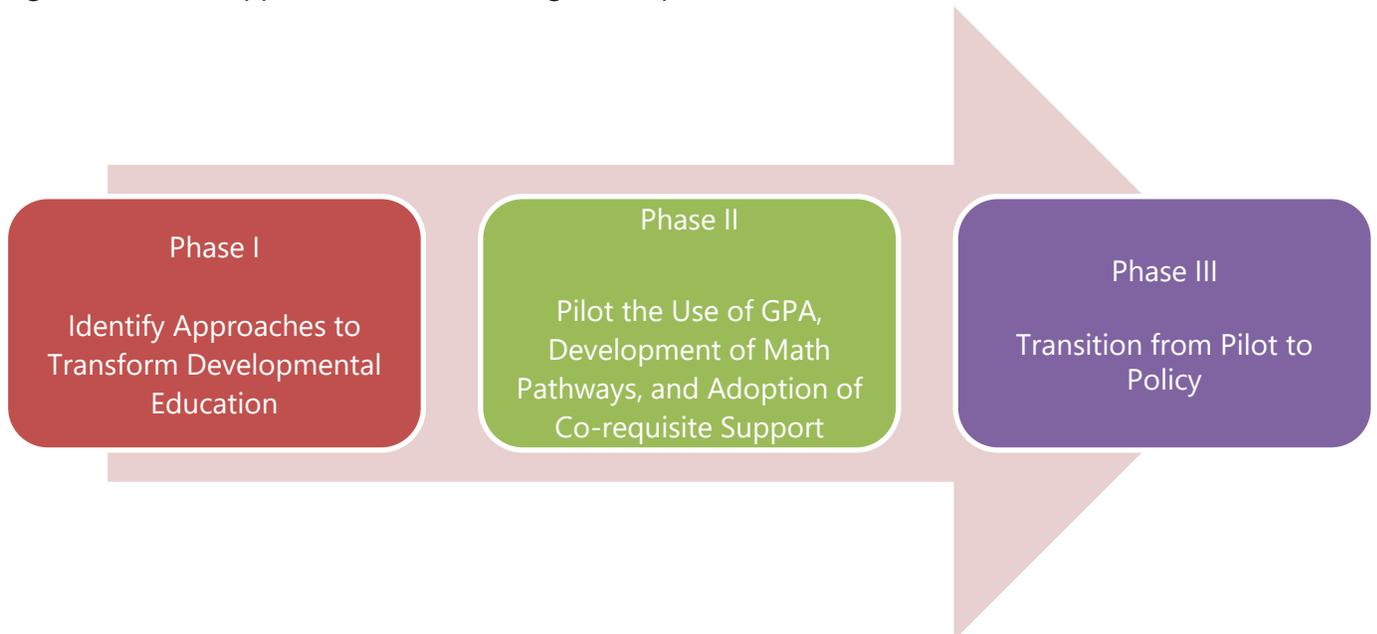
For almost a decade, the Department and Massachusetts public higher education institutions have evolved their approach to developmental education in order to better serve students. The DHE has adopted a three-pronged approach to reduce remediation and increase student success (shown in Figure 1).

Figure 1: Three-Pronged Approach for Transforming Developmental Education in Massachusetts



This comprehensive strategy seeks to assess students properly for credit-bearing courses using multiple measures; ensure that students are taking and completing the appropriate math for their major; and give students who require remediation access to co-requisite support in English and mathematics courses. The approach was developed in the first phase of this work, which included convening the Task Force on Transforming Developmental Mathematics Education. The second phase consisted of advancing the recommendations of the Task Force and campus experimentation. The third and current phase marks a transition from pilot to policy. The first policy under the transforming developmental education umbrella was advanced by the Board in January 2018 with the acceptance of the Designing Math Pathways Report and endorsement of its recommendations. The GPA policy was approved by the Board in December 2018 to allow for the use of a 2.7 cumulative high school GPA to place a student directly into college-level English and mathematics courses also seeks to transition from simply piloting the use of GPA to formalizing it as a placement measure by amending the 1998 Common Assessment Policy.

Figure 2: Phased Approach to Transforming Developmental Education



Background

In March 2012, the Task Force on Transforming Developmental Math Education was formed and charged with developing recommendations that would “systematically improve the percentage of students that complete developmental math education and pass the first college-level math course required for their program of study” (2013, page 6).

In Fall 2013, the Task Force released a report that contained four comprehensive recommendations, all related to the comprehensive approach described above:

1. The BHE shall set a period of experimentation for campuses to experiment with the use of GPA as an alternative placement measure;
2. The BHE shall encourage institutions to revise the content, sequencing, and timeframe of their developmental math offerings;
3. The BHE shall urge campuses to design general “academic pathways” for all students, including math sequences consistent with the academic requirements of each pathway or “meta-major,” such as social sciences, liberal arts, and STEM (science, technology, engineering and math); and
4. The DHE will provide ongoing support for the implementation of these recommendations.

