|  |
| --- |
| Advancing STEM and English AP Program Evaluation—Year 8  AP Course Availability Report  Final Report |
| May 2020 |

Advancing STEM and English AP Program Evaluation—Year 8

*AP Course Availability Report*

Prepared by the UMass Donahue Institute’s  
Applied Research & Program Evaluation Group

|  |  |  |
| --- | --- | --- |
| **Project Director**  Jeremiah Johnson, Ph.D.  Senior Research Manager  **Project Manager**  Donna Spraggon, M.Sc.  Senior Research Analyst  **Primary Analyst**  Katie Ness, M.S.  Research Analyst |  | |
| The University of Massachusetts Donahue Institute is an outreach and economic development arm of the University of Massachusetts President’s Office. Established in 1971, the Institute strives to connect its clients with the resources of the University, bridging theory and innovation with real world public and private sector applications. For more information: [www.donahue.umassp.edu](http://www.donahue.umassp.edu/).  The Institute’s Applied Research & Program Evaluation (ARPE) group enables education, public health, and human service organizations to make data-driven decisions to enhance program quality and capacity.  Specializing in rigorous and innovative social science research methods, ARPE works closely with federal, state, and local agencies, quasi-public agencies, and both non-profit and for-profit organizations to support programmatic and system-wide decision making. | |

Contents

[Acknowledgments ii](#_Toc41859336)

[Executive Summary iii](#_Toc41859337)

[Key Findings iv](#_Toc41859338)

[Introduction 1](#_Toc41859339)

[Evaluation Design 3](#_Toc41859340)

[Data and Data Analysis 6](#_Toc41859341)

[Descriptive Analysis 6](#_Toc41859342)

[Quasi-experimental Analysis 7](#_Toc41859343)

[Methods for Quasi-experimental Analysis 8](#_Toc41859344)

[Propensity Score Weighting for CITS Models 8](#_Toc41859345)

[Findings 10](#_Toc41859346)

[Descriptive Analysis 10](#_Toc41859347)

[Quasi-experimental Analysis 13](#_Toc41859348)

[Summary 16](#_Toc41859349)

[Appendices 17](#_Toc41859350)

[Appendix A 18](#_Toc41859351)

[Appendix B 20](#_Toc41859352)

[Appendix C 65](#_Toc41859353)

# Acknowledgments

The UMass Donahue Institute extends its sincere appreciation to the many people who supported and collaborated with us on this evaluation. In particular, we want to thank personnel from the Massachusetts Department of Elementary and Secondary Education, and Mass Insight Education and Research.

# Executive Summary

The Massachusetts Department of Elementary and Secondary Education (DESE) is engaged in numerous initiatives to increase the college and career readiness of students in the Commonwealth, to reduce proficiency gaps and improve academic achievement for all population groups, and to enhance the “STEM pipeline” of students who are interested in and well prepared for postsecondary education and careers in science, technology, engineering, and mathematics (including computer science). One of these initiatives is the AP STEM and English program. As specified by DESE, the goals of the program center on promoting student achievement in Advanced Placement courses and exams, especially among historically underrepresented populations and school and teacher transformation related to the delivery and sustainment of AP programming.

To meet these program goals and track efforts to improve student achievement, DESE contracted with Mass Insight Education and Research (Mi) as a vendor to implement tasks and responsibilities aligned with the purposes of the program. Mi aims to implement four key tasks in partner schools that participate in the statewide program:

1. Increase participation and improve performance in AP science, mathematics, and ELA courses and on exams, with a focus on historically underserved students.
2. Increase the effectiveness of AP science, mathematics, and ELA teachers.
3. Increase the number of new and/or additional AP science, mathematics, and ELA courses offered by districts and schools in the Commonwealth.
4. Develop collaborations with other existing and/or newly established AP initiatives or organizations to build a robust and collaborative support system for historically underserved students, their parent(s)/guardian(s), and teachers.

In their work to complete these tasks, Mi is responsible for a variety of activities falling in three main tiers of assistance: 1) teacher supports, 2) student supports, and 3) school supports. Considering these three overarching types of support offered by Mi, the Year 8 evaluation study focused on measuring the outcomes that occurred as a result of teachers, students, and/or schools receiving Mi support. More specifically, this year’s evaluation focused on three program outcomes, which note that schools participating in Mi’s program should show increased AP course availability, more students taking AP exams and courses, and more students scoring a 3 or better on AP exams.

To measure these three program outcomes, the Year 8 study will include a series of reports that will provide descriptive information and measure program outcomes on AP course availability, AP course participation and passing rates, and AP exam participation and passing rates for AP STEM and English courses:

* AP Course Availability Report
* AP Course Participation and Passing Rates, Descriptive Report
* AP Course Participation and Passing Rates, Analysis Report
* AP Exam Participation and Passing Rates, Descriptive Report
* AP Exam Participation and Passing Rates, Analysis Report

DESE contracted with the University of Massachusetts Donahue Institute (UMDI) to conduct the multiyear evaluation of the Mi program. UMDI previously submitted interim and final evaluation reports for Years 1–7. This report for the Year 8 evaluation provides a summary on AP course availability, and aims to respond to the following questions:

1. How many AP science, mathematics, and ELA courses have been available in participating schools over time, particularly in schools with limited offerings for economically disadvantaged and underrepresented minority students?
2. Has there been a change in the availability of AP science, mathematics, and ELA courses in participating schools compared to similar non-participating schools? If change is observed, is it positive (i.e., increased availability of AP science, mathematics, and ELA courses)?

UMDI collected several secondary data sources from DESE to address this question.

## Key Findings

In brief, findings in this report indicate that:

1. Overall, the number of unique AP course sections offered at participating schools has increased over time. The greatest increases occurred between SY11 and SY15, after which smaller increases or slight decreases were observed.
2. In general, the number of AP course sections offered in all three subject areas—ELA, math, and science—increased over time. Although increases across subjects were relatively consistent, AP ELA course section offerings did increase the most.
3. Participating schools experienced significant additional increases in the number of unique course sections offered when compared to similar non-participating schools in the first year of program participation.

# Introduction

The Massachusetts Department of Elementary and Secondary Education (DESE) is engaged in numerous initiatives to increase the college and career readiness of students in the Commonwealth, to reduce proficiency gaps and improve academic achievement for all population groups, and to enhance the “STEM pipeline” of students who are interested in and well prepared for postsecondary education and careers in science, technology, engineering, and mathematics (including computer science).

One of these initiatives is the AP STEM and English program (hereafter, “the program”). As specified by DESE, the goals[[1]](#footnote-1) of the program are to:

1. Increase AP science, mathematics, and ELA course availability, particularly at schools with limited AP science, mathematics, and ELA offerings and high percentages of historically underserved students,
2. Increase historically underserved students’ participation in AP science, mathematics, and ELA courses, such that the demographics of these courses better reflect the diversity of the student population of the school and district,
3. Increase student performance in AP science, mathematics, and ELA courses,
4. Increase the number of students taking AP exams, particularly historically underserved students,
5. Increase the number of students scoring a 3 or higher on AP exams, particularly underrepresented minority students and students who are economically disadvantaged,
6. Increase readiness for college-level study in science, mathematics, and ELA fields, and
7. Improve science, mathematics, and ELA teacher effectiveness, including content knowledge and pedagogical skills.

To meet these program goals and track efforts to improve student achievement, DESE contracted with Mass Insight Education and Research (Mi) as a vendor to implement tasks and responsibilities aligned with the purposes of the program. Mi has administered the program since the initiative’s inception in 2007, including under the program’s previous name, Mass Math + Science Initiative’s (MMSI) “Advanced Placement Training and Awards Program”.

Mi’s first cohort of the program was comprised of eight schools during the 2008–09 academic year. The program welcomed its 12th cohort of schools during the 2019–20 academic year. While Mi has continued to evolve their program over time to continue meeting the needs of participating schools, the key tasks to be implemented by the statewide program have been consistent over time. Namely, Mi aims to do the following in each participating school:

1. Increase participation and improve performance in AP science, mathematics, and ELA courses and on exams, with a focus on historically underserved students.
2. Increase the effectiveness of AP science, mathematics, and ELA teachers.
3. Increase the number of new and/or additional AP science, mathematics, and ELA courses offered by districts and schools in the Commonwealth.
4. Develop collaborations with other existing and/or newly established AP initiatives or organizations to build a robust and collaborative support system for historically underserved students, their parent(s)/guardian(s), and teachers.

In their work to complete these tasks, Mi is responsible for a variety of activities that fall into three main tiers of assistance: 1) teacher supports, 2) student supports, and 3) school supports. Specific examples of these forms of assistance include, but are not limited to, maintaining partnerships with schools with high percentages of minority and economically disadvantaged students, encouraging recruitment of minority and economically disadvantaged students into AP science and mathematics classes, providing exam fee subsidies to economically disadvantaged students, and supporting professional development for STEM AP teachers.

DESE contracted with the University of Massachusetts Donahue Institute (UMDI) to conduct the multiyear evaluation of the Mi program. UMDI previously submitted interim and final evaluation reports for Years 1–7. This report, for the Year 8 evaluation provides a summary on:

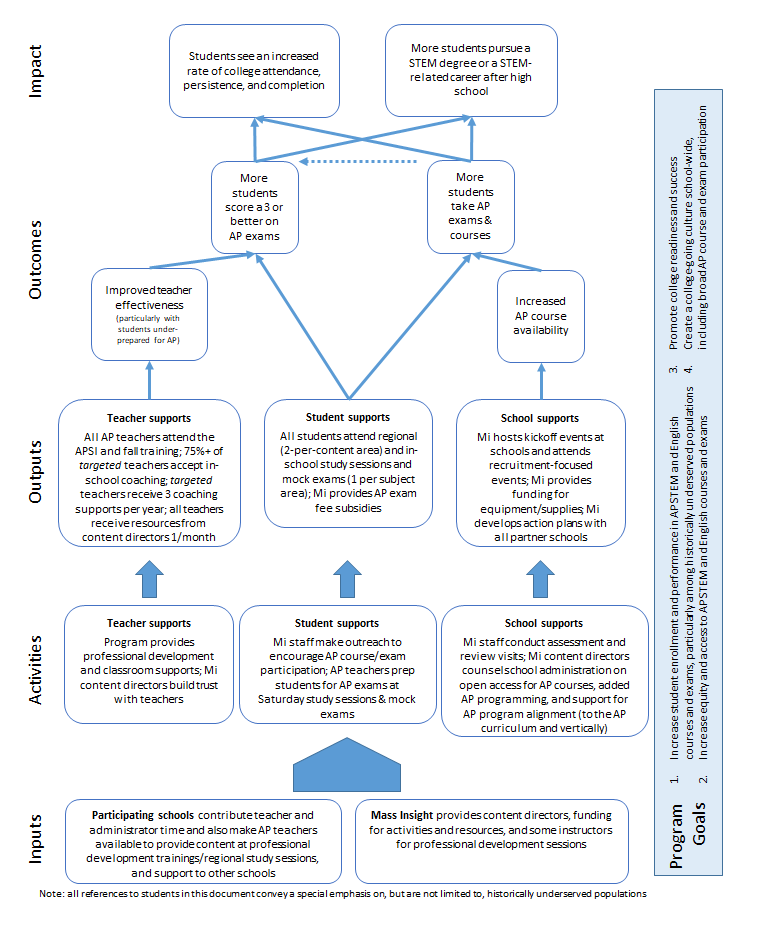
1. Descriptive information summarizing AP course availability at participating schools, and
2. Analyses comparing AP course availability at participating schools to those of similar nonparticipating schools.

This report is organized into five main sections. The first three sections—Evaluation Design, Data and Data Analysis, and Methods for Quasi-experimental Analysis—provide an overarching description of the Year 8 analysis, and summarize the methods of analysis for the descriptive and quasi-experimental analysis. The fourth section—Findings—is separated into two subsections, the first presenting the key results from the descriptive analysis, and the second presenting those from the quasi-experimental analysis. A final section summarizes this part of the Year 8 work.

# Evaluation Design

The Year 8 evaluation was designed to expand upon the work completed during two recent years—to be specific, Year 5 and Year 7. The Year 5 evaluation utilized a quasi-experimental design to assess outcomes for schools participating in the program. This quasi-experimental design was repeated for the Year 8 evaluation with additional years of data—although the design was modified to utilize the most robust statistical analysis for the available data. The outcomes measured by the quasi-experimental design were from the program’s logic model (Figure 1), which was updated during Year 7.

Figure 1. AP STEM and English Program Logic Model



The Year 8 evaluation study will focus on measuring three of the four outcomes included in the logic model: increased AP course availability, more students take AP exams and courses, and more students score a 3 or better on AP exams. Research questions intended to map on to these three outcomes were developed and finalized by DESE, Mi, and UMDI. These research questions fall into four categories and are as follows:

AP Course Availability

1. How many AP science, mathematics, and ELA courses have been available in participating schools over time, particularly in schools with limited offerings for economically disadvantaged and underrepresented minority students?
2. Has there been a change in the availability of AP science, mathematics, and ELA courses in participating schools compared to similar non-participating schools? If change is observed, is it positive (i.e., increased availability of AP science, mathematics, and ELA courses)?

AP Course Participation and Passing

1. Has there been a change in the percentage of students—particularly underrepresented and economically disadvantaged students—taking AP science, mathematics, and ELA courses at participating schools compared to similar non-participating schools? If change is observed, is it positive (i.e., increased percentage of students taking AP science, mathematics, and ELA courses)?
2. Has there been a change in the percentage of students—particularly underrepresented and economically disadvantaged students—passing AP science, mathematics, and ELA courses at participating schools compared to similar non-participating schools? If change is observed, is it positive (i.e., increased percentage of students passing AP science, mathematics, and ELA courses)?

AP Exam Participation and Passing

1. Has there been a change in the percentage of students—particularly underrepresented and economically disadvantaged students—taking AP science, mathematics, and ELA exams at participating schools compared to similar non-participating schools? If change is observed, is it positive (i.e., increased percentage of students taking AP science, mathematics, and ELA exams)?
2. Has there been a change in the percentage students—particularly underrepresented and economically disadvantaged students—passing AP science, mathematics, and ELA exams at participating schools compared to similar non-participating schools? If change is observed, is it positive (i.e., increased percentage of students passing AP science, mathematics, and ELA exams)?

Summary Questions

1. What can be learned—through descriptive analysis—about trends in AP exam taking?
2. What portion of schools experience marked increases in AP exam participation during their first year of program participation?

To answer these research questions, the Year 8 study will deliver a series of reports that will provide descriptive information and measure program outcomes on (1) AP course availability, (2) AP course participation and passing rates, and (3) AP exam participation and passing rates for AP STEM and English courses. With the exception of this AP Course Availability Report, one report with descriptive statistics and one report with the results from the quasi-experimental analysis will be written for each of these outcome areas, for a total of five reports:

* AP Course Availability Report
* AP Course Participation and Passing Rates, Descriptive Report
* AP Course Participation and Passing Rates, Analysis Report
* AP Exam Participation and Passing Rates, Descriptive Report
* AP Exam Participation and Passing Rates, Analysis Report

This first report presents results from descriptive and quasi-experimental analyses completed to address research questions 1a and 1b on AP course availability:

1. How many AP science, mathematics, and ELA courses have been available in participating schools over time, particularly in schools with limited offerings for economically disadvantaged and underrepresented minority students?
2. Has there been a change in the availability of AP science, mathematics, and ELA courses in participating schools compared to similar non-participating schools? If change is observed, is it positive (i.e., increased availability of AP science, mathematics, and ELA courses)?

Information on the data included in these analyses, and how the data was analyzed follows in the next section.

# Data and Data Analysis

This report includes (1) an analysis of descriptive information on course availability for AP STEM and English courses at participating schools, and (2) analyses comparing course availability for AP STEM and English courses at participating schools to those of similar non-participating schools.

These analyses are based on AP course data, from the Student Course Schedule (SCS) data file, provided by DESE from SY11 to SY19.[[2]](#footnote-2) Data were merged with corresponding SIMS data in order to identify key demographic information for participating students—where participating students were those in grades 9–12, and were enrolled in schools that are part of the AP STEM and English program. From the newly merged data file with student-level data, a list was compiled of all AP ELA, math, and science courses offered at each participating school. The compiled list of AP courses available at each school was used to conduct the descriptive and quasi-experimental analyses:

* Descriptive analyses used the list to report the number of AP STEM and English courses that are available at participating schools. Specifically, the number of AP ELA courses, AP math courses, AP science courses, and an aggregated count of all AP ELA, math, and science courses.
* Quasi-experimental analyses used the list to compare the number of AP STEM and English courses available at participating schools to the number of AP STEM and English courses available at similar non-participating schools. Four separate comparisons between participating and non-participating schools were completed; one for the number of AP ELA courses, AP math courses, AP science courses, and an aggregated count of all AP ELA, math, and science courses.

Schools that were included in the analyses were dependent on the availability of the data needed for each analysis, as the AP STEM and English program utilizes a cohort model format—where schools are selected to join the program each year—and the amount of data available for each school varies. More information on the schools included in each set of analyses, and about the analyses in general, is provided below.

## Descriptive Analysis

The descriptive analyses included student-level data from schools that are part of Cohort III through Cohort XI. Cohort III joined the program for the 2010–11 school year, and Cohort XI joined the program for the 2018–19 school year. Student-level data from the schools that are part of Cohort XII (2019–20 school year) are not included in the descriptive analysis because the necessary data was not available for this cohort. Schools that are part of Cohorts 1 and 2 are also not included in the descriptive analysis, as SCS data was available starting in the 2010–11 school year (Cohort 3). To view the full list of schools that are part of each cohort, and therefore included in the descriptive analysis, please see Table 2 in Appendix B. Please note that nine participating schools were not included in the descriptive analysis, because they were identified as not having fully implemented the program by DESE and Mi. These schools were Stoughton High School, Milford High School, Wachusett Regional High School, Frontier Regional High School, Hoosac Valley Middle and High School, Rockland Senior High School, Weymouth High School, William J. Dean Technical High School, and KIPP Academy Lynn Collegiate High School. In total, 119 schools were included in the descriptive analysis.

