Subtraction and Substitution

Shifts in High School Math Course-Taking

Kramer Dykeman
Michal Kurlaender
Beryl Larson
Sherrie Reed

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PACE
Policy Analysis for California Education

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[1] Authorship was determined alphabetically.

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Introduction

Taking more math in high school is associated with higher rates of college enrollment and persistence (Wainstein et al., 2023). High school students who enroll in more math courses are also more likely to earn higher wages after college and pursue careers in science, technology, engineering, and mathematics (STEM; Adelman, 1999; Black et al., 2021; Rose & Betts, 2001). Additionally, taking math at or above the Algebra 2/Integrated Math (IM) 3 level is associated with positive college and career outcomes (Aughinbaugh, 2012; Black et al., 2021; Byun et al., 2015; Finkelstein et al., 2012). Given the strong connection between high school math enrollment and postsecondary outcomes, it is critical to examine student participation and success in math courses while in high school.

Prior research in California has explored statewide patterns in 12th-grade math course-taking as a proxy for both the number of math courses a student takes and the highest level of math a student achieves during high school. Earlier studies have also used 12th-grade math course-taking as a measure of preparation for 4-year college and STEM careers paths. Prior work indicated that among California 12th-grade students, math course-taking was on the rise during the prepandemic years 2016 through 2019 (Asim et al., 2019; Reed, Merritt, & Kurlaender, 2023), which mirrored national trends (Irwin et al., 2022). Researchers also found that about one fifth of all 12th graders enrolled in an advanced math or AP math class (i.e., AB Calculus, BC Calculus, or AP Statistics), and another quarter enrolled in trigonometry or precalculus (Asim et al., 2019; Reed, Merritt, & Kurlaender, 2023). Moreover, prior research documented stark racial and socioeconomic disparities in senior-year math course-taking: Asian students were most likely to take math in 12th grade, and Black and White students were least likely (Asim et al., 2019; Huffaker et al., 2025; Reed, Merritt, & Kurlaender, 2023). Asian students were also most likely to take advanced math courses, while Black students were least likely to take them (Reed, Merritt, & Kurlaender, 2023).

This report extends and updates prior findings on 12th-grade math course enrollment patterns in California from 2014–15 to 2023–24. We find that despite the relative increase in 12th-grade math enrollment before 2020, math enrollment has since declined to 2015 levels. During the last decade, the types of math courses in which students enroll have also shifted. Seniors are less likely to take Algebra 2, precalculus, or calculus and are more likely to take statistics. We also extend prior work by investigating students' math course-taking throughout high school, specifically the highest level of math taken. The proportion of students reaching at least the level of Algebra 2 has not changed in the last 8 years. Concurrently, the proportion of students reaching precalculus and calculus has decreased. Taken together, these trends indicate that more students are ending their calculus-track high school mathematics education at Algebra 2.[2]

[2] Given the widely varying prerequisites for statistics, AP Statistics, and other noncalculus-track college preparatory math courses across schools, we separate our analysis of "calculus-track" courses (Algebra 1, Geometry, Algebra 2, Trigonometry, Precalculus, IM 1–3, and Calculus) from other math courses, including statistics, in our analysis of course-taking pathways throughout high school.

At the same time, the rate of AP Statistics enrollment has remained flat, and the percentage of students enrolling in non-AP statistics courses at some point in high school remained stable from 2017 to 2022 and then increased in 2023 and 2024. This additional context offers a more comprehensive picture of students' preparation for college, for work after high school, and for STEM career paths. Throughout, we explore how course-taking patterns differ by student characteristics.

Policy Context

High school math has been the subject of much debate in California during the past decade. Stakeholders—that is, students, their families, teachers, policymakers, curriculum developers, philanthropists, and equity advocates—in the K–12 and higher education sectors and at the state and local levels have attempted to shape and expand students' high school math course-taking experiences. These efforts often involve the following four goals: (a) supporting students' acquisition of quantitative reasoning skills by providing multiple advanced math courses or pathways; (b) supporting students' college readiness; (c) increasing higher level quantitative reasoning to support success in postsecondary education in a STEM field; and (d) closing the achievement gap between more advantaged and less historically advantaged students (CDE, 2023; ICAS, 2025).

Students currently enrolled in California public schools must complete 2 years of math, including—at minimum—a course equivalent to Algebra 1, to earn a high school diploma (CDE, n.d.). However, these minimum high school graduation requirements do not satisfy the admissions requirements for California's 4-year public universities, for which students must take and pass (with a C or better) 3 years of high school math, including a course equivalent to Algebra 2.[3] Furthermore, both California State University (CSU) and University of California (UC) recommend that students take a fourth year of math. For this reason, many school districts have graduation requirements that exceed the state minimums and align to the college admissions requirements, including requiring additional years of high school math (Gao et al., 2017).

Beyond high school graduation and minimum college eligibility requirements, students' postsecondary aspirations may also shape math course-taking. Recently, the Intersegmental Committee of the Academic Senates (ICAS)—a joint committee of academic senate members from the California Community Colleges (CCCs), CSU, and UC—published a position paper outlining the recommended math preparation for six broad groups of majors, including recommendations for the math that students should take during their senior year (ICAS, 2025). Moreover, admission to some CSU and UC campuses—as well as for certain STEM programs at some campuses—

[3] The full set of high school courses required for admissions eligibility at CSU or UC campuses, known as A–G requirements, includes courses in English language arts, social science/history, math, science, performing arts, and approved electives (University of California, n.d.). Area C outlines the math requirements.

is quite competitive, leading to the use of high school math completion and performance as a signal of college readiness and institutional fit. Both the ICAS recommendations and competitive admissions will likely influence math course-taking patterns as high school personnel, parents, and students perceive some courses as increasing the likelihood of admission to the colleges that students aspire to attend and success in their selected majors (Anderson & Burdman, 2022; Burdman et al., 2024).

During the last decade, all three public systems of higher education in California—CCC, CSU, and UC—have grappled with decisions around admissions and course placement that have implications for high school math course-taking. In 2019, Assembly Bill (AB) 705 transformed course-taking in the CCCs, essentially removing remedial placement in English language arts and math and directing more students to transfer-level courses. AB 1705, signed into law in 2022, strengthened the provisions of AB 705, adding more detailed language about math course placement. AB 1705 requires the CCCs to place students in transfer-level courses related to their career goals and precludes placement in courses that repeat those taken in high school. In 2019, CSU formally proposed increasing the amount of math required for admission from 3 years to 4. In 2023, CSU dropped this proposal in lieu of working to graduate more high school math teachers and promoting high school students' academic preparation (Academic Senate of the CSU, 2023; Smith, 2022). Around the same time, the UC system considered several changes in mathematics-related admissions standards, mostly centered around whether data science and statistics courses fulfilled the mathematics requirements necessary for admission to a UC campus. In 2024, these discussions resulted in UC's Board of Admissions and Relations with Schools (BOARS) removing data science and statistics courses from the list of high school math courses that count towards the Algebra 2 requirement (BOARS Area C Workgroup, 2024). Recent reporting about college readiness from a UC San Diego Senate report (and the ensuing media attention) shone a new focus on questions about high school preparation in math (Burdman, 2025).

The past decade has brought considerable diversity in the math courses available to high school students in California. Following the state adoption of Common Core State Standards (CCSS) in 2010, local educational agencies in California were given the choice of continuing to use the traditional Algebra 1–Geometry–Algebra 2 pathway to teach mathematics or to implement a new IM pathway: IM 1–3 (Fensterwald, 2024; Gao, 2019; Harlow, 2015). In 2016, the California Department of Education (CDE) launched the California Mathematics Readiness Challenge Initiative (CMRCI). CMRCI provided funding for secondary school and higher education partnerships to develop new 12th-grade mathematics courses designed to prepare students for college-level math. The hope was that by diversifying the math courses available to 12th graders, more students would enroll in math their senior year (CDE, 2022). Also in 2016, the California Legislature enacted AB 288, reducing some of the barriers associated with dual enrollment—an opportunity for high school students to enroll at a CCC and receive high school and college dual credit for successfully completed courses. This expanded high school students' college-level math options (Rodriguez et al., 2025). In 2023, the CDE released an updated Mathematics

Framework (CDE, 2023), which, among other aims, encourages school districts to provide multiple opportunities for students to take accelerated math coursework. This framework also encourages schools to offer math pathways that emphasize data science and statistics content (Fensterwald, 2023).

Along with legislation and systemwide policies, many local school districts have engaged in efforts to increase math course-taking and attainment. As previously mentioned, nearly half of school districts have adopted graduation requirements that include 3 or 4 years of successful math course-taking (Gao et al., 2017). Other efforts include implementation of new courses and investment in the accompanying teacher training, developed through the CMRCI, which enrolled 12–19 percent of seniors (Reed, Merritt, & Kurlaender, 2023) and increased 12th-grade math course-taking in districts where the courses were offered (Merritt, 2025). Additionally, other districts have aligned advising and scheduling to help more students complete the full A–G sequence (Lee, 2023; Reed, Hurtt, et al., 2023).

While no shift in math enrollment patterns can be fully attributed to a particular change in policy, especially given the academic disruption caused by the COVID-19 pandemic, these policy efforts, along with many more local efforts, undoubtedly interact to shape the course-taking patterns of public high school students in California.

Data

Data for this analysis come from the CDE through the California Longitudinal Pupil Achievement Data System (CALPADS),[4] specifically the Cumulative Enrollment and Course Completion files. Data from CDE are supplemented with student-level course-taking data from the California Community Colleges Chancellor's Office (CCCCO) to capture students' enrollment at a CCC while also enrolled in high school (i.e., dual enrollment).

We used the Cumulative Enrollment files to construct 12th-grade cohorts and identify students' demographic characteristics. The sample used to examine 12th-grade course-taking includes students who enrolled in a California public high school as 12th graders for each academic year between 2014–15 and 2023–24 and who completed at least one course during their 12th-grade year. In total, we have more than 4.3 million unique student-by-course observations over 10 years, or between 430,000 and 450,000 student observations for each year (see Appendix Table A1).

We used the Course Completion files to observe whether a student enrolled in a given mathematics course during a given academic year. Because of data constraints, we report course enrollment rather than course offerings or course completion. We cannot observe if a course was offered; we can only observe if at least one student enrolled in the course.

[4] For more information, see the CALPADs page (cde.ca.gov/ds/sp/cl) on the CDE website.

Additionally, we cannot reliably observe if a student successfully completed a particular course.[5] To determine whether seniors potentially took math through dual enrollment, we matched students to the CCCCO enrollment and course-taking data for their 12th-grade years.[6]

To explore students' full high school math course-taking patterns, we identified the courses taken by each student during their 12th-grade year and then the 3 years prior to account for their 9th- through 11th-grade years.[7] For example, the students in the 2024 graduation cohort were linked to their 2020–21, 2021–22, 2022–23, and 2023–24 course-completion data. In total, we observed 4 complete years of course-taking for the eight most recent graduation cohorts (2017–2024). Thus we have more than 3.2 million unique student observations, or 385,000–405,000 observations per cohort (see Appendix Table A14).