Once the report and recommendations were adopted, the BHE set a period of experimentation and campuses were allowed to pilot new placement criteria, specifically high school GPA or limited variation. Prior to this period, students were required to take Accuplacer and score 40 on the College-Level Math test or 82 on the Accuplacer Elementary Algebra test in order to place in college-level mathematics. Initially, the DHE focused its attention on the first recommendation and the majority of institutions implemented pilots that used GPA and other criteria to assess student readiness for college-level mathematics. While the initial Task Force’s report focused exclusively on mathematics, the Department has since researched the use of GPA for placement into college-level English and several campuses have begun to use this mechanism to assess and place students.

In 2017, the DHE contracted the University of Massachusetts Donahue Institute (UMDI) to conduct an independent evaluation of the campus GPA pilots (Appendix B). The primary purpose of this evaluation was to assess the impact of these strategies on the rate of recent high school graduates who successfully completed their first college-level mathematics course within two years of enrollment; the provision of campus-level services to recent high school graduates enrolled in developmental mathematics education courses; and the perspectives of students, faculty,

administrators, and others with regard to the implementation of these strategies. A summary of the evaluation and the Department's response can be found in AAC 19-08.

In addition to exploring the expanded use of multiple measures, the DHE began exploring other approaches to transforming developmental education. In 2015, the Department began examining the adoption of the co-requisite model for developmental education in both English and mathematics. With the co-requisite course model, "students enroll directly into college-level courses and receive academic support alongside their classes. Rather than facing a long sequence of pre-requisite, non-credit courses, students get up to speed while working toward their degree" (Complete College America, 2016, p. 2). These courses allow students to complete college-level gateway math and/or English courses within one academic year. Since then, the DHE has organized three statewide conferences in order to convene campus practitioners and national content experts to bring these promising practices to scale.

Several states, including Georgia and West Virginia, have seen significant positive results after the adoption of the co-requisite model. In Tennessee, "success in college-level math improved from 12 percent to 61 percent... [and] the state's data suggest that this approach works for virtually all students" (Complete College America, p. 3). Massachusetts is one of twelve states that has partnered with Complete College America to bring the co-requisite model to scale statewide.

In Spring 2016, the DHE further expanded its approach to transforming developmental education and partnered with the University of Texas at Austin Charles A. Dana Center to begin working on designing and implementing multiple math pathways. In January 2018, the Board accepted the "Designing Math Pathways: Supporting Students and Increasing Opportunity for Success" Report and endorsed the report's five recommendations:

1. In an effort to ensure students complete the right mathematics course for their major, Massachusetts institutions of public higher education should develop at least four math pathways: Calculus, Elementary Education, Quantitative Reasoning, and Statistics.
2. MassTransfer Associate-to-Bachelor (A2B) mapped pathway disciplines should identify the appropriate default or recommended mathematics for their major.
3. Students who require remediation should have the opportunity to complete their college-level mathematics course within one year of enrollment, preferably within a co-requisite model.
4. The DHE should develop a course completion indicator ("flag") for all courses that satisfy Quantitative Reasoning requirements. This will improve the DHE's data collection and the ability to track student progress.

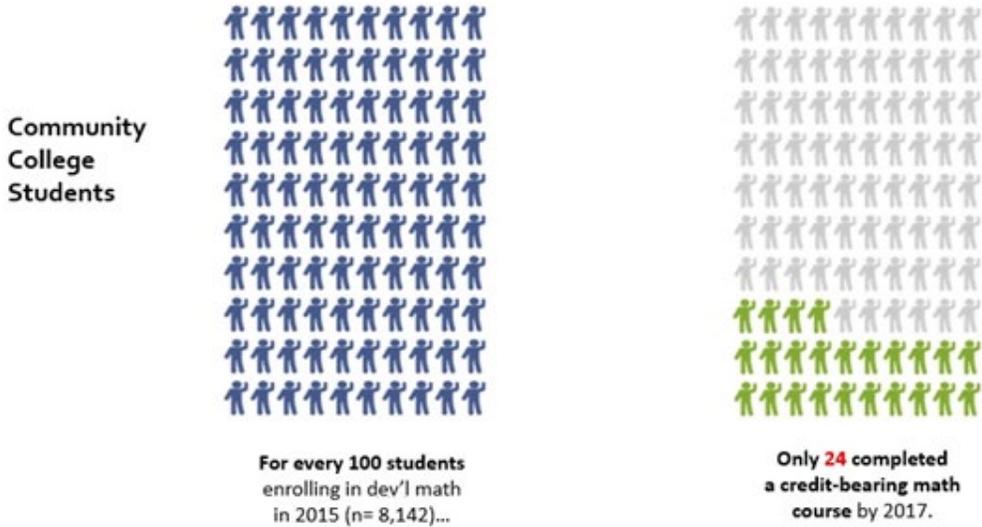
5. The Department of Higher Education should work with the Department of Elementary and Secondary Education to ensure alignment between K-12 and postsecondary course expectations and requirements.