Descriptive data summarized in this report include AP course section availability from the 119 schools participating in the AP STEM and English program as part of Cohorts III–XI. Results on AP course availability are presented separately by AP ELA courses, AP math courses, and AP science courses. An aggregated category of AP course availability for the three subject areas— AP ELA, math, *and* science—is also included. Descriptive analyses on student enrollment at participating schools were also conducted. These analyses summarize the number of students enrolled at each school, as well as the student demographic composition of each school, during their first year of participation. This information provides important context, as the number of students enrolled could affect the number of AP STEM and English course offerings at each school. Enrollment is given as an overall average (both weighted and unweighted) and is provided for each high school. Demographic characteristics summarized in these tables include race/ethnicity, gender, and for special populations, including low-income status, English language learner status, and disability status. See Table 3 in Appendix B for more information on demographic characteristics and Tables 4 and 5 in Appendix B for information on student enrollment.

## Quasi-experimental Analysis

Comparative interrupted time series (CITS) analyses were completed to compare AP course availability at participating schools to those of similar non-participating schools. The CITS analyses conducted—which are described in further detail in the next section—were based on schools that started the intervention during the 2014–15, 2015–16, or 2016–17 school year (Cohorts VII–IX). Analysis was limited to these cohorts because these were the only participating schools with the years of data available required to complete a CITS analysis. Again, earlier and later cohorts are not included in this analysis because the years of data required to complete a CITS model were not available. In total, 32 schools were included in the treatment group (participating schools) and 225 schools were considered for inclusion in the comparison group (non-participating schools).[[3]](#footnote-3) The actual number of schools included in the models varied by subject.

Quantitative results are presented by subject. Summaries of significant results are found in the “Findings” section. Full model results for all analyses are provided in Appendix C.

# Methods for Quasi-experimental Analysis

The AP STEM and English program is a school-level intervention. As such, analyses to assess the program’s impact on the number of unique AP courses offered (i.e., unique section count) were conducted at the school level, comparing participating AP STEM and English program schools (treatment schools) to similar schools that did not participate in the program (comparison schools).

Differences in treatment and comparison schools were assessed using a comparative interrupted time series (CITS) design. In this design, the number of unique AP course sections available in treatment and comparison schools are observed across multiple school years before and after the introduction of the AP STEM and English program. The AP STEM and English program is intended to “interrupt” the number of unique AP course sections available—and/or the trend (i.e., the change over time)—that would have been observed in the absence of the intervention. Using both AP STEM and English program schools and comparison schools is what makes the interrupted time series “comparative,” and this enables stronger inferences about the number of AP courses that would have been offered, and trends that would have been observed, in the absence of the AP STEM and English program.

A total of four CITS models were conducted to assess the impact of the AP STEM and English program on the number of unique AP courses available at participating schools. These models assessed the effects of the program on the number of unique (1) ELA, math, or science AP courses, (2) ELA AP courses, (3) math AP courses, and (4) science AP courses. Program impact on the number of unique AP courses offered was determined through a procedure called propensity score weighting.

## Propensity Score Weighting for CITS Models

The AP STEM and English program did not utilize random assignment because each school was selected by Mi to participate based on school characteristics. Therefore, it is likely that there were differences between treatment and comparison schools prior to intervention. These differences could have represented a significant threat to the validity of the study’s findings. To reduce these differences substantially, propensity score weighting procedures were used, thereby improving the validity of the estimates of program impacts.

In essence, propensity score weighting is used to approximate the results of random assignment by reducing multiple covariates (e.g., the number of AP courses available prior to the AP STEM and English program) to a single score called a propensity score. A propensity score was calculated for each treatment and comparison school that described the likelihood of that school participating in the AP STEM and English program. Weighting procedures were then applied to balance propensity scores for treatment and comparison schools. Propensity scores generated estimates of the average treatment effect for the treated (ATT) population. This approach is typical for quasi-experimental studies that try to assess the impact of a particular program, such as the AP STEM and English program.

Covariates used in the propensity score weighting procedure included pre-intervention number of unique AP course sections from the four school years prior to intervention, gender, race/ethnicity, ELL status, special education status, and average school MCAS CPI (by subject, as appropriate for each analysis). Once weights were assigned, the balance of the covariate distributions between treatment and comparison schools was assessed in terms of standardized bias. For this study, we considered a covariate to be balanced if the standardized bias was less than 0.25. Although there is no universal criterion for assessing precisely when balance has been achieved, 0.25 is commonly used.[[4]](#footnote-4)

To assess each CITS model’s potential for producing findings with a high likelihood of validity, the balance of covariates after weighting was considered. When propensity score weighting was completely successful, it yielded a comparison group that met the balance criteria (i.e., standardized bias less than 0.25) for all covariates. Models that achieved this criterion were designated as “fully balanced”. Models that could not be fully balanced were assessed to see if more than half of the variables used in the weighting equation achieved a standardized bias of less than 0.25 after weighting. Models that achieved this criterion were designated as “partially balanced.” Of the four models assessed, one was balanced after weighting, and three were considered partially balanced.

Even if individual covariates met the criteria just described for full balance or partial balance, the CITS analysis may determine that the four baseline years of course availability for ELA, math, and science AP courses—when considered—differed in terms of their initial level or their four-year baseline trend (corresponding to the *β4* and *β5* coefficients; see Appendix A). However, for all four models β4 and β5 are not significantly different from zero (see Appendix C). It is therefore reasonable to conclude that there is no evidence to suggest that the four baseline years of course availability differed between treatment and comparison schools, after weighting.

It is important to note, that the CITS analyses were dependent on the number of years for which data on AP course offerings was available. The time intervals for assessing impacts were based on the number of years between a given AP course being offered and when a school joined the AP STEM and English program. Only cohorts for which four years of pre-intervention data and two years of post-intervention data (seven total years of data) were available were eligible for inclusion in this analysis. The cohorts for which the necessary data was available for CITS analyses in this report included Cohort VII through Cohort IX. Cohort VII began their AP STEM and English program in SY15, Cohort VIII in SY16, and Cohort IX in SY17.

The “Findings” section below summarizes significant program impacts, indicating which models were only partially balanced or fully balanced, and which models showed a significant difference in the number of unique AP courses that were available, or a significant difference in the trend (i.e., change over time) with which unique AP courses were made available.

# Findings

This section presents the findings related to the number of unique ELA, math, and science AP courses that are available at participating schools—particularly in schools with limited offerings for economically disadvantaged and underrepresented minority students (research question 1a). Findings are organized in two subsections. The first subsection summarizes the descriptive analyses of course availability for AP STEM and English courses at participating schools. The second subsection summarizes the results of the quasi-experimental analysis comparing course availability for AP STEM and English courses at participating schools to those of similar non-participating schools.

Below are the key findings for the descriptive and quasi-experimental analyses.

|  |
| --- |
| **Summary of Key Findings** |
| * Overall, the number of unique AP course sections offered at participating schools has increased over time. The greatest increases occurred between SY11 and SY15, after which smaller increases or slight decreases were observed. * In general, the number of AP course sections offered in all three subject areas—ELA, math, and science—increased over time. Although increases across subjects were relatively consistent, AP ELA course section offerings did increase the most. * Participating schools experienced significant additional increases in the number of unique course sections offered when compared to similar non-participating schools during the first year of participation in the program. |

## Descriptive Analysis

Descriptive analyses on unique AP course offerings were conducted for each of the four AP STEM and English academic discipline groupings—ELA, math, or science; ELA; math; and science—by school.

As shown in Figure 2, the number of unique AP course sections that were offered by schools overall—across ELA, math, or science courses—increased over the life of the program, from 848 in SY11 to 1,378 in SY19. The largest increase in AP course availability was observed between SY14 and SY15, when 124 additional AP courses were added across schools. In addition, during this timeframe, the number of unique AP courses added across schools began to plateau. After SY15, smaller increases were observed from year to year (+32 AP courses from SY15 to SY16 and +45 AP courses from SY18 to SY19), or slight decreases were observed (-21 from SY16 to SY17 and -11 from SY17 to SY18).

| **Figure 2: Number of Unique AP Course Sections, Over Time, Across All ELA, Math, or Science Subjects** |
| --- |
|  |

Similar results were found when the number of unique AP course sections offered were broken down by subject: ELA, math, and science. Overall, the number of unique AP ELA, math, and science course sections offered by participating schools increased over time; although, year-to-year trends varied by subject area (see Figure 3). Math consistently reported the smallest number of unique AP course sections, with 260 AP courses available in SY11 and 432 AP courses available in SY19, an increase of 172 AP course sections. The largest increase in the number of unique AP math courses was between SY18 and SY19, when an additional 53 courses were added. The, generally, consistent increase in AP math course sections suggests that Mi is working with participating schools to increase their AP math course offerings.

ELA had the highest increase in the number of unique AP courses during the early years of the program, increasing from 293 AP course sections in SY11 to 477 AP course sections in SY15. AP ELA offerings plateaued after SY15, and even slightly decreased, as there were 474 AP ELA course sections during SY19. The results on the availability of AP ELA courses suggests that, during recent years, program focus may have shifted to other areas, such as increasing the number of AP math courses available.

There was a sharp increase in the number of AP science course sections between SY11 (295) and SY16 (520), with the biggest increase occurring between SY14 and SY15, when an additional 82 AP science course sections were added. Interestingly, the number of unique AP science course sections decrease after SY16, with 472 course sections being offered in SY19. These results, too, suggest that the program’s focus during recent years may have shifted, perhaps to increasing the number of unique AP math course sections available.

| **Figure 3: Number of Unique AP Course Sections by Subject, Over Time** |
| --- |
|  |

To further breakdown the number of unique AP course sections available at participating schools between SY11 and SY19, Table 2 in Appendix B (page 20) presents results by school. Schools are organized by cohort, and results are presented for each of the four AP STEM and English academic discipline groupings—(1) ELA, math, or science, (2) ELA, (3) math, (4) and science. As shown in the table, the number of schools participating in each cohort varied, and the number of AP course offerings varied widely among schools. Schools offered a minimum of zero ELA, math, or science AP course sections to a maximum of 54 sections. In addition to the influence of the AP STEM and English program, the variability in AP course sections observed over time—such as the increase observed from SY11 to SY15 and the plateau beginning in SY15 (see Figure 2)—may, at least in part, be due to:

* Preexisting characteristics of schools selected to join the program each year: Both Table 2 and Figure 2 include AP course data for all AP STEM and English schools between SY11 to SY19, regardless of which year the school joined the program. As such, preexisting characteristics—such as the level of importance schools had placed on AP programming prior to joining the program—may have affected the number of unique AP course sections offered by schools, prior to their joining the program.
* The number of schools selected to join the program each year: The AP STEM and English program aims to increase the number of AP course offerings at schools. As such, working with administrative staff to increase the number of AP STEM and English course sections is one of the many types of support that Mass Insight personnel provide to all participating schools. It is reasonable, then, for AP course offerings to increase over time as more schools join the program. Similar to the above figure, Figure 4 shows that—as the number of unique AP course sections increase over time, in general—the number of schools participating in the program also increases.

| **Figure 4: Number of Unique AP Course Sections with the Number of Participating Schools, Over Time** |
| --- |
|  |

## Quasi-experimental Analysis

For each of the four AP STEM and English academic discipline groupings, analyses were conducted to assess the program’s impact on AP course availability. The number of unique AP STEM and English course sections offered at participating schools was compared to the number of unique AP STEM and English course sections offered at similar schools that did not participate in the program (comparison schools). In total, four models were run to assess this impact: ELA, math, or science; ELA; math; and science.

Statistically significant program impacts were identified for all four of the models, as summarized in Table 1 below. Table 1 indicates significance in relation to two aspects of change in the number of unique AP ELA, math, or science course sections offered at schools. The first notes significant differences—between AP STEM and English program schools and comparison schools—in the number of unique AP course sections that were available at schools during the first year of program participation. These differences are under the “Change in Number of Unique AP Course Sections the Year of Participation” column. The second aspect of change in Table 1 is the “Annual Rate of Change in Number of Unique AP Course Sections”. This column indicates significant differences—between AP STEM and English program schools and comparison schools—in the annual rate of change in the number of AP ELA, math, or science course sections that were available at schools during the first three years after the intervention began. The changes are presented as the number of additional unique AP course sections offered, on average, with a positive number indicating that participating schools had an increase in course sections offered.

**Table 1: Impact of the AP STEM and English Program on AP Course Offerings: Summary of Significant Findings for ELA, Math, or Science Courses**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model Description**  **(Subgroup)** | **Change in Number of Unique AP Course Sections the Year of Participation1** | **Annual Rate of Change in Number of Unique AP Course Sections1** | |
| Any ELA, Math, or Science | 2.8\*\* | n.s. | |
| ELA° | 0.9\* | n.s. | |
| Math° | 0.8\*\* | n.s. | |
| Science° | 1.4\* | n.s. | |
| *Note*: “n.s.” means “no significant findings.” Only statistically significant results are presented.  \* p<.05, \*\* p<.01  1 Change in the number of unique AP course sections offered at a school. A positive number indicates an increase in the number of unique AP course sections offered.  °After propensity score weighting, AP STEM and English schools and comparison schools were only partially balanced. | | |

Overall, the number of unique AP ELA, math, or science course sections offered increased for both treatment and control schools during the intervention period. Results show that the AP STEM and English program did impact the number of the unique AP course sections offered at AP STEM and English schools, as more course sections were offered at treatment schools than at comparison schools. Table 1 above shows that participating schools offered—on average—an additional 2.8 unique AP ELA, math, or science course sections during the first year of the intervention, when compared to similar comparison schools. By subject area, participating schools offered an additional 0.9 AP ELA course sections, 0.8 AP math course sections, and 1.4 AP science course sections—on average—during the first year of the intervention. The change in the number of unique AP course sections offered was significant for each of the four academic discipline groupings.

Although additional AP ELA, math, or science course sections were offered at participating schools during their first year of participation, results show that there was no additional increase over time. During the first three years of the program, no significant differences—between treatment schools and similar comparison schools—in the trend of the number of unique AP course sections available at schools were detected.

# Summary

A primary goal of the AP STEM and English program is to increase the number of new and/or additional AP ELA, math, and science courses offered by districts and schools in the Commonwealth. In line with this goal, we found that the program did have a positive effect on the number of AP courses available at participating schools.

The number of unique AP course sections offered by participating schools overall—across ELA, math, or science courses—increased over the life of the program between SY11 and SY19. The largest increases in AP course availability was observed through SY15, after which smaller increases—or even slight decreases—in AP ELA, math, or science course offerings were observed.

The number of unique AP course sections also increased by individual subject area: ELA, math, and science. Across participating schools, the smallest number of unique AP course sections was consistently offered for math. In general, though, the number of AP math course sections available at participating schools consistently increased over time, suggesting that Mi is working effectively with participating schools to increase their AP math course offerings. ELA had the highest increase in the number of unique AP courses during the early years of the program, with AP course availability plateauing—and even slightly decreasing—after SY15. AP science course sections also showed sharp increases during the early years of the program, with course section offerings decreasing after SY16. Descriptive results on ELA and science AP course availability suggest that, during recent years, the program’s focus may have shifted, perhaps towards increasing the number of unique AP math course sections.

Overall, the number of unique ELA, math, and science AP course section offerings increased for both treatment and control schools during the intervention period. An additional 2.8 unique ELA, math, or science AP course sections were offered at participating schools when compared to similar non-participating schools. By subject area, CITS models demonstrate that participating schools offered an additional 0.9 AP ELA course sections, 0.8 AP math course sections, and 1.4 AP science course sections.

Results show, though, that there was no additional increase after the first year of program participation, as no significant differences were detected in course availability trends between treatment and comparison schools during the first three years after program implementation.

**Appendices**

# Appendix A

**Modeling Procedures for Comparative Interrupted Time Series (CITS) Analyses**

For each academic discipline (i.e., ELA, math, and science), a CITS model was developed to assess the impact of the AP STEM and English program on the number of unique course sections of AP offered at each school—one year after the program began—and the trend (i.e., the slope) of the number of sections of AP courses offered at each school—during the three year period after the program began.

This procedure was used for all four CITS models. The following equation represents the CITS model:

*Yit = β0 + β1Timet, + β2Interventiont + β3TimetInterventiont* ***+*** *β4Participanti + β5ParticipantiTimet + β6ParticipantiInterventiont + β7ParticipantiTimetInterventiont + ui +eit*

In this model, Yit is the outcome measure for a school *i* at time *t*. *Timet* is the time in years since the start of the study. *Interventiont* is an indicator of whether or not a school was participating in the intervention at time *t*. *TimetInterventiont* is an interaction between *Timet* and *Interventiont*. *Participanti* is an indicator for a school *i* that participated in the AP STEM and English program (by academic discipline). *ParticipantiTimet* , *ParticipantiInterventiont* , and *ParticipantiTimetInterventiont* are interaction terms used in comparisons of multiple groups. Random effects were included to account for school and individual observation effects by adding a random error term for each school (ui), and individual observations (eit).

The *β0* to *β3* coefficients represent the control group; The *β4* to *β7* coefficients represent differences between the treatment and control groups. *β1* represents the slope, or trajectory of the outcome variable until the introduction of the intervention. *β2*represents the change in the level of the outcome variable that occurs in the period immediately following the introduction of the intervention. *β3*represents the difference between pre- and post-intervention slopes of the outcome. *β4* represents the difference in the level (intercept) between treatment and control prior to intervention; *β5* represents the difference in the slope between treatment and control prior to intervention; *β6* represents the impact of the AP STEM and English program on the number of sections of AP courses offered at each school. *β7* represents the impact of the AP STEM and English program on the trend (i.e., the slope) of the number of unique AP course sections offered at each school during the three-year period after the program began.