The CALPADS course-level data include standardized statewide codes that reflect the curriculum content of each course.[8] To simplify the analysis and meaningfully interpret the findings, we grouped the state course codes into eight policy-relevant math categories, listed in Table 1.[9] These course categories closely align with those used in prior research on high school math taking (Reed, Merritt, & Kurlaender, 2023).[10] It is important to note that in reality, not all courses offered in local high schools fit neatly into these categories. For example, Algebra 2/Trigonometry and Accelerated IM 3 straddle the Algebra 2 and precalculus categories. In these cases, as with several others, we ran additional analysis, changing the course categorization across categories, to ensure that our reported findings are consistent even when courses are categorized differently.

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[5] The Course Completion files include student-course observations for every course in which a student enrolls during each academic term. Information about the term (first term vs. second term; fall vs. spring) and the variation in terms (semesters, quarters, and hexmesters, among others) is unreliable and inconsistent across schools. Moreover, grading scales vary substantially across schools and courses, with some recorded as letter grades, others on a numerical scale, and still others as grade points. These inconsistencies, along with validation rules related to math sequencing (i.e., passing a course in the second semester validates a failed first semester in the same course), make it quite difficult to determine if a student has successfully completed a course to count towards graduation or A–G requirements. Therefore, we report on course enrollment only.

[6] Because CCC and high school math courses have different course-numbering systems (or course codes), and course data for each system include tens of thousands of course titles, there is no simple way to sort CCC courses taken by high school students into the same course categories that we used for high school courses. Therefore, we restricted our primary use of the CCCCO data to complement our description of 12th-grade course-taking rates. We conducted additional analysis of 12th-grade community college course enrollment patterns in robustness checks of our headline results on overall course-taking; these are available upon request.

[7] The results included in this report allow students to be in multiple 12th-grade cohorts if the Cumulative Enrollment data show them as 12th graders in multiple years. For example, if a student was identified as a 12th grader as of April 15 in both 2022 and 2023, we included them in both cohorts. For students enrolled in multiple 12th-grade years, we experimented with choosing different (i.e., first or most recent) 12th-grade years. Assigning them to different years had no meaningful impact on the results. Sensitivity analysis is available from the authors upon request.

[8] State course codes changed significantly between 2019 and 2020. We used a crosswalk provided by the CDE to map course codes prior to 2019 with the same courses in 2020 and later. We implemented various sensitivity analyses to ensure that results were consistent across state course code regimes. These results are available upon request.

[9] For the exact categorization of state course codes into the eight categories used in this report, see Appendix Table A20 and Table A21.

[10] In Reed, Merritt, & Kurlaender (2023), math courses were categorized by researchers using state course codes. This categorization was reviewed by several high school math curriculum specialists known to the research team through their work with the California Mathematics Readiness Challenge Initiative (.cde.ca.gov/fg/fo/profile.asp?id=3923).

Table 1. Math Course Categories

Math course category	Description
No math	Students who took no math
Other	Other math, including Discrete Math, QRAT, TQR, IM 4, Financial Algebra, and dual enrollment for high school credit
AP Statistics	AP Statistics
Non-AP statistics	Data science and non-AP statistics and probability classes
Calculus	One- and 2-year calculus sequences, including AP and non-AP calculus classes
Precalculus	Precalculus and trigonometry
Algebra 2	Algebra 2 and IM 3
Lower than Algebra 2	Algebra 1, Geometry, IM 1 and 2, and other courses without an Algebra 2 or IM 3 prerequisite

Note. Computer science courses do not count as math courses in our analysis or for completion of Area C of the A–G requirements. QRAT = Quantitative Reasoning with Advanced Math Topics; TQR = Transition to Quantitative Reasoning.

To explore differences across student subgroups, we use racial/ethnic categories (i.e., Asian, Black, Filipino, Latinx, Pacific Islander, White, and two or more races or ethnicities) and socioeconomically disadvantaged (SED) status[11] as defined by the CDE. We also use the CDE's gender indicators, reporting results for female and male subgroups.[12]

Twelfth-Grade Math Course-Taking

Seventy percent of high school seniors enroll in math, a rate that has fluctuated over the last decade.

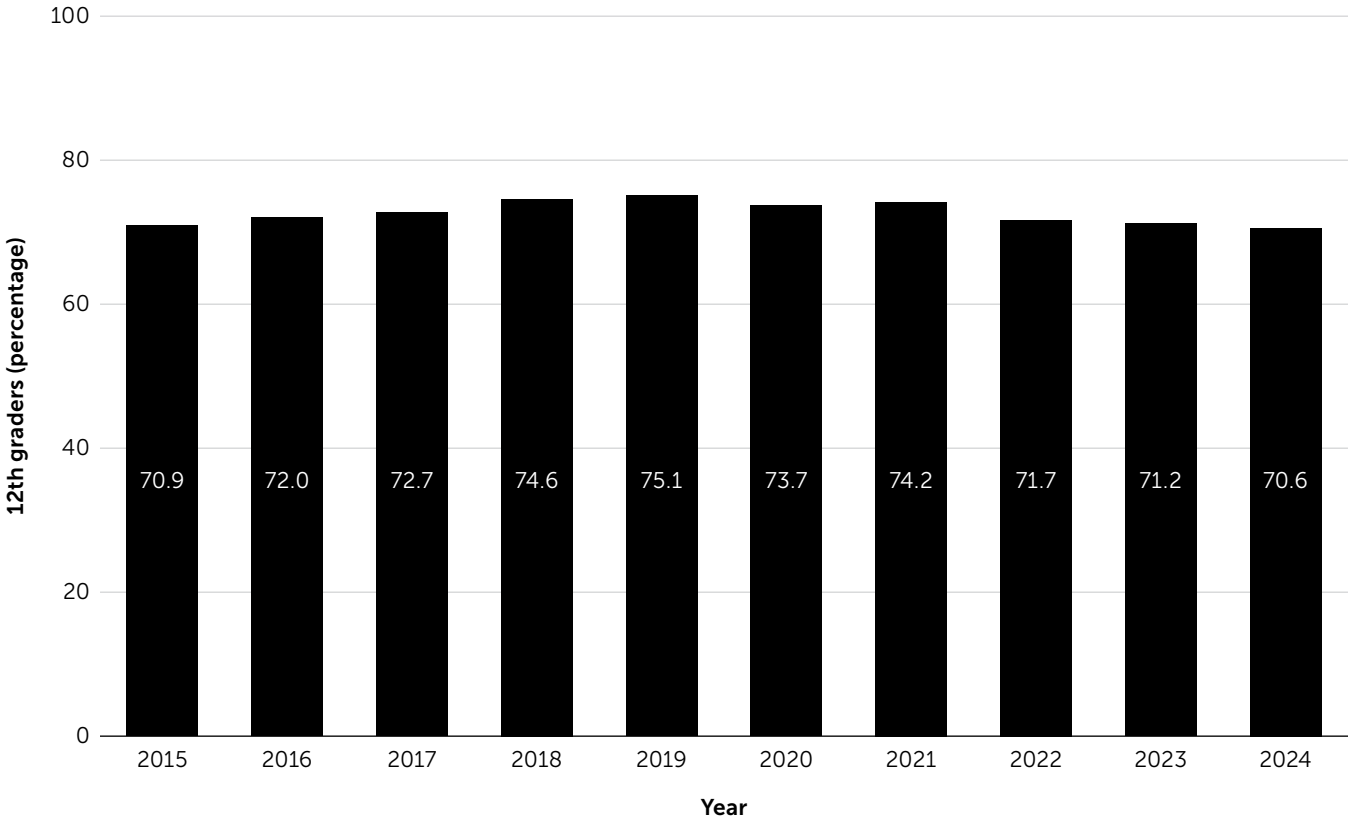
A key goal of policy efforts related to high school math course-taking has been to increase the proportion of high school students who enroll in math during their senior year. Previous research found that senior-year math course-taking increased between 2016 and 2019 (Asim et al., 2019; Reed, Merritt, & Kurlaender, 2023). Our work replicates these findings, as we observe

[11] The CDE designates a student as SED if the student is eligible for free or reduced-price lunch or neither of the student's parents/guardians graduated high school.

[12] The CDE uses three gender categories: female, male, and nonbinary. The CDE began collecting data for students who identify as nonbinary in 2020. However, the recorded numbers are small (28 in the 2020 cohort, 116 in 2021, 338 in 2022, 586 in 2023, and 729 in 2024), and accuracy is uncertain. As such, we do not report course-taking patterns for nonbinary students in this report.

math course-taking among California public high school seniors rising from 70.9 percent in 2015 to 75.1 percent in 2019—an increase of about 4 percentage points. This pattern, however, has reversed since peaking in 2019, dropping to 70.6 percent in 2024 and erasing the senior-year math course-taking gains of the past decade (Figure 1).

Figure 1. Twelfth-Grade Students Enrolled in a Math Course



Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year.

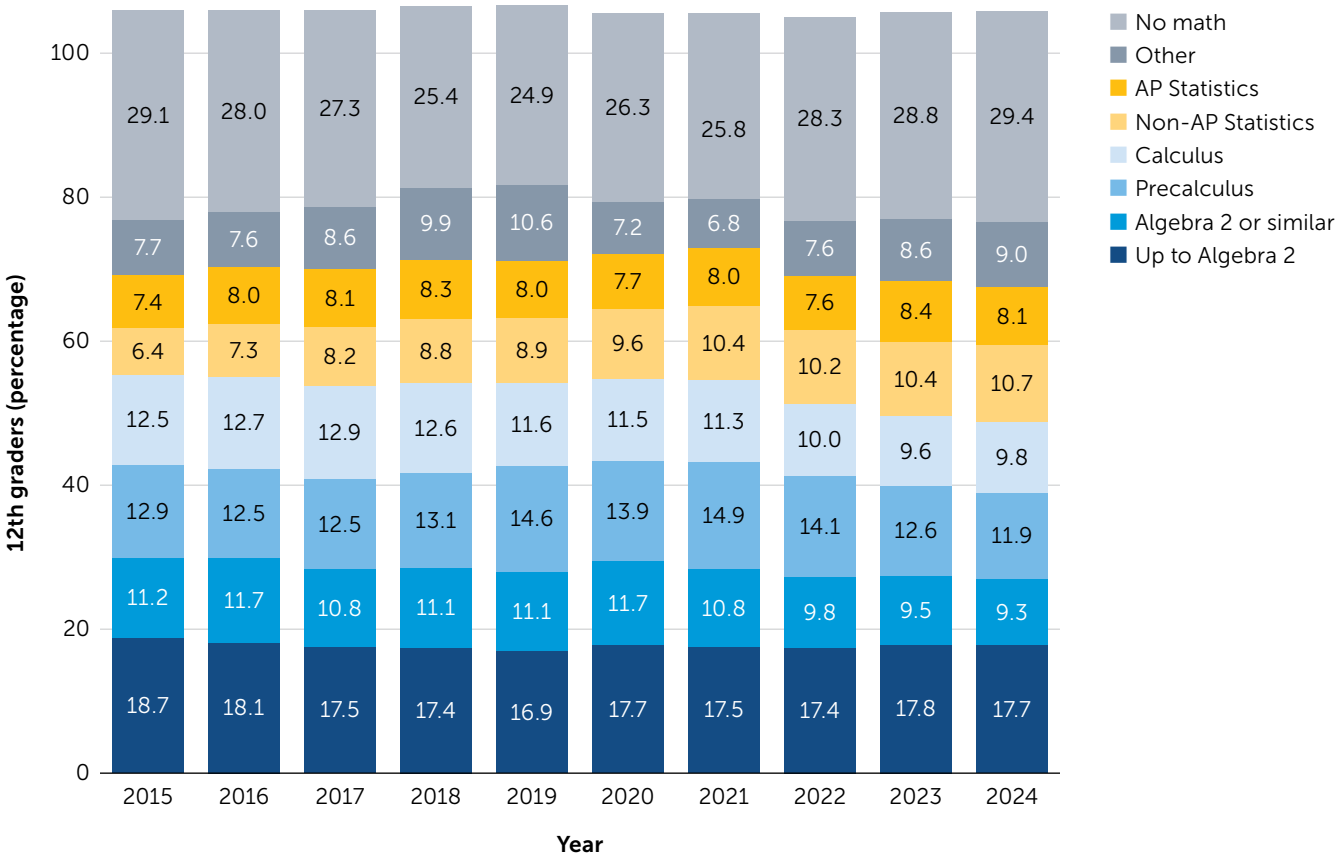
Seniors are less likely to take Algebra 2, precalculus, and calculus and are more likely to take statistics than they were 10 years ago.