Since the report was released and recommendations endorsed by the BHE, the Department formed the Mathematics Pathways Working Group and held a two-day workshop that sought to support institutions that were either beginning and/or deepening their efforts to develop and implement multiple mathematics pathways. The Working Group has met several times since then and will continue to be convened in order to advance the comprehensive approach to transforming developmental education described above.

Results from the Campus GPA Pilots

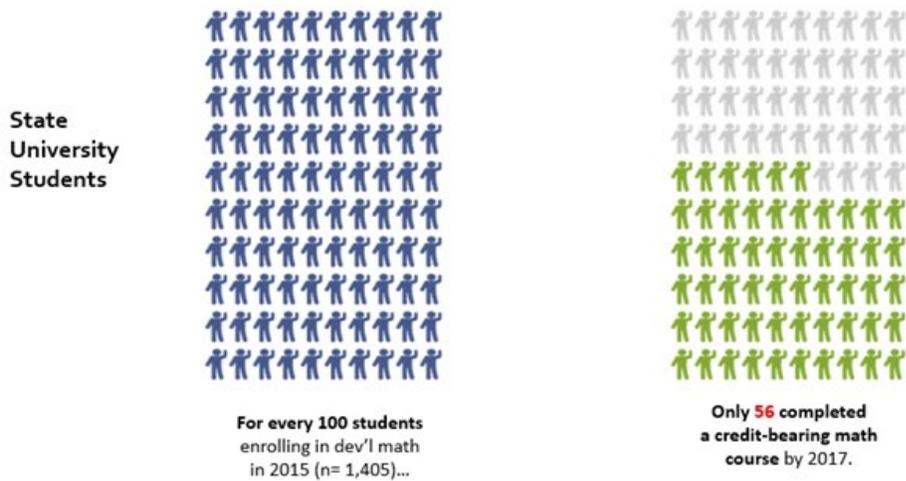
As previously stated, the 2013 Task Force on Transforming Developmental Mathematics Education recommended that the BHE set a period of experimentation for campuses to experiment with the use of GPA as an alternative placement measure. At the time the report was released, enrollment in at least one stand-alone developmental mathematics course was required for a majority of Massachusetts community college students and one-fifth of state university students. Community college students who enrolled into developmental courses have only a little over 20 percent chance of continuing on to complete a credit-bearing math course. In Massachusetts, 20.6 percent of full-time first-time students who entered community college in Fall 2004 and did not take developmental coursework finished in three years compared to 10.3 percent of those who did take developmental coursework. For the four-year institutions, the figures are 59.1 percent for the University of Massachusetts and 51.2 percent for the state universities. The figures below show that progress has certainly been made, but more work is needed in order to dramatically improve success rates.

Figure 3. Community College Students Progress to Credit-Bearing Coursework (Fall 2015 Cohort)



Source: Massachusetts Department of Higher Education

Figure 4. State University Students Progress to Credit-Bearing Coursework (Fall 2015 Cohort)



Source: Massachusetts Department of Higher Education

An analysis¹ conducted by DHE staff of the GPA pilots from academic year 2014-2015 found that campuses that implemented the GPA pilots saw the percent of students enrolling in developmental math decreased. This is true for both the community colleges and state universities. Initially, institutions could choose either one or both of the pilot standards described below:

- Pilot A: The use of a 2.7 GPA or above. In many cases, campuses chose to use additional measures, including high school math GPA and SAT scores.
- Pilot B: The use of a GPA between 2.4 and 2.69. Like the Pilot A standard, campuses had the option to use additional measure, including high school math GPA and SAT scores.

DHE's preliminary analysis found that at the community colleges, 77.3 percent of students placed into college-level math using Accuplacer completed the course compared to 75.9 percent of students placed using Pilot A standard. Interestingly, 67.4 percent of students assessed as not college ready also completed a college-level math course. Simultaneously, at the state universities 84.3 percent of students placed into college-level math using Accuplacer completed the course compared to 91.0 percent of students placed using Pilot A standard. At the University of Massachusetts, 83.4 percent of students placed using Accuplacer completed a college-level math course, while 81.1 percent of students placed under Pilot A standard completed a college-level math course.