Two parameters, *β4* and *β5*, play a role in establishing whether the treatment and control groups are balanced on both the level and trajectory of the outcome variable in the pre-intervention period. If these data were from a randomized controlled trial, we would expect similar levels and slopes prior to the intervention. However, in an observational study where equivalence between groups cannot be assumed, any observed differences will likely raise concerns about the ability to draw causal inferences about the relationship between the intervention and the outcomes (Linden and Adams, 2011).[[5]](#footnote-5) When the value for *β4* and/or *β5* is statistically significant, it indicates that, despite propensity score weighting, significant pre-intervention differences in AP STEM and English schools’ and comparison schools’ number of AP course sections remained.

# Appendix B

**Unique AP Course Sections, Descriptive Results**

**Table 2: Number of Unique AP Course Sections by Year for Participating Schools**

| **School** | **School Year** | **ELA, Math, or Science Courses**  **(N)** | **ELA Courses (N)** | **Math Courses (N)** | **Science Courses (N)** |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
| **All Participating High Schools** | SY11 | 848 | 293 | 260 | 295 |
| SY12 | 974 | 348 | 288 | 338 |
| SY13 | 1,136 | 417 | 322 | 397 |
| SY14 | 1,209 | 451 | 349 | 409 |
| SY15 | 1,333 | 477 | 365 | 491 |
| SY16 | 1,365 | 476 | 369 | 520 |
| SY17 | 1,344 | 458 | 401 | 485 |
| SY18 | 1,333 | 465 | 379 | 489 |
| SY19 | 1,378 | 474 | 432 | 472 |
|  | **School Year** | **ELA, Math, or Science Courses**  **(N)** | **ELA Courses (N)** | **Math Courses (N)** | **Science Courses (N)** |
| **Cohort 1** |  |  |  |  |  |
| Chelsea High School | SY11 | 9 | 4 | 2 | 3 |
| SY12 | 9 | 3 | 2 | 4 |
| SY13 | 11 | 5 | 2 | 4 |
| SY14 | 12 | 5 | 3 | 4 |
| SY15 | 14 | 5 | 5 | 4 |
| SY16 | 12 | 3 | 2 | 7 |
| SY17 | 13 | 5 | 2 | 6 |
| SY18 | 10 | 4 | 1 | 5 |
| SY19 | 10 | 5 | 2 | 3 |
| John D. O’Bryant School of Mathematics and Science | SY11 | 14 | 4 | 5 | 5 |
| SY12 | 13 | 5 | 4 | 4 |
| SY13 | 14 | 5 | 5 | 4 |
| SY14 | 13 | 4 | 4 | 5 |
| SY15 | 17 | 5 | 4 | 8 |
| SY16 | 19 | 5 | 4 | 10 |
| SY17 | 14 | 3 | 5 | 6 |
| SY18 | 25 | 9 | 6 | 10 |
| SY19 | 24 | 6 | 7 | 11 |
| Malden High School | SY11 | 16 | 5 | 5 | 6 |
| SY12 | 15 | 5 | 4 | 6 |
| SY13 | 15 | 4 | 6 | 5 |
| SY14 | 16 | 3 | 6 | 7 |
| SY15 | 21 | 6 | 6 | 9 |
| SY16 | 19 | 5 | 5 | 9 |
| SY17 | 18 | 5 | 5 | 8 |
| SY18 | 17 | 5 | 6 | 6 |
| SY19 | 15 | 4 | 6 | 5 |
| Marlborough High School | SY11 | 12 | 3 | 3 | 6 |
| SY12 | 17 | 7 | 3 | 7 |
| SY13 | 17 | 7 | 3 | 7 |
| SY14 | 17 | 7 | 3 | 7 |
| SY15 | 21 | 7 | 3 | 11 |
| SY16 | 20 | 6 | 5 | 9 |
| SY17 | 22 | 11 | 5 | 6 |
| SY18 | 26 | 13 | 5 | 8 |
| SY19 | 24 | 11 | 4 | 9 |
| North High School | SY11 | 10 | 0 | 5 | 5 |
| SY12 | 29 | 8 | 9 | 12 |
| SY13 | 36 | 12 | 12 | 12 |
| SY14 | 12 | 4 | 4 | 4 |
| SY15 | 14 | 4 | 5 | 5 |
| SY16 | 17 | 5 | 5 | 7 |
| SY17 | 16 | 6 | 5 | 5 |
| SY18 | 14 | 6 | 4 | 4 |
| SY19 | 11 | 4 | 3 | 4 |
| Northampton High School | SY11 | 22 | 9 | 3 | 10 |
| SY12 | 19 | 9 | 3 | 7 |
| SY13 | 20 | 9 | 4 | 7 |
| SY14 | 21 | 10 | 3 | 8 |
| SY15 | 20 | 10 | 5 | 5 |
| SY16 | 18 | 9 | 4 | 5 |
| SY17 | 22 | 9 | 6 | 7 |
| SY18 | 20 | 8 | 5 | 7 |
| SY19 | 26 | 8 | 9 | 9 |
| Revere High School | SY11 | 26 | 8 | 10 | 8 |
| SY12 | 27 | 8 | 9 | 10 |
| SY13 | 33 | 8 | 13 | 12 |
| SY14 | 35 | 8 | 15 | 12 |
| SY15 | 35 | 8 | 15 | 12 |
| SY16 | 35 | 8 | 15 | 12 |
| SY17 | 32 | 6 | 16 | 10 |
| SY18 | 33 | 8 | 15 | 10 |
| SY19 | 29 | 6 | 17 | 6 |
| Springfield Central High School | SY11 | 17 | 5 | 4 | 8 |
| SY12 | 17 | 5 | 4 | 8 |
| SY13 | 19 | 5 | 6 | 8 |
| SY14 | 19 | 5 | 6 | 8 |
| SY15 | 21 | 6 | 5 | 10 |
| SY16 | 22 | 5 | 8 | 9 |
| SY17 | 18 | 4 | 7 | 7 |
| SY18 | 21 | 8 | 6 | 7 |
| SY19 | 25 | 9 | 8 | 8 |
| **Cohort 2** |  |  |  |  |  |
| Attleboro High School | SY11 | 14 | 4 | 5 | 5 |
| SY12 | 16 | 5 | 5 | 6 |
| SY13 | 19 | 10 | 6 | 3 |
| SY14 | 20 | 11 | 5 | 4 |
| SY15 | 12 | 6 | 4 | 2 |
| SY16 | 11 | 4 | 3 | 4 |
| SY17 | 11 | 5 | 4 | 2 |
| SY18 | 13 | 4 | 4 | 5 |
| SY19 | 12 | 5 | 5 | 2 |
| B.M.C. Durfee High School | SY11 | 15 | 6 | 4 | 5 |
| SY12 | 11 | 3 | 4 | 4 |
| SY13 | 15 | 6 | 5 | 4 |
| SY14 | 14 | 6 | 4 | 4 |
| SY15 | 17 | 8 | 5 | 4 |
| SY16 | 17 | 7 | 5 | 5 |
| SY17 | 15 | 6 | 5 | 4 |
| SY18 | 14 | 3 | 6 | 5 |
| SY19 | 19 | 5 | 6 | 8 |
| Dedham High School | SY11 | 11 | 4 | 4 | 3 |
| SY12 | 14 | 5 | 4 | 5 |
| SY13 | 16 | 4 | 7 | 5 |
| SY14 | 15 | 5 | 4 | 6 |
| SY15 | 14 | 4 | 5 | 5 |
| SY16 | 16 | 4 | 5 | 7 |
| SY17 | 15 | 4 | 5 | 6 |
| SY18 | 18 | 3 | 7 | 8 |
| SY19 | 18 | 6 | 7 | 5 |
| Easthampton High School | SY11 | 9 | 3 | 2 | 4 |
| SY12 | 11 | 5 | 3 | 3 |
| SY13 | 9 | 4 | 2 | 3 |
| SY14 | 11 | 6 | 3 | 2 |
| SY15 | 11 | 6 | 3 | 2 |
| SY16 | 11 | 6 | 3 | 2 |
| SY17 | 8 | 4 | 3 | 1 |
| SY18 | 10 | 6 | 3 | 1 |
| SY19 | 10 | 6 | 3 | 1 |
| MATCH Charter Public School | SY11 | 10 | 4 | 4 | 2 |
| SY12 | 7 | 3 | 2 | 2 |
| SY13 | 5 | 3 | 1 | 1 |
| SY14 | 7 | 4 | 2 | 1 |
| SY15 | 5 | 3 | 1 | 1 |
| SY16 | 6 | 3 | 2 | 1 |
| SY17 | 6 | 3 | 2 | 1 |
| SY18 | 6 | 3 | 2 | 1 |
| SY19 | 5 | 2 | 2 | 1 |
| Methuen High School | SY11 | 10 | 4 | 6 | 0 |
| SY12 | 10 | 5 | 5 | 0 |
| SY13 | 9 | 5 | 4 | 0 |
| SY14 | 10 | 4 | 6 | 0 |
| SY15 | 27 | 9 | 7 | 11 |
| SY16 | 24 | 7 | 6 | 11 |
| SY17 | 24 | 7 | 6 | 11 |
| SY18 | 22 | 6 | 7 | 9 |
| SY19 | 22 | 6 | 7 | 9 |
| Peabody Veterans Memorial High | SY11 | 9 | 0 | 4 | 5 |
| SY12 | 11 | 0 | 5 | 6 |
| SY13 | 13 | 0 | 5 | 8 |
| SY14 | 12 | 0 | 5 | 7 |
| SY15 | 17 | 0 | 10 | 7 |
| SY16 | 14 | 0 | 6 | 8 |
| SY17 | 15 | 0 | 9 | 6 |
| SY18 | 12 | 0 | 6 | 6 |
| SY19 | 11 | 0 | 5 | 6 |
| Randolph High School | SY11 | 15 | 5 | 4 | 6 |
| SY12 | 13 | 4 | 5 | 4 |
| SY13 | 12 | 4 | 4 | 4 |
| SY14 | 10 | 3 | 3 | 4 |
| SY15 | 8 | 2 | 3 | 3 |
| SY16 | 7 | 2 | 3 | 2 |
| SY17 | 8 | 2 | 3 | 3 |
| SY18 | 12 | 4 | 4 | 4 |
| SY19 | 9 | 3 | 4 | 2 |
| South High Community School | SY11 | 8 | 0 | 6 | 2 |
| SY12 | 20 | 6 | 6 | 8 |
| SY13 | 19 | 5 | 6 | 8 |
| SY14 | 19 | 6 | 6 | 7 |
| SY15 | 19 | 7 | 4 | 8 |
| SY16 | 19 | 6 | 5 | 8 |
| SY17 | 18 | 6 | 4 | 8 |
| SY18 | 18 | 6 | 4 | 8 |
| SY19 | 18 | 5 | 5 | 8 |
| Springfield High School of Science and Technology | SY11 | 6 | 1 | 3 | 2 |
| SY12 | 4 | 1 | 1 | 2 |
| SY13 | 9 | 2 | 1 | 6 |
| SY14 | 9 | 2 | 2 | 5 |
| SY15 | 7 | 1 | 1 | 5 |
| SY16 | 9 | 3 | 1 | 5 |
| SY17 | 11 | 2 | 4 | 5 |
| SY18 | 12 | 4 | 3 | 5 |
| SY19 | 11 | 3 | 3 | 5 |
| Winthrop High School | SY11 | 10 | 2 | 4 | 4 |
| SY12 | 10 | 3 | 3 | 4 |
| SY13 | 13 | 3 | 5 | 5 |
| SY14 | 13 | 3 | 5 | 5 |
| SY15 | 10 | 3 | 3 | 4 |
| SY16 | 12 | 4 | 4 | 4 |
| SY17 | 12 | 2 | 4 | 6 |
| SY18 | 13 | 4 | 4 | 5 |
| SY19 | 16 | 4 | 7 | 5 |
| **Cohort 3** |  |  |  |  |  |
| Agawam High School | SY11 | 12 | 4 | 5 | 3 |
| SY12 | 20 | 7 | 6 | 7 |
| SY13 | 21 | 10 | 4 | 7 |
| SY14 | 21 | 7 | 7 | 7 |
| SY15 | 19 | 7 | 3 | 9 |
| SY16 | 21 | 9 | 4 | 8 |
| SY17 | 20 | 9 | 3 | 8 |
| SY18 | 19 | 9 | 3 | 7 |
| SY19 | 26 | 15 | 4 | 7 |
| Athol High School | SY11 | 7 | 3 | 2 | 2 |
| SY12 | 6 | 2 | 2 | 2 |
| SY13 | 7 | 3 | 2 | 2 |
| SY14 | 3 | 1 | 2 | 0 |
| SY15 | 8 | 2 | 3 | 3 |
| SY16 | 8 | 3 | 3 | 2 |
| SY17 | 7 | 3 | 1 | 3 |
| SY18 | 6 | 2 | 2 | 2 |
| SY19 | 5 | 3 | 1 | 1 |
| Bellingham High School | SY11 | 9 | 5 | 1 | 3 |
| SY12 | 8 | 4 | 1 | 3 |
| SY13 | 12 | 4 | 2 | 6 |
| SY14 | 11 | 5 | 1 | 5 |
| SY15 | 9 | 4 | 2 | 3 |
| SY16 | 11 | 4 | 3 | 4 |
| SY17 | 8 | 4 | 2 | 2 |
| SY18 | 11 | 3 | 3 | 5 |
| SY19 | 8 | 3 | 3 | 2 |
| Blackstone Valley Regional Vocational Technical High School | SY11 | 5 | 2 | 2 | 1 |
| SY12 | 9 | 3 | 2 | 4 |
| SY13 | 17 | 8 | 3 | 6 |
| SY14 | 17 | 9 | 3 | 5 |
| SY15 | 15 | 7 | 3 | 5 |
| SY16 | 21 | 8 | 4 | 9 |
| SY17 | 21 | 8 | 4 | 9 |
| SY18 | 21 | 8 | 4 | 9 |
| SY19 | 20 | 8 | 3 | 9 |
| Boston Collegiate Charter School | SY11 | 4 | 2 | 1 | 1 |
| SY12 | 5 | 3 | 1 | 1 |
| SY13 | 5 | 2 | 2 | 1 |
| SY14 | 5 | 2 | 2 | 1 |
| SY15 | 5 | 2 | 2 | 1 |
| SY16 | 6 | 3 | 2 | 1 |
| SY17 | 7 | 3 | 2 | 2 |
| SY18 | 7 | 2 | 3 | 2 |
| SY19 | 8 | 2 | 3 | 3 |
| Boston Community Leadership Academy | SY11 | 6 | 4 | 1 | 1 |
| SY12 | 9 | 4 | 4 | 1 |
| SY13 | 8 | 4 | 3 | 1 |
| SY14 | 6 | 3 | 3 | 0 |
| SY15 | 9 | 4 | 4 | 1 |
| SY16 | 10 | 5 | 4 | 1 |
| SY17 | 4 | 2 | 2 | 0 |
| SY18 | 6 | 2 | 4 | 0 |
| SY19 | 5 | 2 | 3 | 0 |
| Brighton High School | SY11 | 7 | 3 | 2 | 2 |
| SY12 | 7 | 3 | 2 | 2 |
| SY13 | 8 | 4 | 2 | 2 |
| SY14 | 7 | 3 | 1 | 3 |
| SY15 | 6 | 3 | 1 | 2 |
| SY16 | 4 | 2 | 1 | 1 |
| SY17 | 4 | 2 | 1 | 1 |
| SY18 | 5 | 2 | 1 | 2 |
| SY19 | 5 | 2 | 1 | 2 |
| Burncoat High School | SY11 | 2 | 0 | 1 | 1 |
| SY12 | 11 | 6 | 2 | 3 |
| SY13 | 11 | 5 | 2 | 4 |
| SY14 | 14 | 6 | 3 | 5 |
| SY15 | 14 | 5 | 4 | 5 |
| SY16 | 8 | 2 | 1 | 5 |
| SY17 | 11 | 3 | 2 | 6 |
| SY18 | 13 | 4 | 2 | 7 |
| SY19 | 10 | 3 | 3 | 4 |
| Community Academy of Science and Health | SY11 | 3 | 2 | 1 | 0 |
| SY12 | 5 | 2 | 2 | 1 |
| SY13 | 5 | 2 | 2 | 1 |
| SY14 | 5 | 2 | 1 | 2 |
| SY15 | 5 | 2 | 1 | 2 |
| SY16 | 5 | 2 | 1 | 2 |
| SY17 | 5 | 2 | 1 | 2 |
| SY18 | 5 | 2 | 1 | 2 |
| SY19 | 5 | 2 | 2 | 1 |
| Douglas High School | SY11 | 7 | 3 | 2 | 2 |
| SY12 | 7 | 3 | 2 | 2 |
| SY13 | 7 | 1 | 3 | 3 |
| SY14 | 8 | 1 | 4 | 3 |
| SY15 | 9 | 3 | 3 | 3 |
| SY16 | 10 | 3 | 4 | 3 |
| SY17 | 9 | 3 | 3 | 3 |
| SY18 | 9 | 3 | 3 | 3 |
| SY19 | 9 | 3 | 3 | 3 |
| East Boston High School | SY11 | 7 | 2 | 2 | 3 |
| SY12 | 9 | 4 | 2 | 3 |
| SY13 | 11 | 4 | 3 | 4 |
| SY14 | 9 | 3 | 3 | 3 |
| SY15 | 12 | 4 | 3 | 5 |
| SY16 | 11 | 3 | 3 | 5 |
| SY17 | 14 | 4 | 5 | 5 |
| SY18 | 8 | 2 | 3 | 3 |
| SY19 | 10 | 3 | 4 | 3 |
| Edward M. Kennedy Academy for Health Careers | SY11 | 5 | 2 | 2 | 1 |
| SY12 | 5 | 2 | 2 | 1 |
| SY13 | 4 | 1 | 1 | 2 |
| SY14 | 5 | 3 | 1 | 1 |
| SY15 | 4 | 2 | 1 | 1 |
| SY16 | 5 | 3 | 1 | 1 |
| SY17 | 6 | 4 | 1 | 1 |
| SY18 | 5 | 3 | 1 | 1 |
| SY19 | 6 | 5 | 0 | 1 |
| Greenfield High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 8 | 4 | 2 | 2 |
| SY13 | 8 | 4 | 2 | 2 |
| SY14 | 9 | 4 | 2 | 3 |
| SY15 | 9 | 4 | 2 | 3 |
| SY16 | 10 | 4 | 3 | 3 |
| SY17 | 8 | 4 | 2 | 2 |
| SY18 | 8 | 4 | 2 | 2 |
| SY19 | 6 | 2 | 2 | 2 |
| Mashpee High School | SY11 | 13 | 6 | 2 | 5 |
| SY12 | 14 | 6 | 3 | 5 |
| SY13 | 12 | 5 | 3 | 4 |
| SY14 | 11 | 5 | 2 | 4 |
| SY15 | 10 | 3 | 1 | 6 |
| SY16 | 10 | 3 | 2 | 5 |
| SY17 | 10 | 2 | 2 | 6 |
| SY18 | 10 | 2 | 3 | 5 |
| SY19 | 11 | 3 | 4 | 4 |
| Middleborough High School | SY11 | 7 | 2 | 3 | 2 |
| SY12 | 9 | 2 | 5 | 2 |
| SY13 | 11 | 2 | 4 | 5 |
| SY14 | 18 | 6 | 7 | 5 |
| SY15 | 16 | 4 | 6 | 6 |
| SY16 | 14 | 4 | 5 | 5 |
| SY17 | 16 | 4 | 6 | 6 |
| SY18 | 14 | 3 | 6 | 5 |
| SY19 | 12 | 3 | 5 | 4 |
| Narragansett Regional High School | SY11 | 4 | 1 | 2 | 1 |
| SY12 | 4 | 1 | 2 | 1 |
| SY13 | 5 | 2 | 2 | 1 |
| SY14 | 3 | 1 | 2 | 0 |
| SY15 | 6 | 2 | 2 | 2 |
| SY16 | 8 | 2 | 3 | 3 |
| SY17 | 5 | 2 | 2 | 1 |
| SY18 | 7 | 3 | 2 | 2 |
| SY19 | 7 | 3 | 2 | 2 |
| Norton High School | SY11 | 4 | 0 | 2 | 2 |
| SY12 | 6 | 0 | 4 | 2 |
| SY13 | 6 | 0 | 3 | 3 |