In addition to the rise and fall of overall 12th-grade math course-taking during the last decade, the types of classes that seniors are taking has shifted.[13] Figure 2 illustrates these trends. The light gray areas reflect the change in the percentage of seniors who were not enrolled in

[13] The "Other" math category is included in Figures 2 and 6. This category includes many different types of courses (see Table 1). As such, any observed trends are difficult to interpret because they may be the combination of disparate and unrelated factors.

math from 2015 to 2024: nearly 30 percent of seniors in the most recent year. During the same period, enrollment in statistics courses grew from 13.7 percent in 2015 to 18.6 percent in 2024 (indicated by the yellow shaded portions of Figure 2),[14] a rise primarily driven by an increase in non-AP statistics course-taking. In contrast, the percentage of students taking classes in the calculus sequence (lower than Algebra 2, Algebra 2, precalculus, and calculus), represented by the blue areas of the bars, decreased from 53.1 percent in 2015 to 46.9 percent in 2024, a decline of 6.2 percentage points.[15]

Figure 2. Twelfth-Grade Students Enrolled in Math by Course Type



Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. The stacked bars in this figure add up to more than 100 percent because students may be counted more than once if they took more than one math course during their senior year.

[14] A few students take both non-AP statistics and AP Statistics and are counted twice (once in each category).

[15] Some students take multiple courses on the calculus track and are counted multiple times. As such, we would expect the summation of multiple categories where students are counted more than once (e.g., <Algebra 2 (18.7 percent) + Algebra 2 (11.2 percent) + Precalculus/Trigonometry (12.9 percent) + Calculus (12.5 percent) = 55.3 percent in 2015) to be higher than the percentage of students taking a course in the sequence (53.1 percent) as here the students are only counted once.

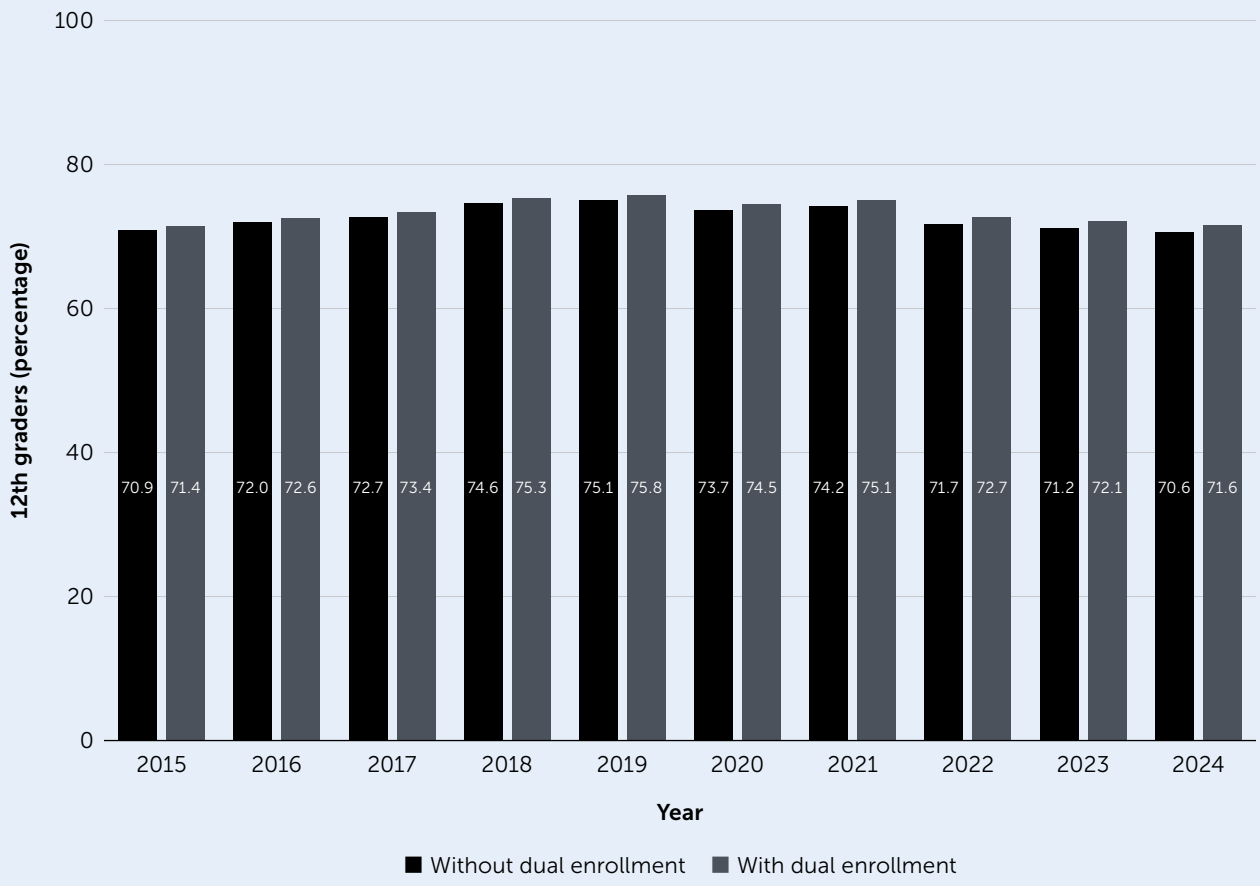
Although these shifts in the types of math courses that seniors are taking represent an important part of the overall picture of high school math course-taking, they do not explain the decline in seniors' math enrollment. However, there are several other possible explanations for this decline, some of which we explore further in this report. First, the COVID-19 pandemic certainly affected high schools between 2019–20 and 2023–24. Yet the decline in 12th-grade math course-taking began in the 2019–20 academic year, prior to the onset of COVID-19 in March 2020; so while COVID-19 may have accelerated the decline in math course-taking, it did not cause the initial decrease. Another possibility for the decline is that the rise in dual enrollment during this period may have shifted students from high school courses to college courses, resulting in an apparent decline that could more accurately be explained as a substitution. A third possibility is that acceleration of math course-taking is resulting in students "topping out," or completing their highest level of math, in their junior year. As we discuss in the following sections, we do not find support for any of these possible explanations.

The decline in 12th-grade math course-taking is not driven by dual enrollment.

There has been a dramatic rise in dual enrollment during the last decade (Dykeman et al., 2024; Rodriguez et al., 2025). If seniors are taking math classes at community colleges instead of at their high schools, then it may appear that senior math course-taking has declined when, rather, it has simply changed location. High school course-taking data from the CDE includes college math courses that students take for dual credit and record to their high school transcripts. However, some students may take college courses independently and not report them to their high schools, resulting in their exclusion from CALPADS data.

To investigate whether high school seniors may be taking community college math courses without including them on their high school transcripts, we merged student-level information for all seniors in each cohort to CCCCO course data during each student's 12th-grade year. The results reveal that overall senior-year math course-taking is about 1 percentage point higher for each statewide cohort when community college course-taking not already accounted for on high school transcripts is included (Figure 3). This is not enough to explain the decrease of 4 percentage points observed between 2019 and 2024. Furthermore, even when unreported college courses are included, trends in 12th-grade math course-taking mirror those illustrated in Figure 1.

Figure 3. Twelfth-Grade Students Enrolled in Math, Accounting for Dual Enrollment

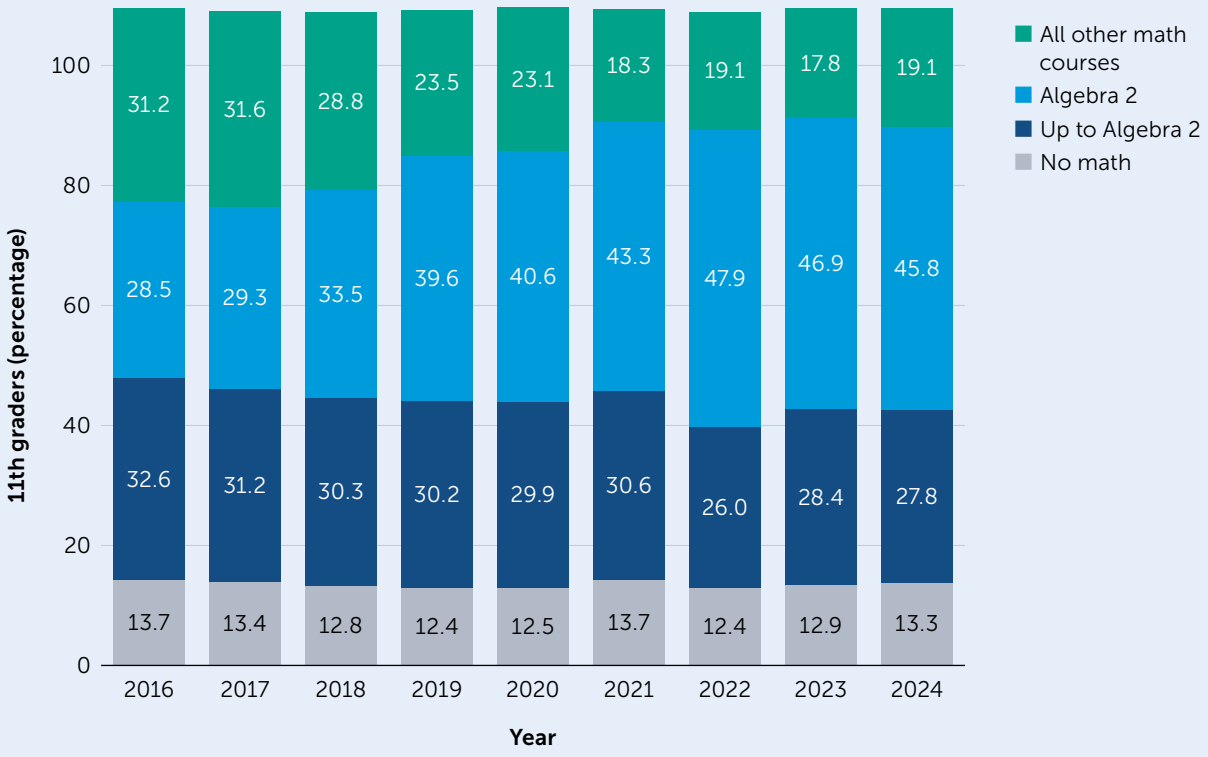


Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year.