These results led Department staff to recommend to the Board an extended period of experimentation and a refinement of the pilot standards, particularly to isolate the use of a 2.7 high school GPA. Starting in Fall 2016, institutions could choose from the following options to place students directly into college-level mathematics:

- Pilot A1: Student determined to be college ready based on a high school GPA of 2.7 or above.
- Pilot A2: Student determined to be college ready based on a high school GPA of 2.7 and a "B" or higher in Algebra II.
- Pilot A3: Student determined to be college ready based on a high school GPA of 2.7 and four years of high school math.

¹ The preliminary analysis can be found by reviewing AAC 16-19: Extending Campus Work in the Area of Developmental Mathematics: http://www.mass.edu/bhe/lib/documents/AAC/10_AAC%2016-19%20Developmental%20Math%20Pilots%20and%20Qualitative%20Study.pdf.

The DHE contracted the University of Massachusetts Donahue Institute (UMDI) to conduct both qualitative and quantitative analyses of the campus GPA pilots (see Appendix B for full results). Department staff would like to thank institutions who completed the survey, as well as those who collaborated with UMDI and allowed them to conduct a site visit for the qualitative study.

The results of the UMDI study indicate that students who entered college in fall 2016 (during the pilot) were just as likely as similar students who entered college in fall 2013 (prior to pilot) to take or complete a college-level math course within two years. The study also found that community colleges were more likely to place a student who was determined to be college-ready using Accuplacer into college-level coursework than a student who was determined to be college-ready using GPA. Department staff believe this explains why community college students determined to be college math ready by pilot (in fall 2016) were less likely than similar students determined to be college math ready by Accuplacer (in fall 2013) to complete a college-level mathematics course within two years. In order for the use of multiple measures to meet its maximum potential, institutions should use GPA to place students into credit-bearing English and mathematics courses. This will require ensuring all campus faculty, staff, and administrators are advising students appropriately, as well as broad use of the campus GPA standards as a placement measure.

Internal DHE analyses of the most recent version of the pilots reaffirm that students placed into college-level mathematics courses using GPA succeed in these classes at the same rate as students placed using Accuplacer. In Fall 2017, there were 1,169 community college students who were determined to be ready for college-level mathematics using pilot standard A1 and 1,640 community college students using Accuplacer. Of the students who enrolled in at least one college mathematics course during their first year, 73.6 percent of students placed using pilot standard A1 completed a college-level math courses compared to 75.2 percent of students placed using Accuplacer.

There are similar results at the state universities. During the same time period, 798 state university students were determined to be ready for college-level mathematics using pilot standard A1 and 1,882 students using Accuplacer. Of the students who enrolled in at least one college mathematics course during their first year, 83.6 percent of students placed using pilot standard A1 completed a college-level mathematics course compared to 85.7 percent of students placed using Accuplacer.

These analyses indicate that students placed using Pilot Standard A had a similar likelihood of success compared to those students who were placed using Accuplacer. At the same

time, if the GPA standards were adopted at scale, more students would enter directly into credit-bearing mathematics courses, allowing more students to continue their postsecondary studies and institutions would see an increase in retention and completion rates.

The use of a single measure to determine whether a student is prepared for credit-bearing coursework has been highly criticized. "When used as the sole measure for course placement, these tests incorrectly place many incoming students (Bailey et al., 2015; Belfield & Crosta, 2012; Scott-Clayton, Crosta, & Belfield, 2012 in Barnett & Reddy, 2017, p. 3). After the Board's action in December 2018, Massachusetts institutions of public higher education can use high school GPA to place a student directly into college-level English and mathematics courses.

National Examples

Other states have adopted the use of high school GPA to place students directly into college-level English and mathematics courses. The student outcomes have been positive and more states are moving towards the use of multiple measures. This section will describe standards used in two states, North Carolina and California, to place students directly into college-level English and mathematics courses.

North Carolina Community Colleges enacted a policy in 2016 for students who graduated from state high schools within five years and enrolled in one of the segment's institutions. Those students with an unweighted cumulative GPA of 2.6 or higher and who completed four math classes, including Algebra I, Algebra II, Geometry and a fourth math as determined by the North Carolina Department of Public Instruction are not required to complete the Accuplacer exam and can enroll in a college-level mathematics course. Like the 1998 Common Assessment Policy in Massachusetts, students may also place directly into college-level English and mathematics courses based on SAT or ACT scores. Students may also enroll in a college-level English and mathematics course if their transcript indicates they have done so before at another postsecondary institution.

In California, Assembly Bill (AB) 705 was signed into law in October 2017 and sought to do the following:

1. Increase the numbers of students who enter and complete transfer-level English and mathematics/quantitative reasoning in one year;
2. Minimize the disproportionate impact on students created through inaccurate placement processes; and

3. Increase the number of students completing transfer-level English within three years.

One of the strategies implemented to advance this work was the use of multiple placement measures. The policy also prohibits colleges from placing students into developmental courses unless the student is highly unlikely to succeed in a college-level, credit-bearing English and/or mathematics course and enrollment into a developmental course will increase the likelihood of success within a one-year time frame.