| SY14 | 5 | 0 | 4 | 1 |
| SY15 | 4 | 0 | 3 | 1 |
| SY16 | 5 | 0 | 2 | 3 |
| SY17 | 4 | 0 | 3 | 1 |
| SY18 | 5 | 0 | 3 | 2 |
| SY19 | 7 | 0 | 3 | 4 |
| Quaboag Regional Middle High School | SY11 | 7 | 3 | 3 | 1 |
| SY12 | 9 | 5 | 2 | 2 |
| SY13 | 11 | 5 | 2 | 4 |
| SY14 | 7 | 4 | 2 | 1 |
| SY15 | 8 | 4 | 2 | 2 |
| SY16 | 4 | 2 | 1 | 1 |
| SY17 | 4 | 2 | 2 | 0 |
| SY18 | 5 | 3 | 1 | 1 |
| SY19 | 6 | 4 | 2 | 0 |
| Salem Academy Charter School | SY11 | 3 | 1 | 1 | 1 |
| SY12 | 4 | 1 | 2 | 1 |
| SY13 | 4 | 1 | 2 | 1 |
| SY14 | 3 | 1 | 1 | 1 |
| SY15 | 3 | 1 | 1 | 1 |
| SY16 | 4 | 1 | 1 | 2 |
| SY17 | 4 | 1 | 1 | 2 |
| SY18 | 4 | 1 | 1 | 2 |
| SY19 | 5 | 2 | 1 | 2 |
| Salem High School | SY11 | 9 | 4 | 2 | 3 |
| SY12 | 14 | 4 | 3 | 7 |
| SY13 | 10 | 4 | 2 | 4 |
| SY14 | 17 | 6 | 5 | 6 |
| SY15 | 15 | 5 | 4 | 6 |
| SY16 | 13 | 4 | 3 | 6 |
| SY17 | 11 | 3 | 2 | 6 |
| SY18 | 11 | 3 | 3 | 5 |
| SY19 | 14 | 4 | 3 | 7 |
| South Hadley Senior High School | SY11 | 10 | 4 | 2 | 4 |
| SY12 | 12 | 5 | 4 | 3 |
| SY13 | 17 | 7 | 5 | 5 |
| SY14 | 14 | 7 | 2 | 5 |
| SY15 | 13 | 6 | 3 | 4 |
| SY16 | 11 | 3 | 5 | 3 |
| SY17 | 17 | 4 | 7 | 6 |
| SY18 | 15 | 4 | 3 | 8 |
| SY19 | 11 | 3 | 4 | 4 |
| Turners Falls High School | SY11 | 5 | 2 | 2 | 1 |
| SY12 | 6 | 1 | 2 | 3 |
| SY13 | 6 | 2 | 2 | 2 |
| SY14 | 5 | 2 | 2 | 1 |
| SY15 | 5 | 2 | 2 | 1 |
| SY16 | 5 | 2 | 2 | 1 |
| SY17 | 5 | 2 | 2 | 1 |
| SY18 | 5 | 2 | 2 | 1 |
| SY19 | 4 | 1 | 2 | 1 |
| Uxbridge High School | SY11 | 24 | 6 | 6 | 12 |
| SY12 | 21 | 6 | 6 | 9 |
| SY13 | 21 | 6 | 6 | 9 |
| SY14 | 4 | 2 | 1 | 1 |
| SY15 | 4 | 2 | 1 | 1 |
| SY16 | 5 | 2 | 2 | 1 |
| SY17 | 6 | 3 | 2 | 1 |
| SY18 | 10 | 3 | 3 | 4 |
| SY19 | 8 | 3 | 3 | 2 |
| Ware Junior Senior High School | SY11 | 3 | 1 | 0 | 2 |
| SY12 | 4 | 2 | 0 | 2 |
| SY13 | 5 | 2 | 1 | 2 |
| SY14 | 4 | 2 | 0 | 2 |
| SY15 | 5 | 2 | 1 | 2 |
| SY16 | 4 | 1 | 1 | 2 |
| SY17 | 4 | 1 | 1 | 2 |
| SY18 | 4 | 1 | 1 | 2 |
| SY19 | 4 | 1 | 1 | 2 |
| Worcester Technical High School | SY11 | 2 | 0 | 0 | 2 |
| SY12 | 11 | 5 | 2 | 4 |
| SY13 | 11 | 4 | 2 | 5 |
| SY14 | 11 | 4 | 3 | 4 |
| SY15 | 11 | 4 | 3 | 4 |
| SY16 | 12 | 4 | 3 | 5 |
| SY17 | 15 | 4 | 7 | 4 |
| SY18 | 15 | 4 | 6 | 5 |
| SY19 | 12 | 4 | 5 | 3 |
| **Cohort 4** |  |  |  |  |  |
| Danvers High School | SY11 | 8 | 3 | 3 | 2 |
| SY12 | 8 | 2 | 4 | 2 |
| SY13 | 14 | 4 | 7 | 3 |
| SY14 | 14 | 4 | 7 | 3 |
| SY15 | 19 | 7 | 8 | 4 |
| SY16 | 18 | 7 | 7 | 4 |
| SY17 | 18 | 8 | 7 | 3 |
| SY18 | 16 | 6 | 7 | 3 |
| SY19 | 17 | 5 | 8 | 4 |
| Dracut High School | SY11 | 7 | 2 | 1 | 4 |
| SY12 | 12 | 4 | 2 | 6 |
| SY13 | 11 | 4 | 3 | 4 |
| SY14 | 13 | 4 | 4 | 5 |
| SY15 | 11 | 4 | 2 | 5 |
| SY16 | 11 | 4 | 2 | 5 |
| SY17 | 10 | 4 | 2 | 4 |
| SY18 | 11 | 3 | 3 | 5 |
| SY19 | 10 | 3 | 2 | 5 |
| New Mission High School | SY11 | 5 | 2 | 1 | 2 |
| SY12 | 5 | 2 | 1 | 2 |
| SY13 | 6 | 3 | 1 | 2 |
| SY14 | 5 | 2 | 1 | 2 |
| SY15 | 6 | 2 | 2 | 2 |
| SY16 | 8 | 3 | 2 | 3 |
| SY17 | 9 | 3 | 2 | 4 |
| SY18 | 9 | 4 | 2 | 3 |
| SY19 | 10 | 5 | 2 | 3 |
| Nipmuc Regional High School | SY11 | 5 | 2 | 1 | 2 |
| SY12 | 7 | 3 | 1 | 3 |
| SY13 | 10 | 3 | 3 | 4 |
| SY14 | 13 | 4 | 5 | 4 |
| SY15 | 13 | 3 | 6 | 4 |
| SY16 | 12 | 3 | 5 | 4 |
| SY17 | 14 | 4 | 5 | 5 |
| SY18 | 13 | 3 | 5 | 5 |
| SY19 | 12 | 3 | 4 | 5 |
| Northbridge High School | SY11 | 6 | 2 | 2 | 2 |
| SY12 | 13 | 3 | 6 | 4 |
| SY13 | 16 | 4 | 6 | 6 |
| SY14 | 13 | 4 | 5 | 4 |
| SY15 | 15 | 4 | 4 | 7 |
| SY16 | 13 | 3 | 3 | 7 |
| SY17 | 12 | 4 | 2 | 6 |
| SY18 | 11 | 4 | 2 | 5 |
| SY19 | 9 | 3 | 3 | 3 |
| Palmer High School | SY11 | 3 | 1 | 1 | 1 |
| SY12 | 7 | 3 | 2 | 2 |
| SY13 | 9 | 4 | 3 | 2 |
| SY14 | 8 | 3 | 2 | 3 |
| SY15 | 11 | 5 | 5 | 1 |
| SY16 | 8 | 3 | 3 | 2 |
| SY17 | 9 | 3 | 4 | 2 |
| SY18 | 9 | 3 | 3 | 3 |
| SY19 | 9 | 4 | 2 | 3 |
| West Springfield High School | SY11 | 6 | 3 | 1 | 2 |
| SY12 | 11 | 7 | 1 | 3 |
| SY13 | 15 | 7 | 3 | 5 |
| SY14 | 13 | 8 | 2 | 3 |
| SY15 | 15 | 9 | 2 | 4 |
| SY16 | 18 | 10 | 3 | 5 |
| SY17 | 18 | 9 | 3 | 6 |
| SY18 | 15 | 8 | 3 | 4 |
| SY19 | 15 | 8 | 3 | 4 |
| **Cohort 5** |  |  |  |  |  |
| Auburn High School | SY11 | 5 | 2 | 1 | 2 |
| SY12 | 5 | 2 | 1 | 2 |
| SY13 | 11 | 4 | 2 | 5 |
| SY14 | 18 | 5 | 6 | 7 |
| SY15 | 20 | 6 | 5 | 9 |
| SY16 | 16 | 5 | 5 | 6 |
| SY17 | 11 | 2 | 5 | 4 |
| SY18 | 13 | 3 | 5 | 5 |
| SY19 | 14 | 4 | 5 | 5 |
| Barnstable High School | SY11 | 11 | 2 | 5 | 4 |
| SY12 | 13 | 5 | 4 | 4 |
| SY13 | 19 | 8 | 5 | 6 |
| SY14 | 16 | 5 | 6 | 5 |
| SY15 | 18 | 6 | 6 | 6 |
| SY16 | 21 | 6 | 8 | 7 |
| SY17 | 17 | 4 | 6 | 7 |
| SY18 | 20 | 7 | 7 | 6 |
| SY19 | 19 | 5 | 9 | 5 |
| Chicopee High School | SY11 | 6 | 2 | 1 | 3 |
| SY12 | 8 | 3 | 2 | 3 |
| SY13 | 13 | 5 | 4 | 4 |
| SY14 | 14 | 6 | 4 | 4 |
| SY15 | 11 | 4 | 4 | 3 |
| SY16 | 12 | 4 | 4 | 4 |
| SY17 | 13 | 5 | 4 | 4 |
| SY18 | 12 | 5 | 3 | 4 |
| SY19 | 12 | 4 | 3 | 5 |
| Claremont Academy | SY11 | 1 | 0 | 1 | 0 |
| SY12 | 4 | 2 | 1 | 1 |
| SY13 | 5 | 2 | 2 | 1 |
| SY14 | 6 | 2 | 2 | 2 |
| SY15 | 4 | 1 | 2 | 1 |
| SY16 | 6 | 2 | 2 | 2 |
| SY17 | 7 | 2 | 2 | 3 |
| SY18 | 6 | 2 | 1 | 3 |
| SY19 | 5 | 1 | 2 | 2 |
| Drury High School | SY11 | 6 | 2 | 1 | 3 |
| SY12 | 4 | 2 | 1 | 1 |
| SY13 | 11 | 6 | 2 | 3 |
| SY14 | 14 | 6 | 4 | 4 |
| SY15 | 12 | 5 | 3 | 4 |
| SY16 | 13 | 6 | 3 | 4 |
| SY17 | 11 | 4 | 4 | 3 |
| SY18 | 11 | 5 | 3 | 3 |
| SY19 | 11 | 6 | 2 | 3 |
| East Bridgewater High School | SY11 | 6 | 2 | 2 | 2 |
| SY12 | 7 | 2 | 3 | 2 |
| SY13 | 9 | 4 | 3 | 2 |
| SY14 | 11 | 3 | 3 | 5 |
| SY15 | 10 | 3 | 4 | 3 |
| SY16 | 9 | 3 | 3 | 3 |
| SY17 | 10 | 2 | 4 | 4 |
| SY18 | 8 | 1 | 4 | 3 |
| SY19 | 9 | 1 | 4 | 4 |
| Fitchburg High School | SY11 | 9 | 6 | 1 | 2 |
| SY12 | 7 | 3 | 1 | 3 |
| SY13 | 16 | 8 | 2 | 6 |
| SY14 | 21 | 9 | 6 | 6 |
| SY15 | 28 | 10 | 4 | 14 |
| SY16 | 17 | 7 | 4 | 6 |
| SY17 | 21 | 7 | 4 | 10 |
| SY18 | 18 | 6 | 3 | 9 |
| SY19 | 18 | 5 | 4 | 9 |
| Gardner High School | SY11 | 4 | 2 | 1 | 1 |
| SY12 | 5 | 3 | 1 | 1 |
| SY13 | 9 | 5 | 2 | 2 |
| SY14 | 9 | 4 | 2 | 3 |
| SY15 | 15 | 6 | 3 | 6 |
| SY16 | 11 | 3 | 4 | 4 |
| SY17 | 9 | 3 | 2 | 4 |
| SY18 | 11 | 3 | 3 | 5 |
| SY19 | 9 | 2 | 3 | 4 |
| Lee Middle and High School | SY11 | 2 | 1 | 1 | 0 |
| SY12 | 0 | 0 | 0 | 0 |
| SY13 | 2 | 1 | 1 | 0 |
| SY14 | 8 | 3 | 2 | 3 |
| SY15 | 6 | 3 | 1 | 2 |
| SY16 | 10 | 2 | 4 | 4 |
| SY17 | 8 | 3 | 3 | 2 |
| SY18 | 9 | 3 | 3 | 3 |
| SY19 | 7 | 2 | 2 | 3 |
| Leicester High School | SY11 | 4 | 1 | 1 | 2 |
| SY12 | 4 | 1 | 1 | 2 |
| SY13 | 11 | 3 | 3 | 5 |
| SY14 | 11 | 3 | 3 | 5 |
| SY15 | 11 | 3 | 3 | 5 |
| SY16 | 7 | 2 | 2 | 3 |
| SY17 | 8 | 3 | 2 | 3 |
| SY18 | 7 | 3 | 2 | 2 |
| SY19 | 6 | 3 | 2 | 1 |
| Ludlow High School | SY11 | 2 | 0 | 0 | 2 |
| SY12 | 6 | 1 | 1 | 4 |
| SY13 | 13 | 4 | 3 | 6 |
| SY14 | 12 | 5 | 3 | 4 |
| SY15 | 16 | 5 | 4 | 7 |
| SY16 | 14 | 5 | 3 | 6 |
| SY17 | 17 | 7 | 4 | 6 |
| SY18 | 8 | 4 | 1 | 3 |
| SY19 | 15 | 5 | 4 | 6 |
| Whitman-Hanson Regional High School | SY11 | 18 | 3 | 6 | 9 |
| SY12 | 24 | 6 | 9 | 9 |
| SY13 | 33 | 12 | 6 | 15 |
| SY14 | 45 | 15 | 9 | 21 |
| SY15 | 43 | 13 | 6 | 24 |
| SY16 | 50 | 22 | 4 | 24 |
| SY17 | 22 | 9 | 3 | 10 |
| SY18 | 21 | 10 | 3 | 8 |
| SY19 | 24 | 10 | 5 | 9 |
| **Cohort 6** |  |  |  |  |  |
| Bartlett Junior Senior High School | SY11 | 3 | 1 | 1 | 1 |
| SY12 | 3 | 2 | 1 | 0 |
| SY13 | 9 | 4 | 2 | 3 |
| SY14 | 7 | 4 | 2 | 1 |
| SY15 | 11 | 6 | 2 | 3 |
| SY16 | 9 | 5 | 2 | 2 |
| SY17 | 9 | 5 | 2 | 2 |
| SY18 | 9 | 4 | 4 | 1 |
| SY19 | 9 | 4 | 3 | 2 |
| Boston Green Academy | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 2 | 0 | 1 | 1 |
| SY13 | 4 | 0 | 2 | 2 |
| SY14 | 3 | 1 | 1 | 1 |
| SY15 | 5 | 3 | 1 | 1 |
| SY16 | 4 | 2 | 0 | 2 |
| SY17 | 5 | 2 | 1 | 2 |
| SY18 | 4 | 2 | 1 | 1 |
| SY19 | 5 | 2 | 2 | 1 |
| Chicopee Comprehensive High School | SY11 | 7 | 4 | 3 | 0 |
| SY12 | 8 | 5 | 2 | 1 |
| SY13 | 10 | 6 | 3 | 1 |
| SY14 | 16 | 8 | 5 | 3 |
| SY15 | 16 | 7 | 5 | 4 |
| SY16 | 15 | 7 | 4 | 4 |
| SY17 | 15 | 6 | 6 | 3 |
| SY18 | 13 | 7 | 4 | 2 |
| SY19 | 15 | 6 | 6 | 3 |
| Excel High School | SY11 | 3 | 1 | 1 | 1 |
| SY12 | 3 | 1 | 1 | 1 |
| SY13 | 3 | 1 | 1 | 1 |
| SY14 | 4 | 2 | 1 | 1 |
| SY15 | 3 | 1 | 1 | 1 |
| SY16 | 3 | 1 | 1 | 1 |
| SY17 | 5 | 2 | 2 | 1 |
| SY18 | 3 | 1 | 1 | 1 |
| SY19 | 4 | 1 | 2 | 1 |
| Holyoke High School | SY11 | 5 | 4 | 1 | 0 |
| SY12 | 5 | 3 | 2 | 0 |
| SY13 | 7 | 3 | 2 | 2 |
| SY14 | 12 | 5 | 3 | 4 |
| SY15 | 12 | 6 | 2 | 4 |
| SY16 | 15 | 6 | 2 | 7 |
| SY17 | 13 | 7 | 1 | 5 |
| SY18 | 16 | 7 | 2 | 7 |
| SY19 | 16 | 8 | 2 | 6 |
| Jeremiah E. Burke High School | SY11 | 3 | 1 | 1 | 1 |
| SY12 | 3 | 1 | 1 | 1 |
| SY13 | 3 | 1 | 1 | 1 |
| SY14 | 3 | 1 | 1 | 1 |
| SY15 | 5 | 2 | 2 | 1 |
| SY16 | 5 | 3 | 1 | 1 |
| SY17 | 3 | 1 | 1 | 1 |
| SY18 | 3 | 1 | 1 | 1 |
| SY19 | 3 | 2 | 1 | 0 |
| Murdock High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 0 | 0 | 0 | 0 |
| SY13 | 0 | 0 | 0 | 0 |
| SY14 | 4 | 2 | 1 | 1 |
| SY15 | 5 | 2 | 2 | 1 |
| SY16 | 5 | 2 | 2 | 1 |
| SY17 | 5 | 2 | 2 | 1 |
| SY18 | 7 | 3 | 2 | 2 |
| SY19 | 6 | 2 | 3 | 1 |
| New Bedford High School | SY11 | 18 | 0 | 6 | 12 |
| SY12 | 20 | 0 | 8 | 12 |
| SY13 | 20 | 0 | 8 | 12 |
| SY14 | 21 | 3 | 8 | 10 |
| SY15 | 30 | 16 | 6 | 8 |
| SY16 | 20 | 8 | 4 | 8 |
| SY17 | 18 | 7 | 6 | 5 |
| SY18 | 19 | 10 | 4 | 5 |
| SY19 | 25 | 11 | 8 | 6 |
| North Brookfield High School | SY11 | 1 | 1 | 0 | 0 |
| SY12 | 1 | 1 | 0 | 0 |
| SY13 | 1 | 1 | 0 | 0 |
| SY14 | 4 | 3 | 0 | 1 |
| SY15 | 3 | 2 | 0 | 1 |
| SY16 | 3 | 2 | 0 | 1 |
| SY17 | 3 | 2 | 0 | 1 |
| SY18 | 3 | 2 | 0 | 1 |
| SY19 | 3 | 2 | 0 | 1 |
| Shepherd Hill Regional High School | SY11 | 5 | 1 | 2 | 2 |
| SY12 | 8 | 1 | 4 | 3 |
| SY13 | 9 | 1 | 4 | 4 |
| SY14 | 18 | 6 | 6 | 6 |
| SY15 | 23 | 7 | 7 | 9 |
| SY16 | 20 | 6 | 6 | 8 |
| SY17 | 26 | 5 | 8 | 13 |
| SY18 | 23 | 4 | 8 | 11 |
| SY19 | 23 | 4 | 11 | 8 |
| Taconic High School | SY11 | 9 | 4 | 2 | 3 |
| SY12 | 9 | 4 | 2 | 3 |
| SY13 | 8 | 3 | 2 | 3 |
| SY14 | 11 | 5 | 2 | 4 |
| SY15 | 13 | 6 | 3 | 4 |
| SY16 | 14 | 8 | 3 | 3 |
| SY17 | 13 | 6 | 5 | 2 |
| SY18 | 13 | 6 | 4 | 3 |
| SY19 | 12 | 5 | 4 | 3 |
| Tantasqua High School | SY11 | 9 | 4 | 1 | 4 |
| SY12 | 11 | 6 | 1 | 4 |
| SY13 | 11 | 5 | 1 | 5 |
| SY14 | 20 | 10 | 4 | 6 |
| SY15 | 21 | 9 | 4 | 8 |
| SY16 | 28 | 12 | 5 | 11 |
| SY17 | 25 | 9 | 8 | 8 |
| SY18 | 25 | 9 | 6 | 10 |
| SY19 | 27 | 8 | 9 | 10 |
| Wareham High School | SY11 | 7 | 4 | 2 | 1 |
| SY12 | 6 | 3 | 2 | 1 |
| SY13 | 6 | 2 | 2 | 2 |
| SY14 | 9 | 4 | 2 | 3 |
| SY15 | 9 | 4 | 2 | 3 |
| SY16 | 7 | 3 | 2 | 2 |
| SY17 | 9 | 3 | 2 | 4 |
| SY18 | 8 | 2 | 3 | 3 |
| SY19 | 7 | 2 | 2 | 3 |
| **Cohort 7** |  |  |  |  |  |
| Bay Path Regional Vocational Technical High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 2 | 1 | 1 | 0 |
| SY13 | 3 | 2 | 1 | 0 |
| SY14 | 3 | 2 | 1 | 0 |
| SY15 | 7 | 4 | 2 | 1 |
| SY16 | 9 | 3 | 1 | 5 |
| SY17 | 10 | 6 | 2 | 2 |
| SY18 | 8 | 5 | 1 | 2 |
| SY19 | 9 | 5 | 2 | 2 |
| Bourne High School | SY11 | 4 | 1 | 2 | 1 |
| SY12 | 5 | 2 | 2 | 1 |
| SY13 | 5 | 3 | 1 | 1 |
| SY14 | 5 | 2 | 1 | 2 |
| SY15 | 7 | 2 | 3 | 2 |
| SY16 | 10 | 3 | 5 | 2 |