Most students who did not take math during their senior year did not complete an advanced math course in 11th grade.

Another hypothesis for why high school students do not take math during their senior year is that they have already taken all the math that could be reasonably expected of a high school student before their senior year. However, as shown in Figure 4, fewer than 20 percent of students who did not take math in 12th grade took precalculus, calculus, or AP Statistics in 11th grade. Just under half (45.8 percent in 2024) of students who did not take a math course in 12th grade took Algebra 2 in 11th grade—the minimum course required for admissions to a California 4-year public university. Approximately another 40 percent took a class lower than Algebra 2 (27.8 percent in 2024) or no math at all (13.3 percent in 2024) in 11th grade. This evidence suggests that the majority of students who do not take math their senior year have not "topped out" and could enroll in precalculus, calculus, or AP Statistics.

Figure 4. Eleventh-Grade Math Course Enrollment of 12th Graders Who Did Not Take Math

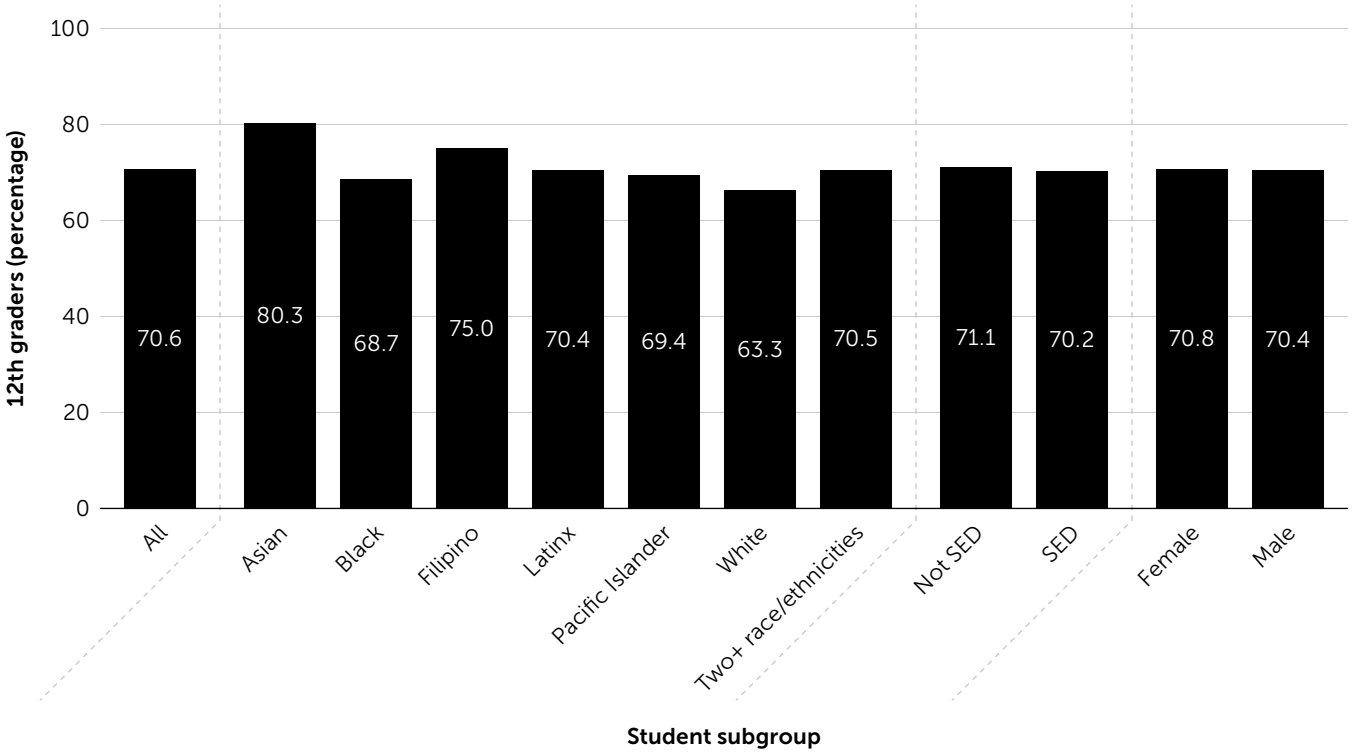


Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. The stacked bars in this figure add up to more than 100 percent because students may be counted more than once if they took more than one math course in 11th grade.

Twelfth-grade math course-taking rates vary by racial/ethnic subgroups but not by socioeconomic disadvantage or gender.

There are large differences in overall 12th-grade math course-taking among subgroups. As shown in Figure 5, Asian seniors enroll in math at the highest rates (80.3 percent), whereas White students enroll at the lowest rates (66.3 percent)—a difference of 14 percentage points. In contrast, the levels of math course-taking are similar for SED and non-SED students as well as for female and male students. Racial subgroup differences have persisted over time even as the rates of math course-taking rose between 2015 and 2019 and fell between 2020 and 2024 (see Appendix Table A2).[16] Although this study does not explain the reasons for these differences, substantial prior research informs our understanding. Differences in high school course-taking and academic performance are the result of the complex interaction of institutional factors (e.g., school resources, teacher capacity, course offerings, master scheduling, and counseling practices) and individual factors (e.g., prior experiences and preparation, interests, aspirations, and goals; Kurlaender & Hibel, 2018).

Figure 5. Twelfth-Grade Students Enrolled in a Math Course by Student Subgroup



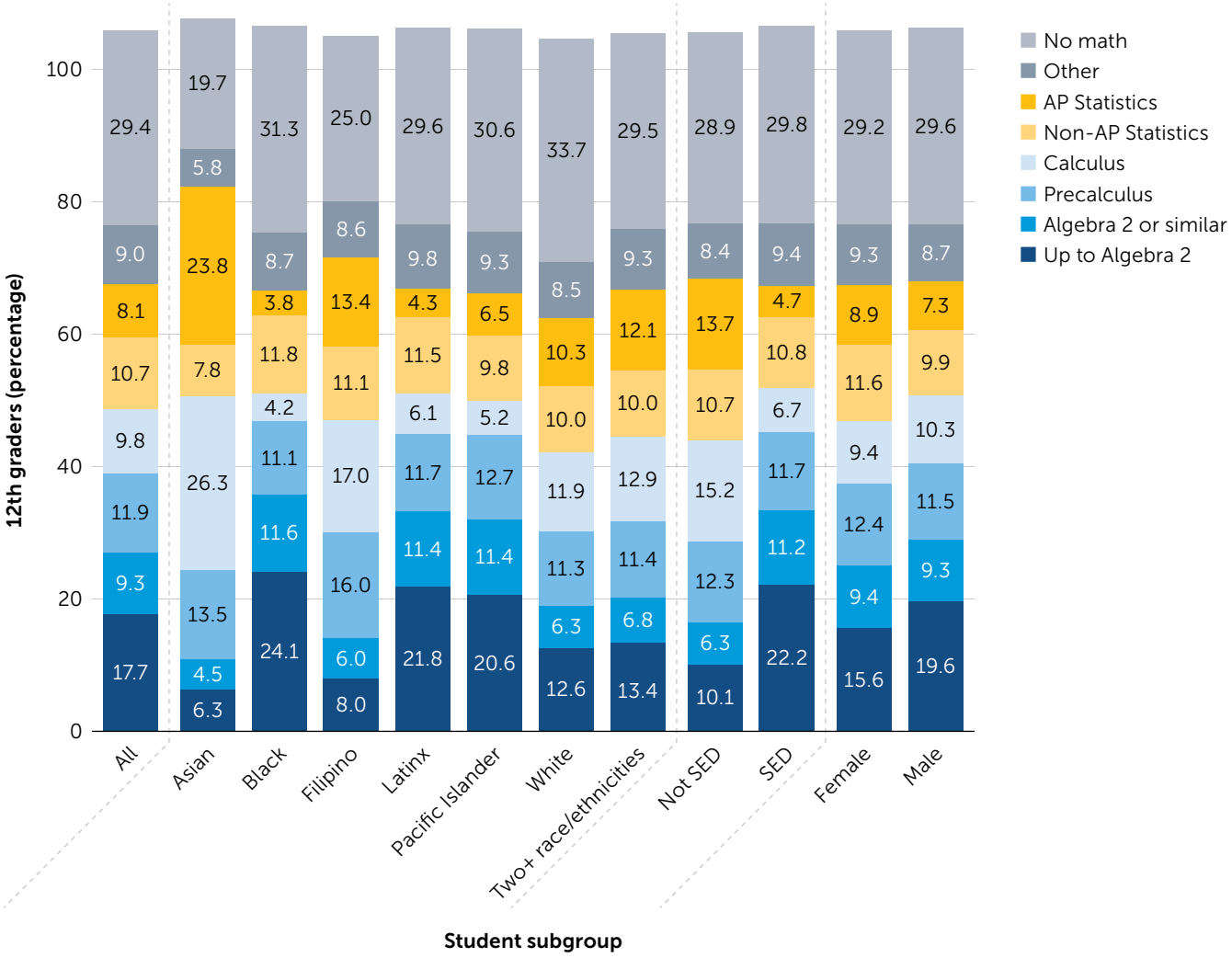
Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. SED = socioeconomically disadvantaged.

[16] It is important to note that although demographic composition of the state's public high school population shifted somewhat during the past decade (e.g., growth in the proportion of SED and Latinx students), this compositional change is not driving the results.

Across student subgroups, there are large differences in the types of math courses seniors take.

There are notable differences across subgroups in the specific courses in which students enroll. Asian, Filipino, White, and multiracial seniors enroll in calculus and AP Statistics at higher rates than their Black, Latinx, and Pacific Islander peers, who are more likely to enroll in Algebra 2 or lower level classes (Figure 6). Specifically, about 26 percent of Asian students enroll in calculus during their senior year, and about 24 percent enroll in AP Statistics. In contrast, just 6 percent of Latinx students enroll in calculus and 4 percent enroll in AP Statistics.

Figure 6. Twelfth-Grade Math Course Enrollment by Demographics



Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. The stacked bars in this figure add up to more than 100 percent because students may be counted more than once if they took more than one math course during their senior year. SED = socioeconomically disadvantaged.

Although SED and non-SED students enroll in math at about the same rates during their senior years, SED students are more likely to enroll in courses in the lower than Algebra 2 and Algebra 2 categories while their non-SED peers are more likely to enroll in precalculus, calculus, or AP Statistics. Likewise, female and male students have similar overall rates of math enrollment. However, female students are less likely to enroll in courses in the lower than Algebra 2 category and less likely to enroll in calculus courses than their male counterparts, while they are more likely to enroll in precalculus and both non-AP statistics and AP Statistics. Over time, the general trend of more statistics enrollment and less calculus-track enrollment among high school seniors holds across demographic subgroups. However, the specific math courses that students enroll in differ by subgroup (see Appendix Tables A3 through A10).