The recommendations which informed AB 705 were based on research conducted by the Multiple Measures Assessment Project (MMAP). Results indicated “even students with the lowest levels of high school performance are more likely to successfully complete a transfer level course in one year if they are placed directly into transfer level, rather than being placed even one level below given the current structure of developmental education” (Hope and Stankas, 2018,, p. 5).

Below are the “default placement rules” to be used by California community colleges after the passing of AB 705. The high school GPAs can be used for students who have graduated within the past 10 years. The guidelines, based on the results of MMAP, are meant to maximize the number of students placed directly into college-level coursework. The supporting success rate data, also included in the tables, “demonstrate that higher percentage of students are more likely to successfully complete a transfer level course in one year than the data from the cohort paced one level below” (Hope and Stankas, p. 5).

Figure 5. AB 705 Placement Rules for English

High School Performance Metric for English	Recommended AB 705 Placement for English
HSGPA \geq 2.6 Success rate = 78.6%	Transfer-Level English Composition No additional academic or concurrent support required
HSGPA 1.9 – 2.6 Success rate = 57.7%	Transfer-Level English Composition Additional academic and concurrent support recommended
HSGPA < 1.9 Success rate = 42.6%	Transfer-Level English Composition Additional academic and concurrent support strongly recommended

Figure 6. AB 705 Placement Rules for Statistics/Liberal Arts Mathematics

High School Performance Metric for Statistics/Liberal Arts Mathematics	Recommended AB 705 Placement for Statistics/Liberal Arts Mathematics
HSGPA \geq 3.0 Success rate = 75%	Transfer-Level Statistics/Liberal Arts Mathematics No additional academic or concurrent support required for students
HSGPA 2.3 – 2.9 Success rate = 50%	Transfer-Level Statistics/Liberal Arts Mathematics Additional academic and concurrent support recommended for students
HSGPA $<$ 2.3 Success rate = 29%	Transfer-Level Statistics/Liberal Arts Mathematics Additional academic and concurrent support strongly recommended for students

Figure 7. AB 705 Placement Rules for Business/STEM Mathematics

High School Performance Metric for Statistics/Liberal Arts Mathematics	Recommended AB 705 Placement for Statistics/Liberal Arts Mathematics
HSGPA \geq 3.4 OR HSGPA \geq 2.6 AND enrolled in a HS Calculus score Success rate = 75%	Transfer-Level BSTEM Mathematics No additional academic or concurrent support required for students
HSGPA \geq 2.6 or Enrolled in HS Precalculus Success rate = 53%	Transfer-Level BSTEM Mathematics Additional academic and concurrent support recommended for students
HSGPA $<$ 2.6 and no Precalculus Success rate = 28%	Transfer-Level BSTEM Mathematics Additional academic and concurrent support strongly recommended for students

One group in Massachusetts, the Co-requisite at Scale English subcommittee, carefully examined the use of multiple measures across the United States. Evidence indicates that use of high school GPA as part of a multiple measures placement hierarchy improves the accuracy of the placement process and facilitates student progression into and through college-level coursework (Barnett and Reddy, 2017; Belfield & Crosta, 2012; Hetts, Sorey, Lamoree, Newell, Fagioli, Willett, & Hayward, 2016; Scott-Clayton, 2012; Welbeck, Barnett, Peterson, & Bostian, 2016). A number of studies have found that high school GPA is a stronger predictor of college success than single measure, high stakes placement tests (Belfield & Crosta, 2012; Center for Community College Student Engagement, 2016; Hodara & Lewis, 2017; Scott-Clayton, 2012). This is because, unlike standardized test scores, high school GPA measures learning over time and provides an indicator of a

student's academic motivation, attitude toward learning, and other non-cognitive characteristics that are associated with college success (Willett and Karandjeff, 2014). Researchers have found a strong correlation between high school GPA and successful completion of college-level English (Barnett and Reddy, 2017; Belfield & Crosta, 2012; Hetts, Sorey, Lamoree, Newell, Fagioli, Willett, & Hayward, 2016; Hodara & Lewis, 2017; Scott-Clayton, 2012; Welbeck, Barnett, Peterson, & Bostian, 2016).

Based on the research and local pilots, the Co-requisite at Scale English Subcommittee recommended the use of GPA to place students directly into college-level English. Department staff would like to thank members of the Co-requisite at Scale English Subcommittee for their extensive research and recommendations. These recommendations were incorporated into AAC 19-08 and approved by the Board in December 2018.