| SY17 | 6 | 2 | 2 | 2 |
| SY18 | 7 | 2 | 2 | 3 |
| SY19 | 9 | 3 | 2 | 4 |
| Charlestown High School | SY11 | 9 | 1 | 6 | 2 |
| SY12 | 7 | 2 | 2 | 3 |
| SY13 | 7 | 1 | 3 | 3 |
| SY14 | 6 | 1 | 2 | 3 |
| SY15 | 5 | 1 | 2 | 2 |
| SY16 | 7 | 2 | 2 | 3 |
| SY17 | 6 | 1 | 3 | 2 |
| SY18 | 3 | 1 | 0 | 2 |
| SY19 | 4 | 1 | 2 | 1 |
| Granby Junior-Senior High School | SY11 | 4 | 4 | 0 | 0 |
| SY12 | 4 | 4 | 0 | 0 |
| SY13 | 4 | 4 | 0 | 0 |
| SY14 | 4 | 4 | 0 | 0 |
| SY15 | 8 | 3 | 4 | 1 |
| SY16 | 5 | 4 | 0 | 1 |
| SY17 | 7 | 4 | 2 | 1 |
| SY18 | 6 | 2 | 2 | 2 |
| SY19 | 6 | 2 | 2 | 2 |
| Melrose High School | SY11 | 14 | 4 | 3 | 7 |
| SY12 | 11 | 2 | 4 | 5 |
| SY13 | 10 | 2 | 5 | 3 |
| SY14 | 10 | 3 | 4 | 3 |
| SY15 | 18 | 5 | 7 | 6 |
| SY16 | 19 | 5 | 5 | 9 |
| SY17 | 21 | 5 | 7 | 9 |
| SY18 | 21 | 6 | 6 | 9 |
| SY19 | 21 | 5 | 6 | 10 |
| Nantucket High School | SY11 | 3 | 1 | 1 | 1 |
| SY12 | 7 | 3 | 2 | 2 |
| SY13 | 7 | 4 | 2 | 1 |
| SY14 | 6 | 3 | 1 | 2 |
| SY15 | 8 | 3 | 2 | 3 |
| SY16 | 7 | 2 | 2 | 3 |
| SY17 | 8 | 4 | 2 | 2 |
| SY18 | 10 | 3 | 3 | 4 |
| SY19 | 9 | 3 | 4 | 2 |
| Oxford High School | SY11 | 4 | 1 | 1 | 2 |
| SY12 | 4 | 1 | 1 | 2 |
| SY13 | 4 | 1 | 1 | 2 |
| SY14 | 4 | 1 | 1 | 2 |
| SY15 | 11 | 4 | 2 | 5 |
| SY16 | 11 | 3 | 3 | 5 |
| SY17 | 10 | 3 | 2 | 5 |
| SY18 | 12 | 2 | 4 | 6 |
| SY19 | 10 | 2 | 4 | 4 |
| Pittsfield High School | SY11 | 14 | 5 | 5 | 4 |
| SY12 | 14 | 4 | 4 | 6 |
| SY13 | 14 | 5 | 3 | 6 |
| SY14 | 19 | 7 | 4 | 8 |
| SY15 | 17 | 7 | 4 | 6 |
| SY16 | 16 | 5 | 5 | 6 |
| SY17 | 18 | 6 | 5 | 7 |
| SY18 | 14 | 5 | 3 | 6 |
| SY19 | 15 | 5 | 4 | 6 |
| Roger L. Putnam Vocational Technical Academy | SY11 | 7 | 2 | 5 | 0 |
| SY12 | 5 | 1 | 2 | 2 |
| SY13 | 4 | 1 | 1 | 2 |
| SY14 | 3 | 1 | 1 | 1 |
| SY15 | 6 | 3 | 1 | 2 |
| SY16 | 9 | 3 | 4 | 2 |
| SY17 | 10 | 3 | 5 | 2 |
| SY18 | 10 | 4 | 4 | 2 |
| SY19 | 11 | 6 | 3 | 2 |
| Saugus High School | SY11 | 8 | 1 | 2 | 5 |
| SY12 | 8 | 1 | 2 | 5 |
| SY13 | 8 | 2 | 1 | 5 |
| SY14 | 9 | 1 | 3 | 5 |
| SY15 | 21 | 6 | 4 | 11 |
| SY16 | 16 | 5 | 3 | 8 |
| SY17 | 17 | 5 | 4 | 8 |
| SY18 | 16 | 4 | 4 | 8 |
| SY19 | 17 | 4 | 5 | 8 |
| Sutton Memorial High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 4 | 1 | 2 | 1 |
| SY13 | 3 | 1 | 1 | 1 |
| SY14 | 2 | 1 | 1 | 0 |
| SY15 | 10 | 3 | 3 | 4 |
| SY16 | 8 | 3 | 2 | 3 |
| SY17 | 10 | 4 | 3 | 3 |
| SY18 | 12 | 5 | 2 | 5 |
| SY19 | 12 | 5 | 2 | 5 |
| Wahconah Regional High School | SY11 | 4 | 1 | 1 | 2 |
| SY12 | 4 | 1 | 1 | 2 |
| SY13 | 4 | 1 | 1 | 2 |
| SY14 | 4 | 1 | 1 | 2 |
| SY15 | 8 | 3 | 2 | 3 |
| SY16 | 9 | 4 | 2 | 3 |
| SY17 | 9 | 3 | 2 | 4 |
| SY18 | 9 | 4 | 2 | 3 |
| SY19 | 10 | 3 | 2 | 5 |
| Westfield High School | SY11 | 9 | 4 | 2 | 3 |
| SY12 | 10 | 4 | 2 | 4 |
| SY13 | 2 | 2 | 0 | 0 |
| SY14 | 9 | 3 | 2 | 4 |
| SY15 | 29 | 6 | 7 | 16 |
| SY16 | 31 | 9 | 6 | 16 |
| SY17 | 29 | 6 | 5 | 18 |
| SY18 | 31 | 7 | 6 | 18 |
| SY19 | 29 | 6 | 4 | 19 |
| Westport High School | SY11 | 5 | 4 | 0 | 1 |
| SY12 | 5 | 3 | 1 | 1 |
| SY13 | 9 | 5 | 3 | 1 |
| SY14 | 8 | 4 | 3 | 1 |
| SY15 | 11 | 3 | 2 | 6 |
| SY16 | 12 | 3 | 1 | 8 |
| SY17 | 0 | 0 | 0 | 0 |
| SY18 | 0 | 0 | 0 | 0 |
| SY19 | 0 | 0 | 0 | 0 |
| **Cohort 8** |  |  |  |  |  |
| Blackstone-Millville Regional High School | SY11 | 3 | 2 | 1 | 0 |
| SY12 | 3 | 1 | 1 | 1 |
| SY13 | 2 | 1 | 1 | 0 |
| SY14 | 3 | 1 | 1 | 1 |
| SY15 | 4 | 2 | 1 | 1 |
| SY16 | 7 | 3 | 1 | 3 |
| SY17 | 10 | 5 | 2 | 3 |
| SY18 | 9 | 4 | 2 | 3 |
| SY19 | 10 | 4 | 2 | 4 |
| Carver High School | SY11 | 5 | 2 | 2 | 1 |
| SY12 | 7 | 3 | 2 | 2 |
| SY13 | 6 | 2 | 2 | 2 |
| SY14 | 6 | 2 | 2 | 2 |
| SY15 | 7 | 2 | 2 | 3 |
| SY16 | 7 | 2 | 2 | 3 |
| SY17 | 8 | 2 | 3 | 3 |
| SY18 | 8 | 2 | 3 | 3 |
| SY19 | 7 | 2 | 2 | 3 |
| David Prouty High School | SY11 | 6 | 3 | 2 | 1 |
| SY12 | 6 | 3 | 1 | 2 |
| SY13 | 6 | 4 | 1 | 1 |
| SY14 | 8 | 4 | 1 | 3 |
| SY15 | 7 | 3 | 1 | 3 |
| SY16 | 9 | 5 | 1 | 3 |
| SY17 | 9 | 4 | 2 | 3 |
| SY18 | 8 | 2 | 2 | 4 |
| SY19 | 11 | 4 | 2 | 5 |
| Franklin County Technical School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 0 | 0 | 0 | 0 |
| SY13 | 0 | 0 | 0 | 0 |
| SY14 | 0 | 0 | 0 | 0 |
| SY15 | 0 | 0 | 0 | 0 |
| SY16 | 4 | 2 | 2 | 0 |
| SY17 | 4 | 2 | 2 | 0 |
| SY18 | 5 | 2 | 3 | 0 |
| SY19 | 3 | 2 | 1 | 0 |
| Joseph Case High School | SY11 | 11 | 1 | 3 | 7 |
| SY12 | 7 | 2 | 2 | 3 |
| SY13 | 6 | 1 | 3 | 2 |
| SY14 | 8 | 1 | 3 | 4 |
| SY15 | 4 | 1 | 2 | 1 |
| SY16 | 8 | 4 | 2 | 2 |
| SY17 | 8 | 4 | 3 | 1 |
| SY18 | 10 | 5 | 3 | 2 |
| SY19 | 10 | 5 | 3 | 2 |
| Millbury Memorial Junior/Senior High School | SY11 | 1 | 0 | 1 | 0 |
| SY12 | 2 | 0 | 0 | 2 |
| SY13 | 3 | 0 | 1 | 2 |
| SY14 | 5 | 2 | 1 | 2 |
| SY15 | 5 | 2 | 1 | 2 |
| SY16 | 7 | 3 | 2 | 2 |
| SY17 | 8 | 4 | 2 | 2 |
| SY18 | 7 | 2 | 3 | 2 |
| SY19 | 8 | 3 | 3 | 2 |
| Nashoba Valley Technical High School | SY11 | 3 | 1 | 1 | 1 |
| SY12 | 3 | 1 | 1 | 1 |
| SY13 | 4 | 2 | 1 | 1 |
| SY14 | 4 | 2 | 1 | 1 |
| SY15 | 4 | 2 | 1 | 1 |
| SY16 | 9 | 3 | 4 | 2 |
| SY17 | 9 | 4 | 3 | 2 |
| SY18 | 8 | 4 | 1 | 3 |
| SY19 | 7 | 4 | 1 | 2 |
| Seekonk High School | SY11 | 3 | 1 | 1 | 1 |
| SY12 | 3 | 1 | 1 | 1 |
| SY13 | 4 | 2 | 1 | 1 |
| SY14 | 4 | 1 | 1 | 2 |
| SY15 | 5 | 2 | 1 | 2 |
| SY16 | 10 | 3 | 3 | 4 |
| SY17 | 13 | 3 | 4 | 6 |
| SY18 | 10 | 3 | 3 | 4 |
| SY19 | 11 | 3 | 4 | 4 |
| Somerville High School | SY11 | 4 | 2 | 1 | 1 |
| SY12 | 6 | 2 | 2 | 2 |
| SY13 | 6 | 2 | 1 | 3 |
| SY14 | 9 | 3 | 2 | 4 |
| SY15 | 15 | 5 | 4 | 6 |
| SY16 | 22 | 9 | 6 | 7 |
| SY17 | 20 | 6 | 5 | 9 |
| SY18 | 18 | 6 | 4 | 8 |
| SY19 | 23 | 7 | 7 | 9 |
| **Cohort 9** |  |  |  |  |  |
| Avon Middle-High School | SY11 | 3 | 1 | 1 | 1 |
| SY12 | 4 | 1 | 2 | 1 |
| SY13 | 4 | 1 | 2 | 1 |
| SY14 | 3 | 1 | 1 | 1 |
| SY15 | 3 | 1 | 1 | 1 |
| SY16 | 3 | 1 | 1 | 1 |
| SY17 | 6 | 2 | 2 | 2 |
| SY18 | 5 | 2 | 1 | 2 |
| SY19 | 5 | 2 | 1 | 2 |
| Ayer Shirley Regional High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 1 | 1 | 0 | 0 |
| SY13 | 1 | 1 | 0 | 0 |
| SY14 | 1 | 1 | 0 | 0 |
| SY15 | 1 | 1 | 0 | 0 |
| SY16 | 5 | 1 | 0 | 4 |
| SY17 | 4 | 2 | 0 | 2 |
| SY18 | 8 | 2 | 2 | 4 |
| SY19 | 8 | 2 | 3 | 3 |
| Grafton High School | SY11 | 5 | 1 | 1 | 3 |
| SY12 | 5 | 1 | 1 | 3 |
| SY13 | 6 | 2 | 1 | 3 |
| SY14 | 7 | 2 | 2 | 3 |
| SY15 | 10 | 2 | 3 | 5 |
| SY16 | 11 | 3 | 2 | 6 |
| SY17 | 13 | 5 | 3 | 5 |
| SY18 | 15 | 5 | 4 | 6 |
| SY19 | 15 | 4 | 5 | 6 |
| Joseph P. Keefe Regional Technical School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 0 | 0 | 0 | 0 |
| SY13 | 0 | 0 | 0 | 0 |
| SY14 | 0 | 0 | 0 | 0 |
| SY15 | 0 | 0 | 0 | 0 |
| SY16 | 0 | 0 | 0 | 0 |
| SY17 | 3 | 2 | 1 | 0 |
| SY18 | 5 | 2 | 1 | 2 |
| SY19 | 7 | 2 | 3 | 2 |
| Pathfinder Regional Vocational Technical High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 1 | 1 | 0 | 0 |
| SY13 | 0 | 0 | 0 | 0 |
| SY14 | 0 | 0 | 0 | 0 |
| SY15 | 0 | 0 | 0 | 0 |
| SY16 | 0 | 0 | 0 | 0 |
| SY17 | 4 | 2 | 2 | 0 |
| SY18 | 4 | 3 | 1 | 0 |
| SY19 | 4 | 2 | 2 | 0 |
| TechBoston Academy | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 3 | 1 | 1 | 1 |
| SY13 | 3 | 1 | 1 | 1 |
| SY14 | 3 | 1 | 1 | 1 |
| SY15 | 3 | 1 | 1 | 1 |
| SY16 | 4 | 1 | 1 | 2 |
| SY17 | 5 | 1 | 1 | 3 |
| SY18 | 3 | 1 | 1 | 1 |
| SY19 | 5 | 1 | 2 | 2 |
| Tri-County Regional Vocational Technical High School | SY11 | 2 | 1 | 1 | 0 |
| SY12 | 2 | 1 | 1 | 0 |
| SY13 | 4 | 2 | 1 | 1 |
| SY14 | 4 | 2 | 1 | 1 |
| SY15 | 6 | 2 | 2 | 2 |
| SY16 | 5 | 2 | 2 | 1 |
| SY17 | 5 | 2 | 2 | 1 |
| SY18 | 6 | 3 | 2 | 1 |
| SY19 | 8 | 3 | 4 | 1 |
| Urban Science Academy | SY11 | 5 | 1 | 2 | 2 |
| SY12 | 5 | 1 | 2 | 2 |
| SY13 | 5 | 1 | 2 | 2 |
| SY14 | 5 | 1 | 2 | 2 |
| SY15 | 3 | 1 | 1 | 1 |
| SY16 | 6 | 1 | 2 | 3 |
| SY17 | 6 | 1 | 2 | 3 |
| SY18 | 4 | 1 | 1 | 2 |
| SY19 | 3 | 2 | 0 | 1 |
| West Roxbury Academy | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 3 | 2 | 1 | 0 |
| SY13 | 3 | 2 | 1 | 0 |
| SY14 | 4 | 2 | 2 | 0 |
| SY15 | 3 | 2 | 1 | 0 |
| SY16 | 4 | 2 | 1 | 1 |
| SY17 | 4 | 2 | 1 | 1 |
| SY18 | 3 | 2 | 0 | 1 |
| SY19 | 0 | 0 | 0 | 0 |
| **Cohort 10** |  |  |  |  |  |
| Diman Regional Vocational Technical High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 0 | 0 | 0 | 0 |
| SY13 | 0 | 0 | 0 | 0 |
| SY14 | 0 | 0 | 0 | 0 |
| SY15 | 0 | 0 | 0 | 0 |
| SY16 | 0 | 0 | 0 | 0 |
| SY17 | 0 | 0 | 0 | 0 |
| SY18 | 2 | 2 | 0 | 0 |
| SY19 | 12 | 4 | 6 | 2 |
| Doherty Memorial High School | SY11 | 6 | 0 | 3 | 3 |
| SY12 | 12 | 5 | 2 | 5 |
| SY13 | 16 | 6 | 4 | 6 |
| SY14 | 19 | 7 | 5 | 7 |
| SY15 | 21 | 7 | 4 | 10 |
| SY16 | 20 | 7 | 5 | 8 |
| SY17 | 20 | 4 | 6 | 10 |
| SY18 | 21 | 5 | 6 | 10 |
| SY19 | 18 | 4 | 3 | 11 |
| Haverhill High School | SY11 | 11 | 5 | 4 | 2 |
| SY12 | 4 | 3 | 0 | 1 |
| SY13 | 17 | 7 | 4 | 6 |
| SY14 | 19 | 6 | 5 | 8 |
| SY15 | 19 | 5 | 4 | 10 |
| SY16 | 17 | 3 | 6 | 8 |
| SY17 | 17 | 2 | 7 | 8 |
| SY18 | 13 | 3 | 4 | 6 |
| SY19 | 18 | 6 | 4 | 8 |
| Lowell High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 40 | 16 | 13 | 11 |
| SY13 | 29 | 8 | 9 | 12 |
| SY14 | 47 | 18 | 12 | 17 |
| SY15 | 38 | 14 | 10 | 14 |
| SY16 | 31 | 9 | 8 | 14 |
| SY17 | 46 | 18 | 12 | 16 |
| SY18 | 47 | 20 | 13 | 14 |
| SY19 | 47 | 20 | 15 | 12 |
| Madison Park Technical Vocational High School | SY11 | 4 | 2 | 0 | 2 |
| SY12 | 4 | 2 | 0 | 2 |
| SY13 | 5 | 3 | 0 | 2 |
| SY14 | 5 | 4 | 0 | 1 |
| SY15 | 0 | 0 | 0 | 0 |
| SY16 | 0 | 0 | 0 | 0 |
| SY17 | 2 | 1 | 0 | 1 |
| SY18 | 1 | 1 | 0 | 0 |
| SY19 | 5 | 1 | 2 | 2 |
| The Springfield Renaissance School | SY11 | 2 | 1 | 1 | 0 |
| SY12 | 2 | 1 | 1 | 0 |
| SY13 | 1 | 1 | 0 | 0 |
| SY14 | 2 | 1 | 1 | 0 |
| SY15 | 2 | 1 | 1 | 0 |
| SY16 | 2 | 1 | 1 | 0 |
| SY17 | 3 | 2 | 1 | 0 |
| SY18 | 3 | 2 | 1 | 0 |
| SY19 | 4 | 3 | 1 | 0 |
| **Cohort 11** |  |  |  |  |  |
| Paulo Freire Social Justice Charter School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 0 | 0 | 0 | 0 |
| SY13 | 0 | 0 | 0 | 0 |
| SY14 | 0 | 0 | 0 | 0 |
| SY15 | 0 | 0 | 0 | 0 |
| SY16 | 0 | 0 | 0 | 0 |
| SY17 | 0 | 0 | 0 | 0 |
| SY18 | 0 | 0 | 0 | 0 |
| SY19 | 1 | 1 | 0 | 0 |
| Smith Vocational and Agricultural High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 0 | 0 | 0 | 0 |
| SY13 | 0 | 0 | 0 | 0 |
| SY14 | 0 | 0 | 0 | 0 |
| SY15 | 0 | 0 | 0 | 0 |
| SY16 | 0 | 0 | 0 | 0 |
| SY17 | 0 | 0 | 0 | 0 |
| SY18 | 0 | 0 | 0 | 0 |
| SY19 | 1 | 1 | 0 | 0 |
| Southbridge High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 0 | 0 | 0 | 0 |
| SY13 | 0 | 0 | 0 | 0 |
| SY14 | 0 | 0 | 0 | 0 |
| SY15 | 0 | 0 | 0 | 0 |
| SY16 | 0 | 0 | 0 | 0 |
| SY17 | 5 | 2 | 2 | 1 |
| SY18 | 6 | 2 | 2 | 2 |
| SY19 | 6 | 3 | 2 | 1 |
| Southeastern Regional Vocational Technical High School | SY11 | 0 | 0 | 0 | 0 |
| SY12 | 0 | 0 | 0 | 0 |
| SY13 | 0 | 0 | 0 | 0 |
| SY14 | 4 | 2 | 2 | 0 |
| SY15 | 4 | 2 | 2 | 0 |
| SY16 | 6 | 3 | 3 | 0 |
| SY17 | 10 | 4 | 6 | 0 |
| SY18 | 13 | 6 | 4 | 3 |
| SY19 | 17 | 6 | 6 | 5 |
| Woburn High School | SY11 | 6 | 2 | 2 | 2 |
| SY12 | 6 | 2 | 2 | 2 |
| SY13 | 6 | 2 | 2 | 2 |
| SY14 | 8 | 4 | 2 | 2 |
| SY15 | 9 | 4 | 3 | 2 |
| SY16 | 11 | 3 | 5 | 3 |
| SY17 | 11 | 4 | 4 | 3 |
| SY18 | 10 | 3 | 4 | 3 |
| SY19 | 11 | 5 | 3 | 3 |