Highest Level of Math Taken in High School

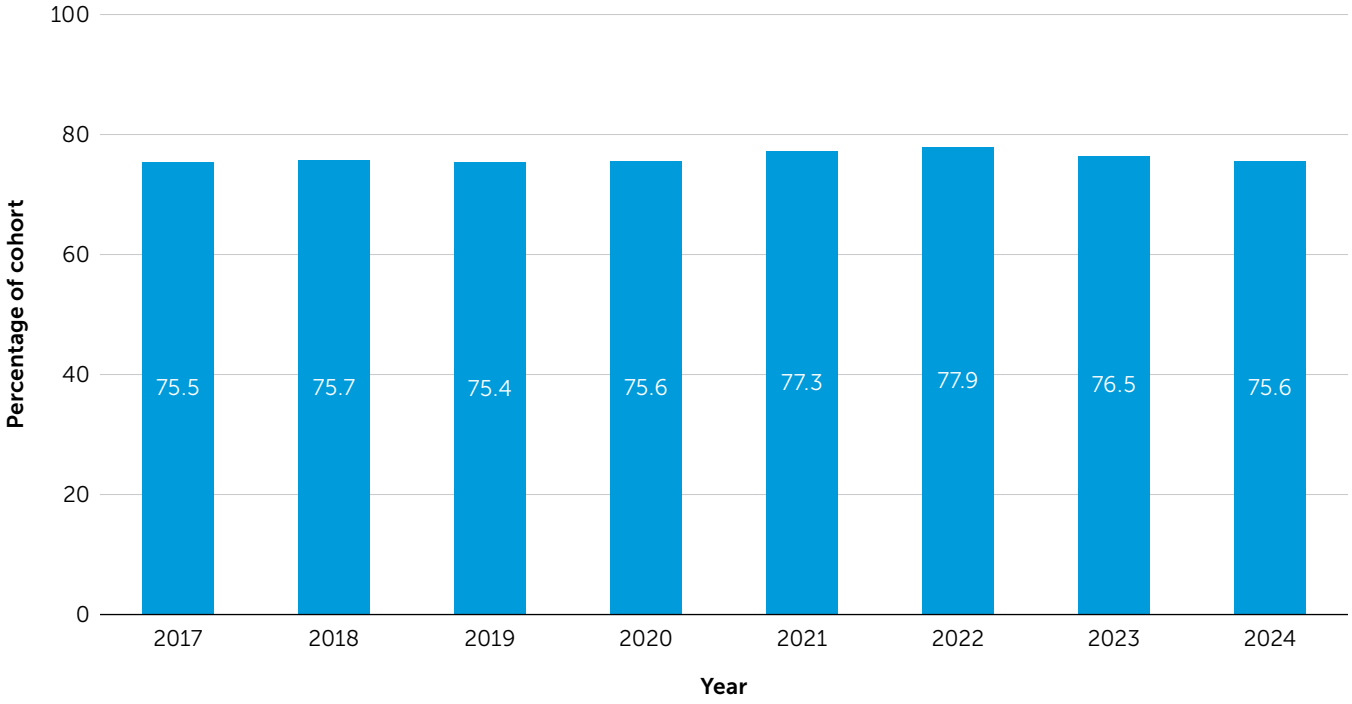
Examination of 12th-grade math enrollment offers critical insight into the amount and level of math that California high school seniors are taking and how these enrollments have shifted over time. However, 12th-grade math course-taking patterns do not provide a complete picture either of students' math trajectories or of their full preparedness for postsecondary education. To expand our knowledge of students' course-taking patterns throughout high school, we examine students' math course enrollments inclusive of 9th through 12th grades and describe the highest level of math reached in the calculus track as well as patterns associated with statistics enrollment. Doing this requires limiting our analytical sample to students who are enrolled in California public high schools for the 4 years typically associated with high school.

The proportion of graduating seniors who took Algebra 2 at some point in high school has remained stable over time.

Since students must successfully complete at least 3 years of math coursework, including Algebra 2, to be eligible for admissions to California 4-year public universities, Algebra 2 course-taking serves as an important indicator for college readiness. It is also a high school graduation requirement in nearly half of California school districts (Gao et al., 2017). Figure 7 shows that about 75 percent of California public high school students reached Algebra 2, precalculus, or calculus before graduating. This rate has remained relatively stable for the last eight cohorts, indicating that college readiness, as measured by Algebra 2 enrollment, has not changed despite policy and practice efforts to increase both math course-taking and A–G course completion.[17]

[17] Although approximately three quarters of high school students enroll in an Algebra 2 course or higher and likely meet the Area C requirements, just over half of all high school graduates complete the full set of A–G course requirements inclusive of math and other subject areas (Reed, Hurtt, et al., 2023).

Figure 7. Percentage of Graduating Cohort Reaching Algebra 2 or Higher

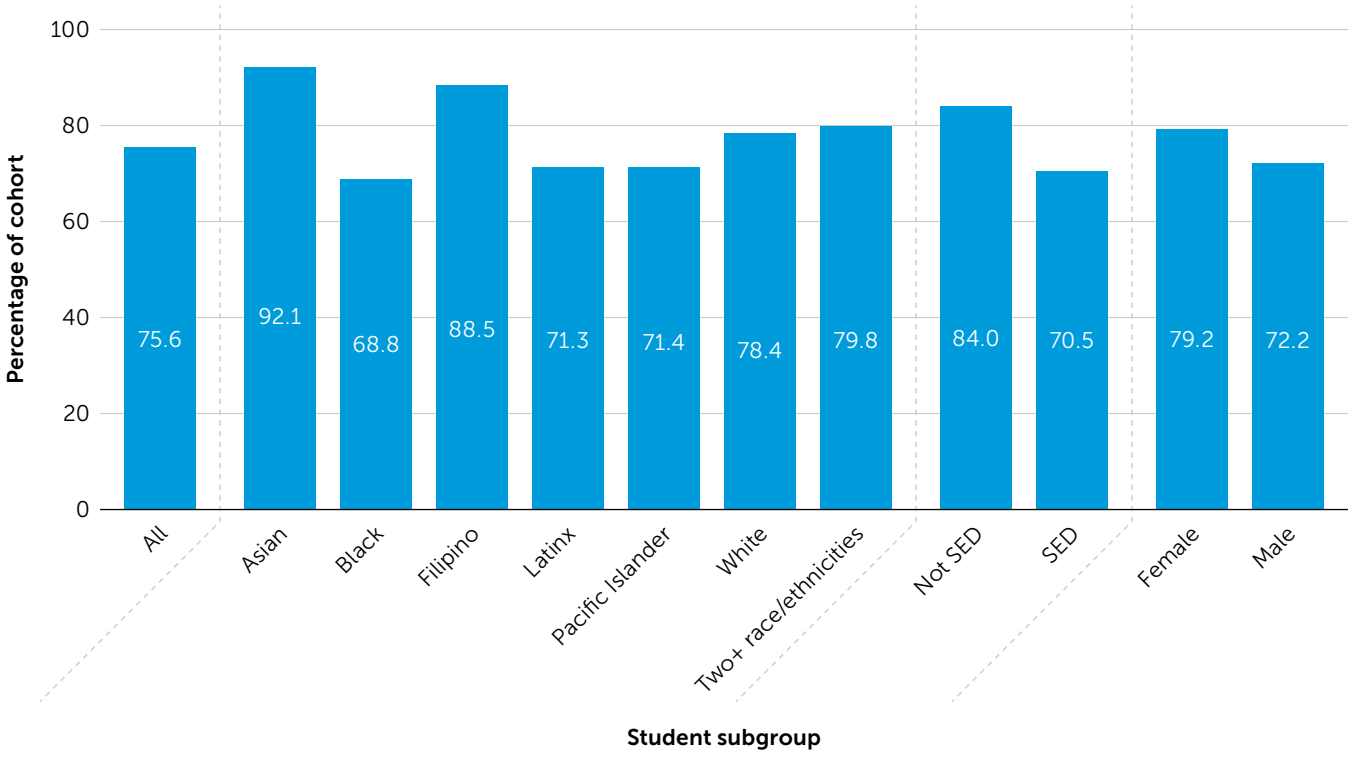


Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years.

There are large differences in Algebra 2 course-taking across demographic subgroups.

The consistent rate of Algebra 2 course-taking over time masks the substantial variation in Algebra 2 course-taking across student subgroups, as shown for the 2024 cohort in Figure 8. With a gap of more than 20 percentage points, Asian students (92.1 percent) are most likely to take an Algebra 2 course before graduation while Black students (68.8 percent) are least likely. Non-SED students are about 14 percentage points more likely to have enrolled in an Algebra 2 course than SED students, with enrollment levels of 84.0 percent and 70.5 percent, respectively. Female students (79.2 percent) are more likely to enroll than male students (72.2 percent). Importantly, these differences in Algebra 2 course-taking across subgroups have remained stable over the last 8 years (see Appendix Table A15). Once again, it is important to note that both student-level factors (e.g., beliefs, preferences, and previous mathematics instruction in elementary and middle school) and school-level factors (e.g., course offerings and advising practices) contribute to the observed gaps between student subgroups.

Figure 8. Percentage of 2024 Graduating Cohort Reaching Algebra 2 or Higher



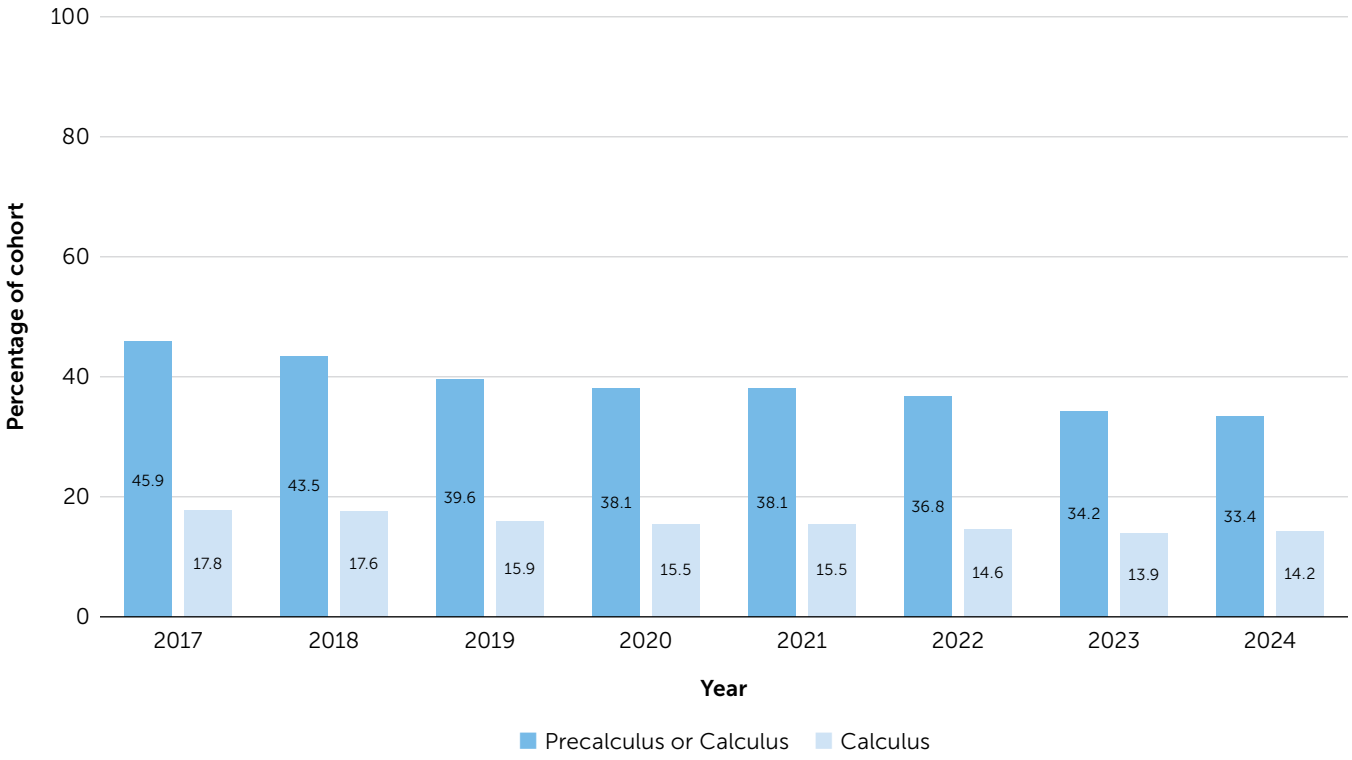
Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years.