2019 Common Assessment Policy

The Department of Higher Education (DHE) and the Board of Higher Education (BHE), in partnership with public higher education institutions in Massachusetts, is focusing its efforts to increase the numbers of students graduating with degrees and certificates. More recently, the BHE has adopted an enhanced focus on advancing equitable outcomes for students attending public higher education institutions in the Commonwealth. The Board seeks to significantly raise the enrollment, attainment, and long-term success outcomes among underrepresented student populations, specifically students of color. The Board intends to use an equity lens priority to guide campus and system performance measurement and promote initiatives and policies that collectively expand success for residents and for our economy and society.

One of the most pressing issues that affects both college retention and graduation rates, particularly for traditionally underserved students, is the significant number of students who are required to enroll in developmental education courses despite the fact that they have successfully met all high school graduation requirements. Moving this important work forward and using an equity lens will ensure all students, especially those from underrepresented backgrounds, have a stronger chance at earning a postsecondary credential.

For almost a decade, the Department and Massachusetts public higher education institutions have evolved their approach to developmental education in order to better serve students. The DHE has adopted a three-pronged approach to reduce remediation and increase student success.

1. Assess students properly for credit-bearing courses using multiple measures;
2. Ensure students are completing the appropriate math for their major;
3. Provide students who require remediation access to co-requisite courses in mathematics, reading, and writing.

Institutions of public higher education are encouraged to adopt this approach at scale.

Goals

The Board of Higher Education sets the following goals for institutions of public higher education:

- At community colleges, 50% of first-time, degree-seeking students will successfully complete a college-level English and a college-level mathematics course appropriate for their major within one year of initial enrollment/before earning 24 credits unless specified differently in their course of study by AY 2020-2021.
- At state universities and University of Massachusetts campuses, 75% of entering first-year degree-seeking students will successfully complete a college-level English and a college-level mathematics course appropriate for their major within the first year of initial enrollment/before earning 24 credits unless specified differently in their course of study by AY 2020-2021.

Policy

Placement Standards

Institutions of public higher education should use the following standards to place students directly into college-level, credit-bearing English and mathematics courses:

English

Standard A: GPA Standard

Students who have graduated from high school within the past ten years and have earned a 2.7 high school GPA do not have to complete an Accuplacer and/or Writeplacer exam.

Standard B: SAT Standard

Students who score over 500 on the SAT I-Verbal exam are exempt from the reading test. Students who score over 600 on the SAT I-Verbal exam are exempt from both reading and writing tests.

Standard C: Accuplacer/Writeplacer Standard

For students who are not deemed eligible under the above standards, there are two options for using Accuplacer and/or Writeplacer to assess students.

1. Option 1 for Placing Students into Composition I:
 - Students who score a 5 on the Writeplacer.
 - Students who score a 5 on the Writeplacer and a 245 on the Reading Accuplacer.
2. Option 2 for Placing into Composition I:
 - Students who score a 4 on the Writeplacer and meet state university and University of Massachusetts admission standards.
 - Students who score a 4 on the Writeplacer and a 259 on the Reading Accuplacer.

Unless the student is entitled to an accommodation, they should have no more than an hour to complete the Writeplacer exam.

Mathematics

The following placement standards recognize efforts to implement and scale multiple mathematics pathways. The four mathematics pathways are Calculus, Elementary Education, Quantitative Reasoning, and Statistics.

Standard A: GPA Standard

Students who have graduated from high school within the past three years, have earned a 2.7 high school GPA, and will enroll in a college-level Quantitative Reasoning or Statistics, do not

have to complete an Accuplacer exam and may be placed directly into a Quantitative Reasoning or Statistics course.

Institutions may also use the 2.7 HS GPA standard to place students into other gateway college-level mathematics courses below the level of calculus or any mathematics course in the elementary education pathway.

Standard B: Accuplacer Standards by Mathematics Pathway

Quantitative Reasoning and Statistics Mathematics Pathways

- If a student is not deemed to be eligible under Standard A they must score at least a 262 on the Next Generation Accuplacer – Quantitative Reasoning, Algebra, and Statistics exam to place directly into a college-level Quantitative Reasoning or Statistics course. Institutions may set a higher cut score up to 268.

Elementary Education Pathways

- If a student is not deemed to be eligible under Standard A, they must score at least a 268 on the Next Generation Accuplacer – Quantitative Reasoning, Algebra, and Statistics exam in order to be directly placed into the first course in the Elementary Education mathematics pathway sequence.

Calculus Mathematics Pathways

- If a student is not deemed to be eligible under Standard A, they must score at least a 268 on the Next Generation Accuplacer – Quantitative Reasoning, Algebra, and Statistics exam in order to be directly placed into a College Algebra/Introduction to Functions course.
- If a student is not deemed to be eligible under Standard A, they must score at least a 237 on the Next Generation Accuplacer – Advanced Algebra and Functions exam to place directly into Pre-Calculus. Institutions may set a higher cut score up to 243.
- Students must score at least a 250 on Next Generation Accuplacer – Advanced Algebra and Functions exam to place directly into Calculus. Institutions may set a higher cut score up to 263.