**Table 3: Enrollment in AP STEM and English Schools by Subgroup, First Year of Participation**

|  |  |  |
| --- | --- | --- |
| **Characteristic** | **Average (Unweighted %)** | **Average (Weighted %)** |
| **Gender** |  |  |
| Male | 50.8 | 51.1 |
| Female | 49.2 | 48.9 |
| Non-Binary+ | 0.0 | 0.0 |
| **Race/Ethnicity** |  |  |
| White | 63.0 | 60.0 |
| African American/Black | 12.4 | 11.2 |
| Asian | 3.4 | 4.7 |
| American Indian or Alaskan Native | 0.3 | 0.3 |
| Native Hawaiian or Pacific Islander | 0.1 | 0.2 |
| Multi-Race, Non-Hispanic or Latino | 2.2 | 2.3 |
| Hispanic/Latino | 18.6 | 21.3 |
| **Special Populations** |  |  |
| Students with Disabilities | 16.9 | 16.3 |
| English Language Learners | 6.7 | 7.1 |
| Free and Reduced-Price Lunch\* | 45.3 | 46.8 |
| Economically Disadvantaged\* | 32.1 | 33.7 |
| + Note: DESE started to collect non-binary data in SY17.  \* Note: The use of Free and Reduced-price Lunch was discontinued after SY14 and was replaced by a measurement for Economically Disadvantaged. | | |