The proportion of students reaching precalculus and/or calculus during high school has decreased over the last 8 years.

While Algebra 2 is required for admissions eligibility at CSU and UC, many students—especially those applying to more competitive schools and/or planning to major in a STEM field—take more advanced math courses to prepare for college. Included in the approximately 75 percent of students who reach Algebra 2 are students who later enroll in precalculus and/or calculus. In contrast to the relatively stable proportion of students who reach Algebra 2 in high school, the proportion of students who enroll in precalculus and calculus has decreased in the last eight cohorts (Figure 9). The proportion of students who enrolled in a precalculus course during high school declined by 12.5 percentage points between the class of 2017 (45.9 percent) and the class of 2024 (33.4 percent), though the magnitude of the decline depends somewhat

on the categorization of blended courses (Figure 9).[18] Calculus taking also declined. Among the 2017 12th-grade cohort, 17.8 percent took a calculus course during high school compared to 14.2 percent of the 2024 cohort.

Figure 9. Percentage of Cohort Taking Precalculus or Calculus



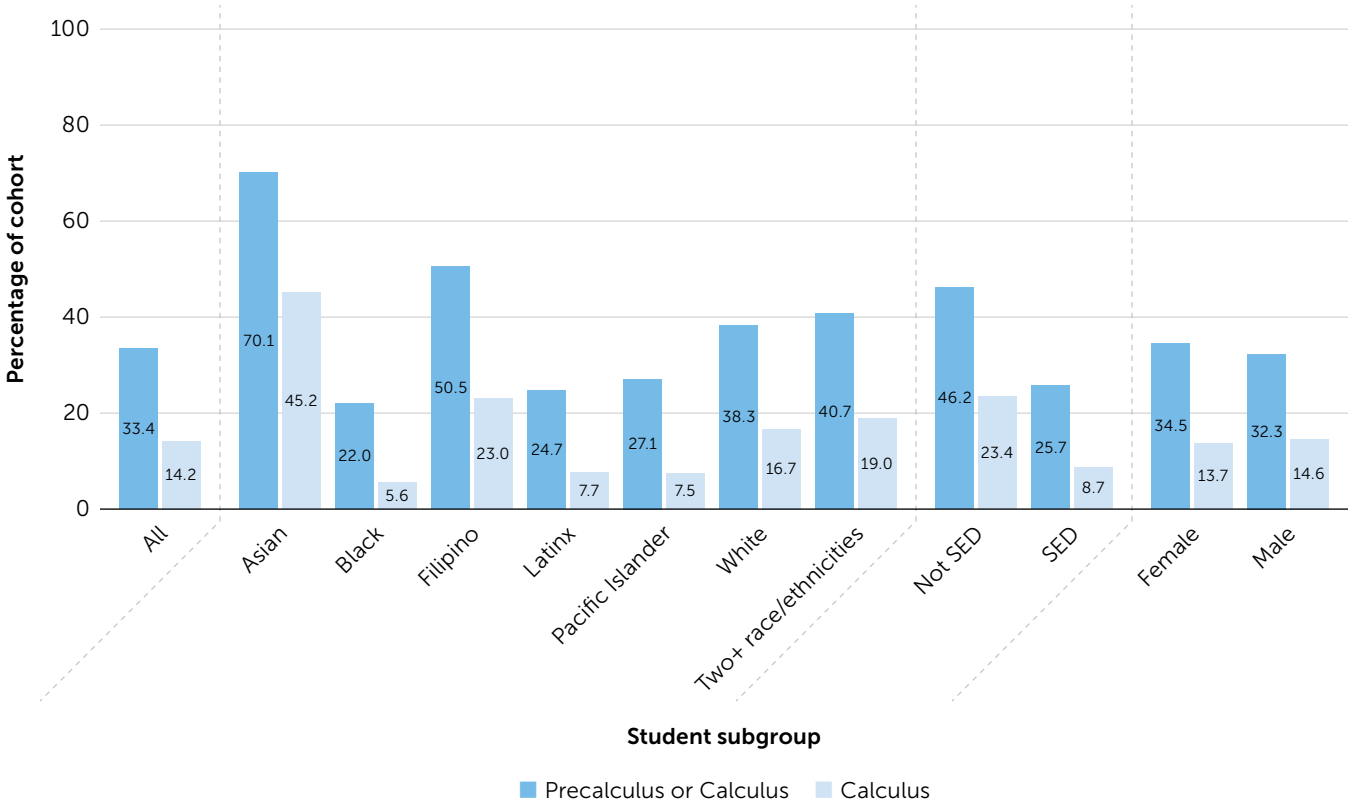
Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years.

[18] The analysis of precalculus course-taking shown in Figure 9 categorizes classes as precalculus using their state course codes as described in the "Data" section of this report and as used in all other figures and tables in this analysis. However, as previously mentioned, a nontrivial number of classes straddle two course categories, including numerous courses that blend Algebra 2, precalculus, and trigonometry (e.g., Accelerated IM 3). In alternative analyses, we include these blended courses (previously assigned to the Algebra 2 category) in the precalculus category. In this case, we observe a decline of 9 percentage points between 2017 (46.87 percent) and 2024 (37.98 percent) for precalculus course-taking.

Differences in advanced math course-taking are as high as 50 percentage points across racial/ethnic subgroups.

While there are notable differences in enrollment in precalculus or calculus in 12th grade across student subgroups, the gaps for whether a student ever took precalculus or calculus at any point in high school are much wider across subgroups (Figure 10). For example, Asian students enroll in precalculus courses at the highest rate (70.1 percent), whereas Black students enroll at the lowest rate (22.0 percent)—a difference of nearly 50 percentage points. Likewise, non-SED students enroll in precalculus courses at much higher rates than SED students (46.2 percent vs. 25.7 percent, respectively). In contrast, female and male students enroll in precalculus courses at similar rates (34.5 percent vs. 32.3 percent, respectively). Similar differences between subgroups are observed in students' calculus taking with one notable exception: Male students are more likely than female students to enroll in calculus.

Figure 10. Percentage of 2024 Cohort Taking Precalculus or Calculus



Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years. SED = socioeconomically disadvantaged.

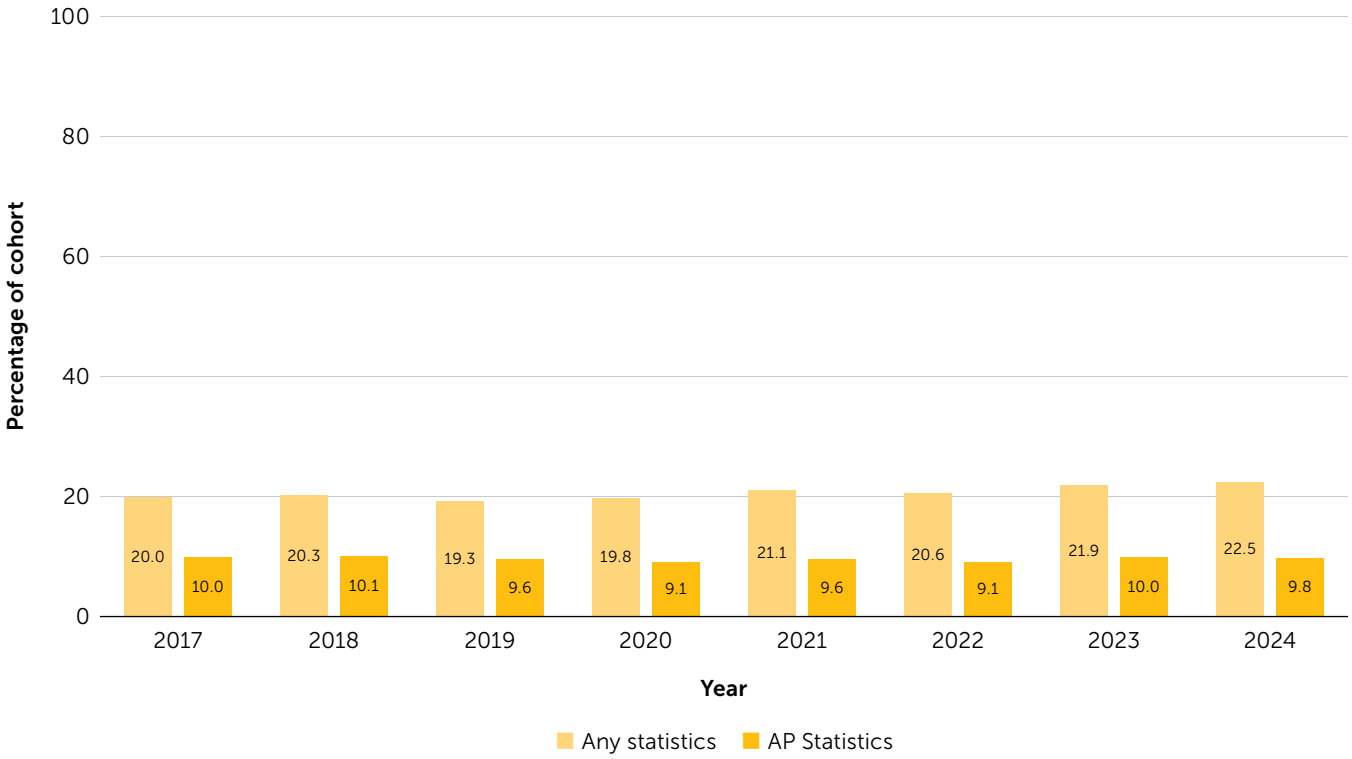
Over time, the percentage of students enrolled in precalculus and calculus has declined for all demographic subgroups. However, the decrease is greater for some subgroups than for others. Non-SED students in the 2017 cohort enrolled in precalculus courses at a rate of 55.6 percent, while SED students in the same cohort enrolled at a much lower rate (38.3 percent). In the 2024 cohort, these rates were 46.2 percent and 25.7 percent, respectively (see Appendix Table A16). Therefore, the decline in the proportion of SED students taking precalculus was about double that of non-SED students.[19] The differences in the decline in calculus taking are even more stark. In the 2017 cohort, 24.8 percent of non-SED students enrolled in calculus while 12.4 percent of SED students enrolled. In 2024, it was 23.4 percent and 8.7 percent, respectively (see Appendix Table A17). In this case, the decline in the proportion of calculus course-taking was more than five times greater for SED students than for non-SED students.[20] Simply stated, the already lower proportion of advanced math course-taking among SED students shrank faster for SED students than for non-SED students.