In an effort to reduce the amount of time a student is being tested, institutions should carefully review multiple factors when determining whether a student needs to complete an Accuplacer exam. If required to complete the Accuplacer exam, students should complete the test that will place them directly into the mathematics course appropriate for their major.

Institutional Placement Guidelines

Institutions of public higher education will submit to the Department placement guidelines no later than December 1, 2019. Placement guidelines should include the following elements:

- A detailed plan which outlines how the institution is going to meet the goal set by the Board for percent of first-time, degree-seeking students completing college-level English and mathematics courses by the end of their first year/before earning 24 credits. This should include:
 - Standards for assessing students' readiness for college-level coursework that include multiple measures (i.e. Accuplacer scores, high school GPA, and SAT scores);
 - Plans for scaling the co-requisite course offerings in reading, writing, and within each of the four mathematics pathways.
- Examples of advising materials related to placement options for students and families.

Department staff will work closely with institutions of public higher education to monitor progress towards statewide goals. In some cases, changes to institutional placement guidelines might be suggested in order to improve student outcomes.

Next Steps

Department staff will continue to convene groups of campus stakeholders who are working on areas related to transforming developmental education. Further, working groups will examine the use of other/additional measures for the purposes of placement (e.g. SAT scores, Algebra II grades, MCAS 2.0 etc.).

Department staff will enhance data collections in order to better learn which measures are being used to place students directly into college-level mathematics (e.g. 2.7 cumulative high school GPA is used to place students in college-level quantitative reasoning and statistics courses). Department staff will also develop a course completion indicator ("flag") for all courses that satisfy Quantitative Reasoning requirements.

Department staff will revisit the Common Assessment Policy regularly, at a minimum every two years. The review should also include an evaluation of current cut scores for standardized exams and the current high school GPA threshold.

The 2019 Common Assessment Policy will supersede any past policies or practices of the BHE governing the same subject.

Appendix A: Acknowledgements

The Department of Higher Education would like to recognize and thank the following individuals who contributed to the development of these recommendations.

Co-requisite at Scale – English

Patricia Allen, Cape Cod Community College
Anne Bonemery, Former Member, Springfield Technical Community College
Christian Bednar, North Shore Community College
Lori Catalozzi, Bunker Hill Community College
Rebecca Coco, Massasoit Community College
Brenda D'Alotto, Massasoit Community College
Melissa Fama, Former Member, Mount Wachusett Community College
Joanna Fortna, Northern Essex Community College
JP Nadaeu, Bristol Community College
Laurie Occhipinti, Mount Wachusett Community College
Janice Rogers, Northern Essex Community College

Accuplacer Cut Scores Working Group

Mary Ann Barbato, Fitchburg State University
Chris Coffin, Fitchburg State University
Linda Dart-Kathios, Middlesex Community College
Donna Felisberto, Northern Essex Community College
Joanna Fortna, Northern Essex Community College
Lisa Gim, Fitchburg State University
Swati Kelkar, Bunker Hill Community College
Jill Keller, Middlesex Community College
Stephanie Marchetti, Mount Wachusett Community College
Sharon Medeiros, Bridgewater State University
Audrey Nahabedian, Middlesex Community College
Liz Recko-Morrison, Berkshire Community College
Matthew Salomone, Bridgewater State University
Rebecca Targove, Holyoke Community College
Renee Tastad, Holyoke Community College

Appendix B: Bibliography

A Common Vision for Undergraduate Mathematics Sciences Programs in 2025. Saxe, K. and Braddy, L. (2015). The Mathematical Association of America.

<https://www.maa.org/sites/default/files/pdf/CommonVisionFinal.pdf>.

Assembly Bill (AB) 705 Implementation Memo. Hope, L. and Stanskas, J. (2016, July).

Retrieved from

<https://static1.squarespace.com/static/5a565796692ebefb3ec5526e/t/5b6ccfc46d2a73e48620d759/1533857732982/07.18+AB+705+Implementation+Memorandum.pdf.pdf>.

Board of Education Approves Recommended High School Program of Studies. (2007, November). Department of Elementary and Secondary Education. Malden, Massachusetts.

Retrieved from <http://www.doe.mass.edu/news/news.aspx?id=3805>.

College Placement Strategies: Evolving Considerations and Practices. Barnett, E. and Reddy, V. (2017, February). Center for the Analysis of Postsecondary Readiness. Retrieved from

<https://ccrc.tc.columbia.edu/publications/college-placement-strategies-evolving-considerations.html>.