**Table 4: Grades 9–12 Enrollment in AP STEM and English Schools by Race, First Year of Participation**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **School** | **Total Enrollment (N)** | **White (%)** | **Af. Am./Black (%)** | | **Asian (%)** | **Am. Ind./ Alaskan Nat. (%)** | **Nat. Haw./Pacif. Isl. (%)** | **Multi-race, Non-Hisp./ Latino (%)** | **Hispanic/**  **Latino (%)** |
| **Cohort 1** |  |  |  |  | |  |  |  |  |
| Chelsea High School | 1,415 | 9.5 | 7.6 | 3.5 | | 0.0 | 0.0 | 0.7 | 78.7 |
| John D. O’Bryant School of Mathematics and Science | 999 | 11.1 | 40.8 | 21.5 | | 0.1 | 0.1 | 1.0 | 25.3 |
| Malden High School | 1,720 | 34.8 | 21.6 | 23.1 | | 0.6 | 0.1 | 2.7 | 17.0 |
| Marlborough High School | 1,130 | 68.1 | 3.0 | 2.8 | | 0.6 | 0.0 | 1.3 | 24.1 |
| North High School | 1,121 | 30.3 | 19.6 | 7.9 | | 0.1 | 0.0 | 1.8 | 40.3 |
| Northampton High School | 896 | 77.6 | 3.1 | 5.0 | | 0.1 | 0.1 | 3.1 | 10.9 |
| Revere High School | 1,472 | 48.8 | 3.8 | 8.4 | | 0.6 | 0.1 | 2.7 | 35.5 |
| Springfield Central High School | 2,079 | 23.0 | 27.6 | 4.3 | | 0.2 | 0.0 | 3.3 | 41.6 |
| **Cohort 2** |  |  |  |  | |  |  |  |  |
| Attleboro High School | 1,756 | 78.0 | 4.6 | 6.0 | | 0.4 | 0.5 | 2.0 | 8.6 |
| B.M.C. Durfee High School | 2,348 | 70.2 | 9.0 | 5.6 | | 0.6 | 0.0 | 1.1 | 13.5 |
| Dedham High School | 786 | 78.2 | 8.3 | 2.4 | | 0.5 | 0.0 | 2.0 | 8.5 |
| Easthampton High School | 447 | 88.8 | 2.2 | 2.9 | | 0.0 | 0.0 | 0.4 | 5.6 |
| MATCH Charter Public School | 222 | 1.8 | 59.9 | 0.0 | | 0.9 | 0.9 | 4.1 | 32.4 |
| Methuen High School | 1,828 | 69.0 | 2.2 | 2.2 | | 0.3 | 0.1 | 2.1 | 24.1 |
| Peabody Veterans Memorial High | 1,837 | 80.5 | 1.4 | 1.4 | | 0.3 | 0.1 | 2.7 | 13.7 |
| Randolph High School | 720 | 14.2 | 57.2 | 18.3 | | 0.4 | 0.8 | 0.8 | 8.2 |
| South High Community School | 1,327 | 27.4 | 17.9 | 13.0 | | 0.2 | 0.1 | 0.8 | 40.8 |
| Springfield High School of Science and Technology | 1,296 | 11.2 | 24.0 | 2.2 | | 0.0 | 0.1 | 3.2 | 59.3 |
| Winthrop High School | 529 | 89.6 | 2.5 | 1.5 | | 0.0 | 0.2 | 0.2 | 6.0 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **School** | **Total Enrollment (N)** | **White (%)** | **Af. Am./Black (%)** | **Asian (%)** | **Am. Ind./ Alaskan Nat. (%)** | **Nat. Haw./Pacif. Isl. (%)** | **Multi-race, Non-Hisp./ Latino (%)** | **Hispanic/**  **Latino (%)** |
| **Cohort 3** |  |  |  |  |  |  |  |  |
| Agawam High School | 1,337 | 95.2 | 1.4 | 1.0 | 0.0 | 0.0 | 0.5 | 1.8 |
| Athol High School | 445 | 91.0 | 0.9 | 0.9 | 0.2 | 0.2 | 2.0 | 4.7 |
| Bellingham High School | 709 | 91.5 | 1.3 | 3.0 | 0.3 | 0.0 | 1.1 | 2.8 |
| Blackstone Valley Regional Vocational Technical | 1,146 | 94.5 | 0.4 | 0.6 | 0.1 | 0.0 | 1.9 | 2.4 |
| Boston Collegiate Charter | 162 | 61.7 | 28.4 | 1.9 | 0.0 | 0.0 | 1.2 | 6.8 |
| Boston Community Leadership Academy | 451 | 8.6 | 43.5 | 3.8 | 0.0 | 0.4 | 0.4 | 43.2 |
| Brighton High School | 1,223 | 5.1 | 39.2 | 3.2 | 0.5 | 0.1 | 0.8 | 51.1 |
| Burncoat High School | 1,072 | 40.1 | 18.7 | 4.9 | 0.3 | 0.0 | 1.3 | 34.8 |
| Community Academy of Science and Health | 402 | 1.5 | 74.6 | 1.0 | 0.0 | 0.2 | 1.2 | 21.4 |
| Douglas High School | 465 | 97.0 | 0.2 | 0.4 | 0.0 | 0.4 | 0.2 | 1.7 |
| East Boston High School | 1,376 | 15.6 | 14.0 | 1.9 | 0.3 | 0.0 | 0.9 | 67.4 |
| Edward M. Kennedy Academy for Health Services | 218 | 5.0 | 45.4 | 2.3 | 0.0 | 0.5 | 3.7 | 43.1 |
| Greenfield High School | 377 | 76.9 | 4.0 | 1.1 | 0.3 | 0.0 | 6.1 | 11.7 |
| Mashpee High School | 467 | 82.2 | 2.4 | 2.1 | 5.1 | 0.0 | 3.6 | 4.5 |
| Middleborough High School | 852 | 89.7 | 3.1 | 1.1 | 0.7 | 0.2 | 2.9 | 2.3 |
| Narragansett Regional High School | 453 | 93.8 | 0.7 | 0.2 | 0.2 | 0.2 | 2.6 | 2.2 |
| Norton High School | 758 | 94.3 | 1.6 | 0.9 | 0.0 | 0.7 | 1.8 | 0.7 |
| Quaboag Regional Middle High School | 372 | 93.5 | 0.5 | 1.1 | 0.0 | 0.0 | 1.6 | 3.2 |
| Salem Academy Charter School | 144 | 52.1 | 9.0 | 3.5 | 0.0 | 0.0 | 0.0 | 35.4 |
| Salem High School | 1,227 | 53.4 | 5.0 | 3.6 | 0.1 | 0.0 | 4.0 | 34.0 |
| South Hadley Senior High School | 648 | 88.0 | 1.9 | 1.5 | 0.5 | 0.0 | 2.5 | 5.7 |
| Turners Falls High School | 294 | 88.8 | 1.7 | 0.7 | 0.3 | 0.7 | 1.4 | 6.5 |
| Uxbridge High School | 440 | 95.0 | 0.7 | 0.2 | 0.2 | 0.0 | 0.5 | 3.4 |
| Ware Junior Senior High School | 315 | 91.4 | 3.8 | 0.6 | 0.0 | 0.0 | 0.6 | 3.5 |
| **School** | **Total Enrollment (N)** | **White (%)** | **Af. Am./Black (%)** | **Asian (%)** | **Am. Ind./ Alaskan Nat. (%)** | **Nat. Haw./Pacif. Isl. (%)** | **Multi-race, Non-Hisp./ Latino (%)** | **Hispanic/**  **Latino (%)** |
| Worcester Technical High School | 1,400 | 50.2 | 10.0 | 3.9 | 0.2 | 0.1 | 1.1 | 34.5 |
| **Cohort 4** |  |  |  |  |  |  |  |  |
| Danvers High School | 1,017 | 90.7 | 1.3 | 1.4 | 0.2 | 0.0 | 1.7 | 4.8 |
| Dracut High School | 1,080 | 84.5 | 3.5 | 4.8 | 0.0 | 0.1 | 1.2 | 5.8 |
| New Mission High School | 257 | 2.7 | 61.5 | 0.4 | 0.8 | 0.0 | 0.4 | 34.2 |
| Nipmuc Regional High School | 725 | 94.2 | 1.4 | 0.8 | 0.1 | 0.3 | 1.5 | 1.7 |
| Northbridge High School | 670 | 94.3 | 0.7 | 0.4 | 0.1 | 0.0 | 2.1 | 2.2 |
| Palmer High School | 406 | 90.9 | 2.5 | 1.2 | 0.2 | 1.2 | 0.7 | 3.2 |
| West Springfield High School | 1,206 | 75.5 | 3.1 | 4.8 | 0.4 | 0.2 | 2.8 | 13.2 |
| **Cohort 5** |  |  |  |  |  |  |  |  |
| Auburn High School | 677 | 90.1 | 1.5 | 1.9 | 0.1 | 0.0 | 2.1 | 4.3 |
| Barnstable High School | 1,540 | 80.6 | 4.9 | 3.1 | 1.1 | 0.2 | 3.8 | 6.2 |
| Chicopee High School | 1,063 | 57.9 | 2.7 | 3.1 | 0.3 | 0.0 | 1.8 | 34.2 |
| Claremont Academy | 264 | 15.5 | 12.1 | 8.7 | 0.0 | 0.0 | 1.5 | 62.1 |
| Drury High School | 410 | 84.6 | 4.6 | 0.5 | 0.5 | 1.7 | 4.9 | 3.2 |
| East Bridgewater High School | 557 | 94.6 | 1.8 | 1.3 | 0.0 | 0.4 | 0.7 | 1.3 |
| Fitchburg High School | 1,090 | 39.7 | 9.4 | 7.3 | 0.0 | 0.1 | 3.2 | 40.2 |
| Gardner High School | 600 | 82.8 | 2.7 | 2.0 | 0.8 | 0.0 | 1.8 | 9.8 |
| Lee Middle and High School | 280 | 88.6 | 0.7 | 2.9 | 0.0 | 0.0 | 0.7 | 7.1 |
| Leicester High School | 469 | 89.8 | 1.9 | 2.6 | 0.0 | 0.0 | 2.3 | 3.4 |
| Ludlow High School | 953 | 90.6 | 2.1 | 0.5 | 0.1 | 0.0 | 0.4 | 6.3 |
| Whitman-Hanson Regional High School | 1,183 | 92.1 | 2.7 | 0.4 | 0.3 | 0.1 | 2.1 | 2.4 |
| **Cohort 6** |  |  |  |  |  |  |  |  |
| Bartlett Junior Senior High School | 470 | 76.4 | 4.3 | 2.1 | 0.4 | 0.0 | 2.8 | 14.0 |
| Boston Green Academy | 315 | 15.6 | 53.0 | 2.5 | 0.3 | 0.0 | 0.3 | 28.3 |
| Chicopee Comprehensive High School | 1,414 | 70.4 | 2.5 | 1.9 | 0.1 | 0.8 | 2.5 | 21.9 |
| Excel High School | 547 | 13.7 | 38.2 | 22.5 | 0.5 | 0.0 | 1.6 | 23.4 |
| **School** | **Total Enrollment (N)** | **White (%)** | **Af. Am./Black (%)** | **Asian (%)** | **Am. Ind./ Alaskan Nat. (%)** | **Nat. Haw./Pacif. Isl. (%)** | **Multi-race, Non-Hisp./ Latino (%)** | **Hispanic/**  **Latino (%)** |
| Holyoke High School | 1,309 | 27.3 | 3.3 | 1.1 | 0.0 | 0.0 | 0.4 | 67.9 |
| Jeremiah E. Burke High School | 534 | 2.4 | 75.8 | 0.9 | 0.2 | 0.0 | 0.4 | 20.2 |
| Murdock High School | 325 | 91.7 | 1.8 | 0.6 | 0.3 | 0.0 | 1.2 | 4.3 |
| New Bedford High School | 2,426 | 45.0 | 14.8 | 0.8 | 0.8 | 0.9 | 6.5 | 31.1 |
| North Brookfield High School | 137 | 94.2 | 0.7 | 1.5 | 0.0 | 0.0 | 0.7 | 2.9 |
| Shepherd Hill Regional High School | 1,105 | 91.4 | 1.1 | 0.0 | 0.2 | 1.9 | 1.1 | 4.3 |
| Taconic High School | 854 | 79.6 | 8.7 | 1.3 | 0.5 | 0.0 | 4.0 | 6.0 |
| Tantasqua High School | 749 | 89.3 | 0.7 | 2.5 | 0.3 | 0.0 | 2.9 | 4.3 |
| Wareham High School | 597 | 68.8 | 11.2 | 0.7 | 1.2 | 0.2 | 11.6 | 6.4 |
| **Cohort 7** |  |  |  |  |  |  |  |  |
| Bay Path Regional Vocational Technical High School | 1,120 | 93.8 | 0.4 | 0.2 | 0.1 | 0.0 | 0.4 | 5.1 |
| Bourne High School | 462 | 85.9 | 1.5 | 2.2 | 0.0 | 0.2 | 6.5 | 3.7 |
| Charlestown High School | 921 | 4.9 | 38.7 | 19.0 | 0.3 | 0.1 | 1.3 | 35.7 |
| Granby Junior-Senior High School | 297 | 93.6 | 1.3 | 1.7 | 0.0 | 0.0 | 1.3 | 2.0 |
| Melrose High School | 933 | 82.1 | 7.7 | 3.9 | 0.0 | 0.0 | 3.1 | 3.2 |
| Nantucket High School | 489 | 64.2 | 14.1 | 2.0 | 0.0 | 0.0 | 2.2 | 17.4 |
| Oxford High School | 438 | 87.2 | 0.7 | 0.0 | 0.2 | 0.0 | 2.5 | 9.4 |
| Pittsfield High School | 916 | 73.5 | 11.7 | 1.1 | 0.1 | 0.0 | 4.6 | 9.1 |
| Roger L. Putnam Vocational Technical High School | 1,325 | 10.9 | 21.1 | 2.0 | 0.1 | 0.0 | 2.9 | 63.0 |
| Saugus High School | 707 | 78.8 | 4.1 | 4.2 | 0.3 | 0.1 | 1.4 | 11.0 |
| Sutton Memorial High School | 431 | 91.6 | 0.5 | 1.2 | 0.5 | 0.0 | 4.2 | 2.1 |
| Wahconah Regional High School | 540 | 93.3 | 1.3 | 0.6 | 0.0 | 0.0 | 2.8 | 2.0 |
| Westfield High School | 1,329 | 81.3 | 2.1 | 2.9 | 0.2 | 0.4 | 1.1 | 11.9 |
| Westport High School | 333 | 96.4 | 0.6 | 0.0 | 0.0 | 0.0 | 0.6 | 2.4 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **School** | **Total Enrollment (N)** | **White (%)** | | **Af. Am./Black (%)** | | **Asian (%)** | | **Am. Ind./ Alaskan Nat. (%)** | | **Nat. Haw./Pacif. Isl. (%)** | | **Multi-race, Non-Hisp./ Latino (%)** | | **Hispanic/**  **Latino (%)** | |
| **Cohort 8** |  |  | |  | |  | |  | |  | |  | |  | |
| Blackstone-Millville Regional High School | 464 | 92.9 | 1.3 | | 1.9 | | 0.0 | | 0.0 | | 1.3 | | 2.6 | |
| Carver High School | 423 | 94.3 | 2.6 | | 0.0 | | 0.2 | | 0.0 | | 2.1 | | 0.7 | |
| David Prouty High School | 392 | 85.7 | 0.5 | | 1.3 | | 0.0 | | 0.0 | | 5.1 | | 7.4 | |
| Franklin County Technical School | 507 | 95.5 | 1.0 | | 0.2 | | 0.2 | | 0.0 | | 0.6 | | 2.6 | |
| Joseph Case High School | 511 | 93.9 | 2.7 | | 1.0 | | 0.2 | | 0.0 | | 1.0 | | 1.2 | |
| Millbury Memorial Junior/Senior High School | 426 | 87.8 | 2.1 | | 1.2 | | 0.5 | | 0.0 | | 2.1 | | 6.3 | |
| Nashoba Valley Technical High School | 731 | 88.9 | 0.7 | | 0.8 | | 0.5 | | 0.0 | | 3.1 | | 5.9 | |
| Seekonk High School | 586 | 92.2 | 0.7 | | 2.9 | | 0.0 | | 0.0 | | 1.9 | | 2.4 | |
| Somerville High School | 1,227 | 31.7 | 13.9 | | 10.4 | | 0.1 | | 0.0 | | 0.7 | | 43.3 | |
| **Cohort 9** | | | | | | | | | | | | | | | |
| Avon Middle-High School | 195 | 40.5 | 43.6 | | 6.2 | | 0.5 | | 0.0 | | 3.6 | | 5.6 | |
| Ayer Shirley Regional High School | 409 | 72.9 | 7.8 | | 2.4 | | 0.2 | | 0.2 | | 5.9 | | 10.5 | |
| Grafton High School | 822 | 84.1 | 1.2 | | 8.9 | | 0.0 | | 0.1 | | 2.2 | | 3.5 | |
| Joseph P. Keefe Regional Technical School | 717 | 43.5 | 5.9 | | 0.1 | | 0.8 | | 0.0 | | 3.3 | | 46.3 | |
| Pathfinder Regional Vocational Technical High School | 617 | 88.2 | 0.6 | | 0.8 | | 0.8 | | 0.0 | | 3.9 | | 5.7 | |
| TechBoston Academy | 585 | 3.1 | 71.6 | | 3.9 | | 0.5 | | 0.2 | | 1.7 | | 19.0 | |
| Tri-County Regional Vocational Technical High School | 1,023 | 89.2 | 0.4 | | 0.7 | | 0.4 | | 0.2 | | 4.5 | | 4.6 | |
| Urban Science Academy | 430 | 8.4 | 50.9 | | 1.4 | | 0.2 | | 0.0 | | 2.8 | | 36.3 | |
| West Roxbury Academy | 487 | 10.5 | 47.2 | | 1.8 | | 0.6 | | 0.2 | | 1.6 | | 38.0 | |
| **Cohort 10** | | | | | | | | | | | | | | | |
| Diman Regional Vocational Technical High School | 1,397 | 79.5 | 2.3 | | 1.7 | | 0.5 | | 0.1 | | 6.1 | | 9.8 | |
| Doherty Memorial High School | 1,550 | 41.2 | 16.3 | | 7.5 | | 0.3 | | 0.0 | | 4.2 | | 30.5 | |
| Haverhill High School | 1,801 | 62.5 | 4.2 | | 1.7 | | 0.1 | | 0.1 | | 1.3 | | 30.0 | |
| Lowell High School | 3,124 | 28.8 | 11.4 | | 31.9 | | 0.1 | | 0.0 | | 2.6 | | 25.2 | |
| Madison Park Technical Vocational High School | 859 | 2.0 | 36.7 | | 1.3 | | 0.2 | | 0.2 | | 2.1 | | 57.5 | |
| The Springfield Renaissance School | 374 | 24.9 | 25.9 | | 2.1 | | 0.0 | | 0.3 | | 1.9 | | 44.9 | |
| **School** | **Total Enrollment (N)** | **White (%)** | **Af. Am./Black (%)** | | **Asian (%)** | | **Am. Ind./ Alaskan Nat. (%)** | | **Nat. Haw./Pacif. Isl. (%)** | | **Multi-race, Non-Hisp./ Latino (%)** | | **Hispanic/**  **Latino (%)** | |
| **Cohort 11** | | | | | | | | | | | | | | | |
| Paulo Freire Social Justice Charter School | 275 | 4.4 | 3.6 | | 0.4 | | 0.0 | | 0.0 | | 0.0 | | 91.6 | |
| Smith Vocational and Agricultural High School | 495 | 81.8 | 1.2 | | 0.4 | | 0.0 | | 0.0 | | 2.0 | | 14.5 | |
| Southbridge High School | 482 | 37.6 | 1.0 | | 1.0 | | 0.4 | | 0.2 | | 1.2 | | 58.5 | |
| Southeastern Regional Vocational Technical High Scho | 1,444 | 45.7 | 34.5 | | 1.7 | | 0.1 | | 0.0 | | 5.6 | | 12.4 | |
| Woburn High School | 1,301 | 72.9 | 6.9 | | 6.1 | | 0.2 | | 0.2 | | 1.8 | | 12.0 | |
|  | | | | | | | | | | | | | | | |
| Total and Weighted Average | 99,805 | 60.0 | 11.2 | | 4.7 | | 0.3 | | 0.2 | | 2.3 | | 21.3 | |
| Total and Unweighted Average | 99,805 | 63.0 | 12.4 | | 3.4 | | 0.3 | | 0.1 | | 2.2 | | 18.6 | |