Statistics course-taking during high school has remained relatively stable over time.

One hypothesis for the decline in precalculus and calculus course-taking is that students have shifted to taking statistics. This is a reasonable supposition; as observed previously, statistics taking has increased for high school seniors. Figure 11 shows the percentage of high school graduates who enrolled in any statistics class at any point in high school was about 20 percent for the 2017 through 2022 cohorts. Enrollment in any statistics class then increased slightly for the 2023 and 2024 cohorts to 22.5 percent. During both periods, enrollment in AP Statistics remained steady at about 10 percent. Since AP Statistics enrollment stayed about the same, the increased enrollment in any statistics class must have been driven by an increase in enrollment in non-AP statistics courses. This increased enrollment in statistics (2.5 percentage points) is smaller than the decreased enrollment in both precalculus (12.5 percentage points) and calculus (3.6 percentage points), meaning it cannot fully account for the decrease in precalculus and calculus course-taking, especially from 2017 to 2022 when precalculus and calculus enrollment declined while statistics enrollment did not change.

[19] Non-SED students' decline in precalculus/trigonometry course-taking: (55.6 percent – 46.2 percent) / 55.6 percent = 16.9 percent; SED students' decline: (38.3 percent – 25.7 percent) / 38.3 percent = 32.9 percent; 32.9 percent / 16.9 percent = 1.9.
[20] Non-SED students' decline in calculus course-taking: (24.8 percent – 23.4 percent) / 24.8 percent = 5.6 percent; SED students' decline: (12.4 percent – 8.7 percent) / 12.4 percent = 29.8 percent; 29.8 percent / 5.6 percent ≈ 5.3 or more than 5.

Figure 11. Percentage of Cohort Taking Statistics Courses

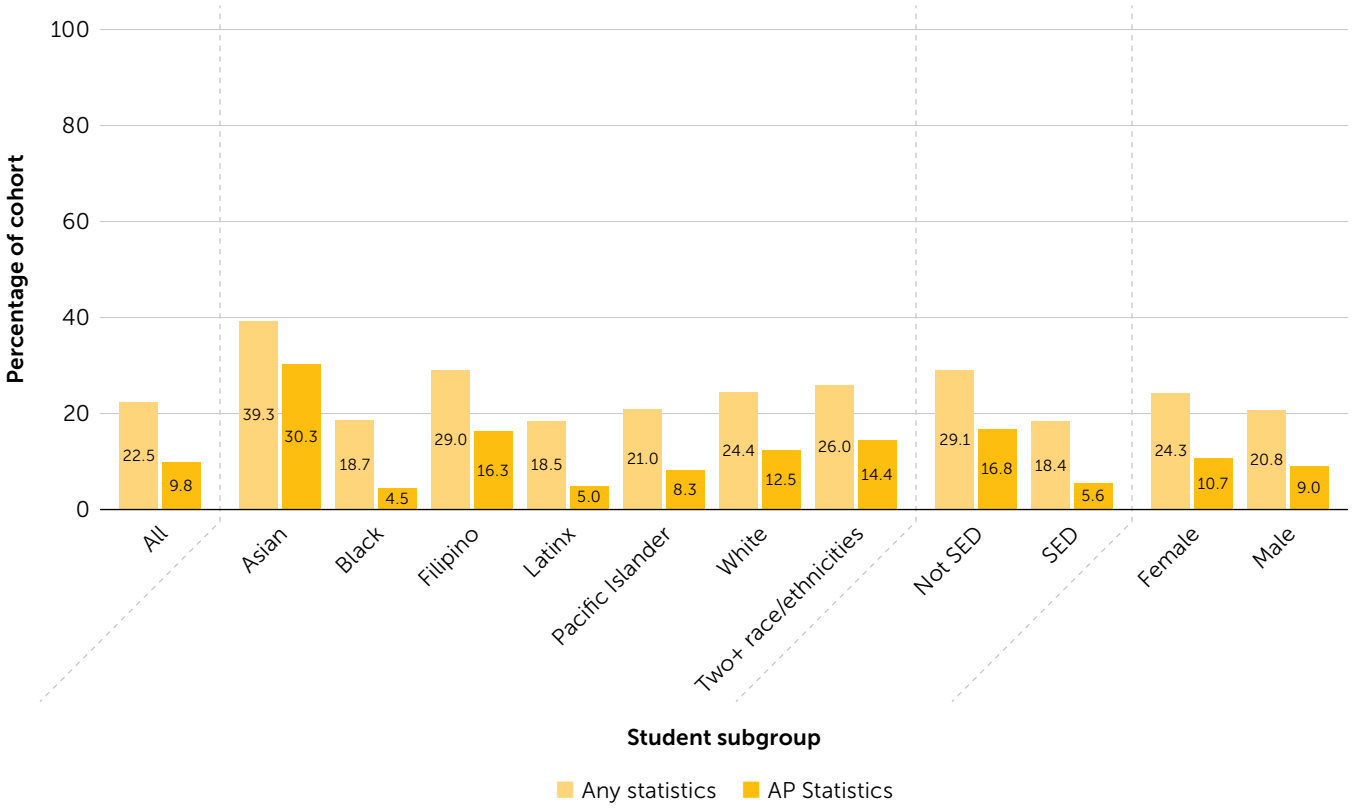


Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years.

AP Statistics enrollment varies substantially across racial/ethnic groups and SED status in high school.

Like the patterns observed for precalculus and calculus enrollment, the proportion of student enrollment in any statistics course varies across demographic groups (Figure 12). There are much larger differences across demographic subgroups in AP Statistics enrollment compared to non-AP statistics courses. As with calculus, the largest differences in enrollment are observed between Asian and Black students and between SED and non-SED students. However, in the other categories of math course-taking, while there were large differences in course-taking behavior between subgroups, the size of these differences did not change over time. This is not the case with AP Statistics. Between the 2017 and the 2024 cohorts, AP Statistics enrollment increased from 14.6 percent to 16.8 percent for non-SED students. At the same time, AP Statistics enrollment decreased from 6.4 percent to 5.6 percent for SED students. Together, these shifts widened existing disparities in AP Statistics enrollment (see Appendix Table A18 and Table A19).

Figure 12. Percentage of 2024 Cohort Taking Statistics by Student Subgroup



Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years. SED = socioeconomically disadvantaged.

Key Findings and Discussion

This analysis reveals that overall rates of math course-taking among California 12th graders increased between 2015 and 2019 before reverting to 2015 levels by spring 2024. At the same time, the proportion of students who reach Algebra 2 or higher during high school has remained unchanged: about 75 percent of students in each of the last eight cohorts. Together, these findings indicate that although 12th-grade math course-taking has declined in recent years, the proportion of high school graduates meeting CSU and UC eligibility requirements in math has remained stable.

Yet completion of precalculus and calculus courses (taken at any point in high school) among California high school graduates has fallen steadily with each graduating cohort over the last 8 years. This pattern diverges from national trends in precalculus course-taking, where an increase is observed between 2009 and 2019, and it mirrors the decline in calculus course-taking

nationwide during the same period (National Center for Education Statistics, 2022). Algebra 2, on its own, may not be sufficient for admission to competitive colleges and programs or adequate preparation for college-level math courses, particularly for students who plan to pursue STEM majors. Enrollment in precalculus or calculus may serve as an important signal in applications for competitive colleges and better preparation for programs of study in many majors, especially STEM fields (Anderson & Burdman, 2022; Aughinbaugh, 2012; Black et al., 2021; Bressoud, 2016; Burdman et al., 2024; Byun et al., 2015; ICAS, 2025; Long et al., 2012; Rose & Betts, 2001). As such, the decline in precalculus and calculus course-taking may narrow the postsecondary opportunities for many California public high school graduates.[21]

Statistics is an alternative way for students to advance their quantitative reasoning skills without taking—or in addition to taking—precalculus or calculus. However, high school statistics course-taking has remained mostly stable over time, with a slight increase in non-AP Statistics course-taking for the last two cohorts. Importantly, we find that statistics is not fully supplanting precalculus or calculus. As we previously noted, the rate of precalculus course-taking has fallen 12.5 percentage points since 2017, and the rate of calculus course-taking has fallen 3.6 percentage points. During the same period, the rate of high school statistics enrollment has risen only 2.5 percentage points, an increase that is not large enough to account for the full decrease of either precalculus or calculus course-taking during the same period (see Appendix Table A14, Table A16, and Table A18).

In addition to the declines in precalculus and calculus course-taking throughout high school—as well as the overall declines in math course-taking during students' senior years—our results reveal persistent and widening disparities across key student subgroups, especially in precalculus, calculus, and AP Statistics. Across the past eight cohorts, Asian, Filipino, and non-SED students have had the highest rates of course-taking for Algebra 2, precalculus, calculus, and AP Statistics, while Pacific Islander, Latinx, Black, and SED students have had the lowest levels. SED students' precalculus and calculus course-taking is also declining at a much faster rate than for non-SED students, exacerbating disparities. Moreover, the rate of AP Statistics course-taking among SED students *dropped* during this period while AP Statistics enrollment among non-SED students *increased*. This decline in SED students' precalculus, calculus, and AP Statistics course-taking puts them at an increasing disadvantage in college admissions decisions, college-level math courses, success in STEM-related degree programs, and ultimately, the workforce.

[21] More than 60 years ago, the California Master Plan for Higher Education (ucop.edu/acadinit/mastplan/MasterPlan1960.pdf) established access pools for public postsecondary institutions in the state. The nine undergraduate UC campuses are to select from the top eighth (12.5 percent) of the high school graduating class each year, while CSU campuses are to select from the top third. However, both sets of institutions receive more applications from eligible students than they can enroll, especially at competitive campuses. For example, in 2024 the most competitive UC campuses—UC Los Angeles and UC Berkeley—admitted 9.5 percent and 14.9 percent (respectively) of California resident applicants (based on authors' calculations from UC Infocenter, universityofcalifornia.edu/about-us/information-center/admissions-residency-and-ethnicity).

These downward trends in course-taking among many student subgroups mirror downward trends in math scores on standardized assessments. Students nationwide are scoring lower on standardized assessments of math proficiency than students in the same grade 5 years ago.[22] A persistent decline in 8th-grade math achievement since 2013 (Dewey et al., 2025) suggests that more students may be ill-prepared for high school math. In California, students' performance on the Smarter Balanced assessments shows that a smaller proportion of 8th-grade and 11th-grade students demonstrated proficiency in math standards in 2025 than in 2019, though the rate has been steadily increasing since the COVID-19 pandemic.[23] Although the disruption induced by the pandemic may be a partial driver of these downward trends in test scores, we find that the decline in 12th-grade math enrollment and precalculus and calculus course-taking began prior to the pandemic.