Corequisite Remediation: Spanning the Completion Divide. (2016, January). Complete College America. Retrieved from <http://completecollege.org/spanningthedivide/>.

Degrees of Freedom: Diversifying Math Requirements for College Readiness and Graduation. (2015, April). Burdman, P. Policy Analysis for California Education. California.

Retrieved from <http://www.edpolicyinca.org/publications/degrees-freedom-diversifying-math-requirements-college-readiness-and-graduation-report-1-3-part-series>.

Do High-Stakes Placement Exams Predict College Success? Scott-Clayton, J. (2012, February).

Retrieved from <https://ccrc.tc.columbia.edu/publications/high-stakes-placement-exams-predict.html>.

Early Findings from the New Mathways Project. Rutschow, E. and Diamond, J. (2015, April).

MDRC. New York City, New York. Retrieved from <https://www.mdrc.org/publication/laying-foundations/file-full>.

Extending Campus Working in the Area of Developmental Mathematics. (2016, January).

Massachusetts Board of Higher Education. Boston, Massachusetts. Retrieved from

http://www.mass.edu/bhe/lib/documents/AAC/10_AAC%2016-19%20Developmental%20Math%20Pilots%20and%20Qualitative%20Study.pdf.

Guidelines for the mathematical preparation of elementary teachers. Massachusetts Department of Elementary and Secondary Education. (2007). Malden, Massachusetts. Retrieved from <http://www.doe.mass.edu/mtel/mathguidance.pdf>.

Increasing Mathematics Requirement of Admission Standards. (2011, March). Massachusetts Board of Higher Education. Boston, Massachusetts. Retrieved from <http://www.mass.edu/bhe/lib/documents/AAC/AAC11-24Math.pdf>.

Mathematics for pre-service elementary (K-5) teacher education: Recommendations from professional organization and requirement from the higher education sector. Cullinane, J, Martin, J., and Massey, K. (2016). The University of Texas at Austin - Charles A. Dana Center. Austin, Texas. Retrieved from <https://dcmathpathways.org/resources/program-study-issue-brief-mathematics-pre-service-elementary-k-5-teacher-education>.

Moving Beyond the Placement Test: Multiple Measures Assessment. Welbeck, R., Barnett, E., Peterson, G., & Bostian, B. (2016, July). Retrieved from <https://ccrc.tc.columbia.edu/media/k2/attachments/moving-beyond-placement-test-multiple-measures.pdf>.

Multiple Measures High School Variables Model Summary – Phase II. Newell, M., Hetts, J., Willett, T., Hayward, C., Fagioli, L., Sorey, K., Lamoree, D., Bahr, P. (2016). Retrieved from https://rpgroup.org/Portals/0/Documents/Projects/MultipleMeasures/DecisionRulesandAnalysisCode/Statewide-Decision-Rules-5_18_16_1.pdf.

North Carolina Diagnostic and Placement Test. Retrieved from <https://www.nccommunitycolleges.edu/student-services/nc-diagnostic-and-placement-test>.

Position on the Appropriate Use of Intermediate Algebra as a Prerequisite Course. (2014, November). American Mathematical Association of Two-Year Colleges. Memphis, Tennessee. Retrieved from <http://www.amatyc.org/?page=PositionInterAlg>.

Predicting Success in College: The Importance of Placement Tests and High School Transcripts. Belfield, C. & Crosta, P. (2012, February). Retrieved from <https://ccrc.tc.columbia.edu/publications/predicting-success-placement-tests-transcripts.html>.

The State Development of Education: Higher Education and Public Policy Priorities. Parker, T., Barret, T., & Bustillos, L.T. (2014. December).

STEM Attrition: College Students' Paths Into and Out of STEM Fields. Chen, X. and Soldner, M. (2013, November). National Center for Education Statistics. Washington, D.C. Retrieved from <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014001rev>.

Stepping Up: Improving Progression in English and Math from High School to College. Student Transcript-Enhanced Placement Study. Willet, T. & Kelley, K. (2017). Retrieved from <https://eric.ed.gov/?id=ED566393>.

Task Force for Transforming Developmental Math Education Final Report. (2013, October). Massachusetts Department of Higher Education. Boston, Massachusetts. Retrieved from <http://www.mass.edu/bhe/lib/documents/AAC/AAC14-12DevelopmentalMathEducationTaskForceRecommendations-supersededbyOct22ndAACmeetingedit.pdf>.

The Case for Mathematics Pathways. Getz, A. and Ortiz, H. (2016, October). The University of Texas at Austin - Charles A. Dana Center. Austin, Texas. Retrieved from <https://dcmathpathways.org/sites/default/files/resources/2016-11/The%20Case%20for%20Mathematics%20Pathways.pdf>.