**Table 5: Grades 9–12 Enrollment in AP STEM and English Schools by Subgroup, First Year of Participation**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **School** | **Total Enrollment (N)** | **\* Free & Reduced-Price Lunch (%)** | **\* Econ. Disadv.**  **(%)** | **English Lang. Learner (%)** | **Student with Disab. (%)** | **Male (%)** | **Female (%)** | **+ Non-Binary (%)** |
| Cohort 1 |  |  |  |  |  |  |  |  |
| Chelsea High School | 1,415 | 66.7 | --- | 12.8 | 13.9 | 52.9 | 47.1 | --- |
| John D. O’Bryant School of Mathematics and Science | 999 | 64.5 | --- | 1.2 | 1.1 | 41.8 | 58.2 | --- |
| Malden High School | 1,720 | 55.4 | --- | 9.1 | 12.4 | 51.8 | 48.2 | --- |
| Marlborough High School | 1,130 | 26.8 | --- | 5.6 | 15.0 | 50.7 | 49.3 | --- |
| North High School | 1,121 | 75.4 | --- | 14.1 | 21.9 | 54.3 | 45.7 | --- |
| Northampton High School | 896 | 19.5 | --- | 0.7 | 14.2 | 49.8 | 50.2 | --- |
| Revere High School | 1,472 | 60.3 | --- | 5.7 | 9.9 | 50.8 | 49.2 | --- |
| Springfield Central High School | 2,079 | 61.9 | --- | 6.8 | 18.6 | 50.0 | 50.0 | --- |
| Cohort 2 |  |  |  |  |  |  |  |  |
| Attleboro High School | 1,756 | 24.0 | --- | 1.7 | 14.0 | 50.5 | 49.5 | --- |
| B.M.C. Durfee High School | 2,348 | 66.3 | --- | 3.4 | 17.2 | 49.0 | 51.0 | --- |
| Dedham High School | 786 | 28.1 | --- | 2.2 | 18.1 | 51.7 | 48.3 | --- |
| Easthampton High School | 447 | 24.6 | --- | 0.4 | 17.4 | 51.7 | 48.3 | --- |
| MATCH Charter Public School | 222 | 78.4 | --- | 0.0 | 13.5 | 44.6 | 55.4 | --- |
| Methuen High School | 1,828 | 36.5 | --- | 3.3 | 9.4 | 50.8 | 49.2 | --- |
| Peabody Veterans Memorial High | 1,837 | 24.6 | --- | 2.7 | 18.5 | 48.9 | 51.1 | --- |
| Randolph High School | 720 | 52.1 | --- | 7.6 | 14.9 | 55.7 | 44.3 | --- |
| South High Community School | 1,327 | 76.5 | --- | 20.5 | 23.1 | 54.8 | 45.2 | --- |
| Springfield High School of Science and Technology | 1,296 | 81.4 | --- | 16.6 | 27.8 | 53.3 | 46.7 | --- |
| Winthrop High School | 529 | 25.9 | --- | 2.1 | 16.6 | 48.6 | 51.4 | --- |
| Cohort 3 |  |  |  |  |  |  |  |  |
| Agawam High School | 1,337 | 20.7 | --- | 1.0 | 10.9 | 49.9 | 50.1 | --- |
| Athol High School | 445 | 48.8 | --- | 0.7 | 23.1 | 54.6 | 45.4 | --- |
| Bellingham High School | 709 | 19.9 | --- | 0.7 | 9.0 | 54.6 | 45.4 | --- |
| **School** | **Total Enrollment (N)** | **\* Free & Reduced-Price Lunch (%)** | **\* Econ. Disadv.**  **(%)** | **English Lang. Learner (%)** | **Student with Disab. (%)** | **Male (%)** | **Female (%)** | **+ Non-Binary (%)** |
| Blackstone Valley Regional Vocational Technical | 1,146 | 17.7 | --- | 0.6 | 11.0 | 56.2 | 43.8 | --- |
| Boston Collegiate Charter | 162 | 34.0 | --- | 0.0 | 17.9 | 37.7 | 62.3 | --- |
| Boston Community Leadership Academy | 451 | 76.7 | --- | 28.8 | 15.5 | 46.1 | 53.9 | --- |
| Brighton High School | 1,223 | 79.6 | --- | 31.8 | 19.3 | 54.0 | 46.0 | --- |
| Burncoat High School | 1,072 | 59.3 | --- | 17.1 | 22.1 | 47.0 | 53.0 | --- |
| Community Academy of Science and Health | 402 | 73.6 | --- | 48.8 | 18.2 | 49.5 | 50.5 | --- |
| Douglas High School | 465 | 14.6 | --- | 0.0 | 12.7 | 49.7 | 50.3 | --- |
| East Boston High School | 1,376 | 84.4 | --- | 32.6 | 16.9 | 52.3 | 47.7 | --- |
| Edward M. Kennedy Academy for Health Services | 218 | 77.1 | --- | 5.5 | 5.5 | 30.3 | 69.7 | --- |
| Greenfield High School | 377 | 60.2 | --- | 3.7 | 19.9 | 50.1 | 49.9 | --- |
| Mashpee High School | 467 | 22.1 | --- | 1.7 | 16.5 | 51.4 | 48.6 | --- |
| Middleborough High School | 852 | 27.9 | --- | 0.7 | 12.6 | 51.4 | 48.6 | --- |
| Narragansett Regional High School | 453 | 26.7 | --- | 0.0 | 11.5 | 47.0 | 53.0 | --- |
| Norton High School | 758 | 15.7 | --- | 0.0 | 14.8 | 51.7 | 48.3 | --- |
| Quaboag Regional Middle High School | 372 | 37.1 | --- | 0.0 | 14.5 | 47.8 | 52.2 | --- |
| Salem Academy Charter School | 144 | 42.4 | --- | 6.3 | 23.6 | 48.6 | 51.4 | --- |
| Salem High School | 1,227 | 53.2 | --- | 8.6 | 22.7 | 51.4 | 48.6 | --- |
| South Hadley Senior High School | 648 | 25.0 | --- | 0.6 | 11.9 | 53.4 | 46.6 | --- |
| Turners Falls High School | 294 | 50.7 | --- | 3.1 | 21.4 | 49.0 | 51.0 | --- |
| Uxbridge High School | 440 | 13.6 | --- | 0.5 | 12.0 | 53.2 | 46.8 | --- |
| Ware Junior Senior High School | 315 | 43.8 | --- | 1.3 | 20.3 | 53.3 | 46.7 | --- |
| Worcester Technical High School | 1,400 | 61.2 | --- | 6.8 | 19.9 | 47.7 | 52.3 | --- |
| Cohort 4 |  |  |  |  |  |  |  |  |
| Danvers High School | 1,017 | 15.0 | --- | 0.5 | 16.4 | 47.2 | 52.8 | --- |
| Dracut High School | 1,080 | 12.0 | --- | 0.3 | 7.6 | 51.6 | 48.4 | --- |
| New Mission High School | 257 | 80.5 | --- | 5.4 | 17.9 | 49.4 | 50.6 | --- |
| Nipmuc Regional High School | 725 | 7.6 | --- | 0.1 | 9.9 | 47.3 | 52.7 | --- |
| Northbridge High School | 670 | 29.4 | --- | 0.3 | 14.8 | 49.1 | 50.9 | --- |
| **School** | **Total Enrollment (N)** | **\* Free & Reduced-Price Lunch (%)** | **\* Econ. Disadv.**  **(%)** | **English Lang. Learner (%)** | **Student with Disab. (%)** | **Male (%)** | **Female (%)** | **+ Non-Binary (%)** |
| Palmer High School | 406 | 30.0 | --- | 0.5 | 12.6 | 46.3 | 53.7 | --- |
| West Springfield High School | 1,206 | 43.9 | --- | 5.5 | 17.5 | 51.3 | 48.7 | --- |
| Cohort 5 |  |  |  |  |  |  |  |  |
| Auburn High School | 677 | 20.5 | --- | 1.3 | 9.5 | 46.4 | 53.6 | --- |
| Barnstable High School | 1,540 | 36.2 | --- | 3.3 | 10.6 | 48.3 | 51.7 | --- |
| Chicopee High School | 1,063 | 64.1 | --- | 2.4 | 14.8 | 48.5 | 51.5 | --- |
| Claremont Academy | 264 | 85.2 | --- | 47.0 | 28.4 | 54.5 | 45.5 | --- |
| Drury High School | 410 | 48.5 | --- | 1.2 | 21.0 | 46.8 | 53.2 | --- |
| East Bridgewater High School | 557 | 15.3 | --- | 0.2 | 9.7 | 49.4 | 50.6 | --- |
| Fitchburg High School | 1,090 | 76.4 | --- | 6.8 | 16.2 | 49.2 | 50.8 | --- |
| Gardner High School | 600 | 43.8 | --- | 2.0 | 13.2 | 53.0 | 47.0 | --- |
| Lee Middle and High School | 280 | 27.1 | --- | 3.2 | 10.7 | 46.8 | 53.2 | --- |
| Leicester High School | 469 | 28.8 | --- | 0.4 | 11.9 | 47.8 | 52.2 | --- |
| Ludlow High School | 953 | 26.9 | --- | 0.5 | 16.1 | 49.6 | 50.4 | --- |
| Whitman-Hanson Regional High School | 1,183 | 20.5 | --- | 0.5 | 13.9 | 50.0 | 50.0 | --- |
| Cohort 6 |  |  |  |  |  |  |  |  |
| Bartlett Junior Senior High School | 470 | 50.4 | --- | 3.0 | 13.8 | 51.1 | 48.9 | --- |
| Boston Green Academy | 315 | 83.8 | --- | 14.9 | 29.8 | 56.2 | 43.8 | --- |
| Chicopee Comprehensive High School | 1,414 | 51.3 | --- | 2.2 | 15.3 | 53.5 | 46.5 | --- |
| Excel High School | 547 | 85.7 | --- | 25.4 | 23.8 | 56.7 | 43.3 | --- |
| Holyoke High School | 1,309 | 70.9 | --- | 13.1 | 15.4 | 51.9 | 48.1 | --- |
| Jeremiah E. Burke High School | 534 | 79.6 | --- | 30.5 | 15.0 | 55.4 | 44.6 | --- |
| Murdock High School | 325 | 44.9 | --- | 0.9 | 21.2 | 54.5 | 45.5 | --- |
| New Bedford High School | 2,426 | 70.5 | --- | 8.7 | 18.9 | 54.9 | 45.1 | --- |
| North Brookfield High School | 137 | 28.5 | --- | 0.0 | 14.6 | 49.6 | 50.4 | --- |
| Shepherd Hill Regional High School | 1,105 | 19.2 | --- | 0.7 | 8.4 | 46.3 | 53.7 | --- |
| Taconic High School | 854 | 48.8 | --- | 1.3 | 16.5 | 51.1 | 48.9 | --- |
| Tantasqua High School | 749 | 17.0 | --- | 0.0 | 6.4 | 42.6 | 57.4 | --- |
| Wareham High School | 597 | 46.1 | --- | 0.3 | 21.1 | 52.4 | 47.6 | --- |
| **School** | **Total Enrollment (N)** | **\* Free & Reduced-Price Lunch (%)** | **\* Econ. Disadv.**  **(%)** | **English Lang. Learner (%)** | **Student with Disab. (%)** | **Male (%)** | **Female (%)** | **+ Non-Binary (%)** |
| Cohort 7 |  |  |  |  |  |  |  |  |
| Bay Path Regional Vocational Technical High School | 1,120 | --- | 23.1 | 0.0 | 18.5 | 59.6 | 40.4 | --- |
| Bourne High School | 462 | --- | 17.5 | 0.0 | 14.9 | 53.7 | 46.3 | --- |
| Charlestown High School | 921 | --- | 48.5 | 37.4 | 20.6 | 55.5 | 44.5 | --- |
| Granby Junior-Senior High School | 297 | --- | 15.2 | 0.3 | 15.5 | 49.2 | 50.8 | --- |
| Melrose High School | 933 | --- | 8.9 | 1.3 | 14.3 | 47.3 | 52.7 | --- |
| Nantucket High School | 489 | --- | 11.9 | 9.6 | 16.8 | 51.7 | 48.3 | --- |
| Oxford High School | 438 | --- | 25.1 | 0.0 | 8.2 | 52.3 | 47.7 | --- |
| Pittsfield High School | 916 | --- | 33.4 | 4.5 | 24.8 | 52.0 | 48.0 | --- |
| Roger L. Putnam Vocational Technical Academy | 1,325 | --- | 60.2 | 11.8 | 18.6 | 46.2 | 53.8 | --- |
| Saugus High School | 707 | --- | 19.4 | 1.1 | 9.1 | 46.0 | 54.0 | --- |
| Sutton Memorial High School | 431 | --- | 7.7 | 0.0 | 12.3 | 51.3 | 48.7 | --- |
| Wahconah Regional High School | 540 | --- | 18.0 | 0.0 | 9.1 | 46.3 | 53.7 | --- |
| Westfield High School | 1,329 | --- | 20.5 | 2.2 | 10.2 | 48.0 | 52.0 | --- |
| Westport High School | 333 | --- | 21.0 | 0.3 | 15.3 | 49.5 | 50.5 | --- |
| Cohort 8 |  |  |  |  |  |  |  |  |
| Blackstone-Millville Regional High School | 464 | --- | 16.6 | 1.7 | 14.0 | 48.9 | 51.1 | --- |
| Carver High School | 423 | --- | 15.4 | 0.0 | 18.2 | 50.8 | 49.2 | --- |
| David Prouty High School | 392 | --- | 25.8 | 0.8 | 13.5 | 50.3 | 49.7 | --- |
| Franklin County Technical School | 507 | --- | 32.9 | 0.0 | 29.2 | 64.3 | 35.7 | --- |
| Joseph Case High School | 511 | --- | 19.2 | 0.6 | 11.5 | 50.9 | 49.1 | --- |
| Millbury Memorial Junior/Senior High School | 426 | --- | 25.1 | 1.2 | 17.1 | 55.9 | 44.1 | --- |
| Nashoba Valley Technical High School | 731 | --- | 18.9 | 0.0 | 33.9 | 59.5 | 40.5 | --- |
| Seekonk High School | 586 | --- | 11.9 | 0.9 | 13.3 | 46.1 | 53.9 | --- |
| Somerville High School | 1,227 | --- | 30.7 | 14.4 | 17.4 | 53.5 | 46.5 | --- |
| Cohort 9 |  |  |  |  |  |  |  |  |
| Avon Middle-High School | 195 | --- | 24.6 | 2.1 | 14.9 | 43.6 | 55.9 | 0.5 |
| Ayer Shirley Regional High School | 409 | --- | 25.2 | 2.4 | 19.8 | 50.4 | 49.6 | 0.0 |
| **School** | **Total Enrollment (N)** | **\* Free & Reduced-Price Lunch (%)** | **\* Econ. Disadv.**  **(%)** | **English Lang. Learner (%)** | **Student with Disab. (%)** | **Male (%)** | **Female (%)** | **+ Non-Binary (%)** |
| Grafton High School | 822 | --- | 10.1 | 0.5 | 12.3 | 48.2 | 51.8 | 0.0 |
| Joseph P. Keefe Regional Technical School | 717 | --- | 38.1 | 7.4 | 44.4 | 56.9 | 43.1 | 0.0 |
| Pathfinder Regional Vocational Technical High School | 617 | --- | 36.6 | 0.0 | 25.6 | 60.1 | 39.9 | 0.0 |
| TechBoston Academy | 585 | --- | 63.4 | 22.7 | 22.9 | 53.7 | 46.3 | 0.0 |
| Tri-County Regional Vocational Technical High School | 1,023 | --- | 20.8 | 0.4 | 29.5 | 55.0 | 44.9 | 0.1 |
| Urban Science Academy | 430 | --- | 55.1 | 12.8 | 25.8 | 59.8 | 40.2 | 0.0 |
| West Roxbury Academy | 487 | --- | 59.5 | 26.3 | 19.9 | 53.4 | 46.6 | 0.0 |
| Cohort 10 |  |  |  |  |  |  |  |  |
| Diman Regional Vocational Technical High School | 1,397 | --- | 37.4 | 2.2 | 10.5 | 55.8 | 44.2 | 0.0 |
| Doherty Memorial High School | 1,550 | --- | 44.5 | 19.5 | 16.4 | 54.1 | 45.9 | 0.0 |
| Haverhill High School | 1,801 | --- | 36.2 | 6.7 | 15.8 | 50.8 | 49.2 | 0.0 |
| Lowell High School | 3,124 | --- | 46.8 | 11.5 | 9.6 | 49.6 | 50.4 | 0.0 |
| Madison Park Technical Vocational High School | 859 | --- | 70.9 | 37.6 | 33.4 | 58.0 | 42.0 | 0.0 |
| The Springfield Renaissance School | 374 | --- | 50.3 | 4.3 | 19.0 | 52.1 | 47.9 | 0.0 |
| Cohort 11 |  |  |  |  |  |  |  |  |
| Paulo Freire Social Justice Charter School | 275 | --- | 79.6 | 10.9 | 24.0 | 42.5 | 57.5 | 0.0 |
| Smith Vocational and Agricultural High School | 495 | --- | 32.9 | 1.6 | 39.0 | 54.7 | 45.3 | 0.0 |
| Southbridge High School | 482 | --- | 66.0 | 27.0 | 21.2 | 51.9 | 48.1 | 0.0 |
| Southeastern Regional Vocational Technical High School | 1,444 | --- | 32.8 | 1.0 | 14.5 | 50.2 | 49.7 | 0.1 |
| Woburn High School | 1,301 | --- | 22.1 | 6.8 | 16.8 | 47.7 | 52.3 | 0.0 |

+ Note: DESE started to collect non-binary data in SY17.

\* Note: The use of Free and Reduced-price Lunch was discontinued after SY14 (after Cohort 6) and was replaced by a measurement for Economically Disadvantaged.

# Appendix C

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Impacts of AP STEM and English on AP Course Availability: ELA, Math, or Science** | | | | |
|  | Any ELA, Math, or Science | ELA° | Math° | Science° |
| Intercept (β0) | 5.05\*\*\* (0.31) | 1.73\*\*\* (0.16) | 1.73\*\*\* (0.16) | 2.02\*\*\* (0.14) |
| Time (β1) | 0.44\*\* (0.15) | 0.16\*\* (0.06) | 0.00 (0.03) | 0.22\*\*\* (0.06) |
| Intervention Period (β2) | 0.42+ (0.25) | 0.05 (0.13) | 0.40\*\* (0.14) | -0.02 (0.18) |
| Time by Intervention (β3) | -0.11 (0.13) | -0.07 (0.10) | 0.19+ (0.11) | 0.02 (0.10) |
| Participant (β4) | -0.15 (0.43) | -0.03 (0.27) | 0.24 (0.34) | -0.54 (0.35) |
| Participant by Time (β5) | -0.03 (0.24) | 0.01 (0.09) | -0.08 (0.09) | 0.02 (0.13) |
| Participation by Intervention (β6) | 2.82\*\* (0.93) | 0.87\* (0.37) | 0.81\*\* (0.30) | 1.43\* (0.67) |
| Participation by Time by Intervention (β7) | -0.11 (0.35) | -0.10 (0.18) | 0.05 (0.21) | -0.21 (0.23) |
| + p < 0.1, \*p < .05, \*\**p* < .01, \*\*\**p* < .001  °After propensity score weighting, Pre-AP and comparison schools were only partially balanced.  β6 represents the difference in the level between treatment and comparison schools during the year immediately following intervention (i.e. SY12 for Cohort III). β7 represents the difference between treatment and comparison schools in the slope for the three year period following the intervention. | | | | |

1. Increasing participation and performance in English Laguage Arts (ELA) AP courses and AP exams is not a stated goal of the project. However, increasing participation and performance in ELA AP courses and exams is frequently reflected as a goal of the program in practice. [↑](#footnote-ref-1)
2. Data from the 2019–20 school year were not included because the necessary data was not available. [↑](#footnote-ref-2)
3. Five participating schools from Cohort VII through Cohort IX were not included in the treatment group because they were identified as not having fully implemented the program by DESE and Mi. These schools included Hoosac Valley Middle and High School, Rockland Senior High School, Weymouth High School, William J. Dean Technical High School, and KIPP Academy Lynn Collegiate High School. [↑](#footnote-ref-3)
4. Rubin, D. B. (2001). Using propensity scores to help design observational studies: application to the tobacco litigation. *Health Services and Outcomes Research Methodology*, *2*(3-4), 169-188. [↑](#footnote-ref-4)
5. Linden, A., & Adams, J. L. (2011). Applying a propensity score‐based weighting model to interrupted time series data: improving causal inference in programme evaluation. *Journal of evaluation in clinical practice*, *17*(6), 1231-1238. [↑](#footnote-ref-5)