The causes of both the downward trend in 12th-grade math course-taking since 2019 and the drop in precalculus and calculus enrollment in California over the last decade are not clear. Analysis included in this report indicates that students who do not take math their senior year are neither "topping out" of high school math in 11th grade nor substituting college math courses for high school courses through dual enrollment. A side finding of note is the increase of students enrolling in calculus directly from Algebra 2, skipping precalculus altogether. In the 2017 graduating cohort, the percentage of students who took both Algebra 2 and calculus but who did not take precalculus in the interim was 15.1 percent. By the 2024 graduating cohort, the proportion had almost tripled to 41.9 percent. The California CCSS, adopted in 2010 and updated in 2013, emphasize opportunities for acceleration in mathematics (CDE, 2014) and likely contributed to this rise. However, further research is needed to discover all the causes of this acceleration and its relationship to both changes in math course-taking and students' accumulation of mathematical knowledge.

There are many other possible causes of the downward trends documented in this paper. Some stakeholders suggest that the arduous and lengthy process of adopting the new California Mathematics Framework and aligning textbooks and curricula obfuscated standards and deprived schools of high-quality instructional materials (Noguera & Polikoff, 2023). Others hypothesize that the removal of high-stakes accountability frameworks and the increase in both technology usage and social media may be contributing factors (Horowitz, 2025). It is also likely that rhetoric surrounding changes in college admissions, college placement, and high school math course offerings—not to mention broader contextual factors, such as the ongoing shortage of qualified math teachers and, of course, the beliefs and experiences of school personnel, parents, and students—have shaped high school math course-taking. The true cause of the decline in math achievement (as measured by standardized test scores) and the decline in advanced math course-taking in high school is likely a complex interaction of many of these factors.

[22] Based on data from National Assessment of Educational Progress mathematics assessments for 1990–2024 (nationsreportcard.gov/reports/mathematics/2024/g4_8/?grade=8).
[23] Based on authors' review of publicly available data from the CDE's California Assessment of Student Performance and Progress (CAASPP) website (caaspp-elpac.ets.org/caaspp).

Just as the reasons for the overall declines in 12th-grade math, precalculus, and calculus course-taking are the result of complex and interacting policy efforts, the persistent disparities across student subgroups are the consequence of an interplay of factors. Student choices—based on interests, postsecondary goals, and high school scheduling preferences— affect high school course-taking. However, students' choices are constrained by the course offerings (Lantz & Smith, 1981; Schmidt, 1983) and organization of high schools (Lee et al., 1997; McFarland, 2006). Research suggests that course offerings are a function of the size of the school (Monk & Haller, 1993), the geographic location of the school (Iatarola et al., 2017; Klopfenstein, 2004), the availability of qualified teachers (Tan et al., 2024), and the composition of the student body (Adelman, 1999; Conger et al., 2009),[24] among other factors.

Moreover, the beliefs held by school personnel, the administrative practices, and the culture established within schools shape high school math course-taking (Attewell & Domina, 2008; Gamoran, 1987). Some school districts have moved towards requiring more math by increasing local high school graduation requirements to include 3 or 4 years of math (Gao et al., 2017; Johnson, 2019). Some school districts have spent the past decade transitioning from a traditional sequence (Algebra 1, Geometry, and Algebra 2) to an integrated (IM 1, 2, and 3) math curriculum. Some districts have diversified the advanced math courses available to students (Reed, Merritt, & Kurlaender, 2023). Along with these shifts, many districts have invested in professional development for teachers (Bracco, 2021). Advising practices—whether formal or informal—may guide the math pathways in which students participate (Baker et al., 2023). Taken together, the shifts in K–12 and higher education policy, the ensuing discussions and resulting shifts in school practices (i.e., course offerings, teacher training, college advising), and the responsiveness of students to the real or perceived changes in requirements for high school graduation and postsecondary education have contributed to notable shifts in high school math course-taking during the last decade. Although determining the actual cause for the downward trends and persistent disparities is beyond the scope of this project, simply uncovering the patterns provides essential information for policymakers and education leaders statewide and exposes the need for future research.

To understand fully the reasons for shifts in high school math course-taking, additional research is necessary. Researchers should explore school differences in students' course-taking opportunities, seeking to uncover whether the statewide decline is universally experienced across the state's public high schools and whether disparities by race and socioeconomic status are a function of policy changes, school differences, or within-school practices. Researchers must seek to understand the causes of persistent inequities in high school math course-taking by considering, at minimum, the role of early math instruction and experiences in preparation for high school math. Further, research should aim to uncover potential solutions for improving

[24] For example, in the United States, 54 percent of schools with low enrollment of Black and Latinx students offer a calculus course while only 35 percent of schools with high enrollment of these groups offer calculus (Office for Civil Rights, 2024).

equity in access to and success in advanced math course opportunities. Finally, given current policy discussions, research needs to extend and expand our understanding of the connection between high school math course-taking and postsecondary education, including for students entering the three different higher education systems in California and for students of specific majors.

Conclusion

This report provides a picture of the shifting patterns—as well as the persistent disparities—of math course-taking among California's public high school seniors. Although the reasons for these shifts and persistent disparities are not clear, the combined impact of a global pandemic, the introduction of a new math framework and math course options, shifts in college admissions and placement, and changes within schools are likely contributing to these patterns. On the one hand, the proportion of students who reach Algebra 2 or higher during high school has stayed constant, indicating that there is no decrease in the percentage of students who are meeting the high school math requirements for 4-year college admissions eligibility. On the other hand, the rates of precalculus and calculus course-taking during high school and the rates of math course-taking in 12th grade are declining. Perhaps more troubling than the overall decline in math course-taking in 12th grade and the decline in precalculus and calculus course-taking are the persistent disparities across student subgroups and the decline in taking AP Statistics among SED students as the proportion of non-SED students taking AP Statistics increases.

These findings carry profound implications. If these downward trends leave students ill-prepared for the demands of college-level math, they could undermine efforts to improve college attainment rates, to increase the number of college graduates prepared to meet economic demand in critical STEM fields, and to have a more diverse pool of workers to call on in both STEM and non-STEM fields. Policymakers, higher education faculty, high school teachers, curriculum developers, philanthropists, equity advocates, and others must continue to work together to support students' acquisition of quantitative reasoning skills and college readiness—and to close persistent achievement gaps. This will require more research, effective communication, and collaboration between the K–12 sector and CCCs, CSU, and UC at statewide and local levels in order to support California students.

Author Biographies

Kramer Dykeman is a research fellow with the California Education Lab in the School of Education at the University of California, Davis.

Michal Kurlaender is a professor of educational policy at the University of California, Davis, and a faculty director of both California Education Lab and PACE.

Beryl Larson is a PhD student in the Department of Economics at the University of California, Davis, and a student affiliate of the California Education Lab.

Sherrie Reed is executive director of the California Education Lab in the School of Education at the University of California, Davis.

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Appendix

Table A1. Number of Students by 12th-Grade Class and Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	430,745	428,780	440,046	445,586	442,613	437,004	440,321	432,494	437,262	445,777
Race/ethnicity										
Asian	42,271	40,346	41,719	45,396	44,169	43,767	45,261	44,899	44,479	45,099
Black	27,589	26,718	26,807	25,552	24,972	23,793	22,757	21,810	21,440	21,935
Filipino	13,838	13,966	13,880	14,266	14,354	13,731	13,715	12,929	12,879	12,552
Latinx	217,654	220,620	227,572	232,145	234,231	235,272	237,418	236,186	242,144	250,306
Pacific Islander	2,446	2,395	2,358	2,328	2,158	2,179	2,129	1,969	1,985	1,904
White	113,582	109,944	111,042	108,152	104,783	100,352	100,608	95,612	93,944	92,742
Two+ races	8,980	10,736	11,859	11,984	12,608	13,370	14,086	14,535	15,863	16,797
Socioeconomically disadvantaged										
No	187,060	183,261	191,679	181,675	182,192	179,717	183,945	178,409	179,527	165,530
Yes	243,685	245,519	248,367	263,911	260,421	257,287	256,376	254,085	257,735	280,247
Gender										
Female	211,839	210,836	215,565	219,071	217,146	214,347	215,869	211,350	213,283	216,741
Male	218,906	217,942	224,481	226,515	225,467	222,625	224,314	220,757	223,288	228,181

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year.

Table A2. Percentage of 12th-Grade Class Enrolled in Math by Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	70.9	72.0	72.7	74.6	75.1	73.7	74.2	71.7	71.2	70.6
Race/ethnicity										
Asian	82.3	82.4	82.3	83.7	84.2	83.2	83.8	81.2	81.0	80.3
Black	69.0	70.9	70.7	71.2	72.3	71.4	72.1	69.2	68.4	68.7
Filipino	77.1	77.2	78.2	79.1	80.8	78.7	80.5	75.8	75.2	75.0
Latinx	70.7	72.2	73.3	74.9	75.5	73.8	74.3	71.7	71.3	70.4
Pacific Islander	70.9	69.1	69.8	72.7	73.8	73.0	74.0	72.3	70.2	69.4
White	66.9	67.7	68.1	70.4	70.5	69.5	69.7	67.6	66.5	66.3
Two+ races	71.7	71.2	72.6	74.3	74.4	73.2	74.0	71.5	71.1	70.5
Socioeconomically disadvantaged										
No	71.4	71.9	72.5	75.0	75.3	74.1	74.5	72.1	71.7	71.1
Yes	70.5	72.1	72.9	74.3	75.0	73.4	74.0	71.4	70.8	70.2
Gender										
Female	71.7	72.5	73.6	75.3	76.0	74.5	75.2	72.2	71.5	70.8
Male	70.1	71.5	71.9	73.9	74.2	72.9	73.3	71.3	70.9	70.4

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year.

Table A3. Percentage of 12th-Grade Class Enrolled in Math Classes up to Algebra 2 by Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	18.7	18.1	17.5	17.4	16.9	17.7	17.5	17.4	17.8	17.7
Race/ethnicity										
Asian	5.9	5.7	5.7	5.6	5.6	5.8	5.8	5.6	6.0	6.3
Black	25.8	25.4	24.4	23.4	22.9	25.3	24.1	23.5	24.0	24.1
Filipino	9.0	8.5	8.4	8.6	8.1	9.1	8.6	8.3	8.4	8.0
Latinx	23.9	22.8	21.7	21.5	21.0	21.6	21.6	21.8	22.3	21.8
Pacific Islander	21.3	17.8	17.9	18.7	18.1	18.8	19.8	20.4	20.0	20.6
White	13.1	12.8	12.9	13.0	12.5	13.4	13.0	12.3	12.4	12.6
Two+ races	14.6	15.0	15.0	14.2	13.8	14.1	14.3	12.6	13.1	13.4
Socioeconomically disadvantaged										
No	11.8	11.1	11.2	10.7	10.6	11.4	11.1	10.4	10.5	10.1
Yes	24.0	23.4	22.4	22.0	21.4	22.2	22.1	22.3	22.9	22.2
Gender										
Female	16.8	15.9	15.1	15.3	14.6	15.2	14.9	14.7	15.6	15.6
Male	20.6	20.3	19.8	19.5	19.2	20.2	20.0	20.0	20.0	19.6

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. Students may be included in multiple math categories if they took more than one math course during their senior year.

Table A4. Percentage of 12th-Grade Class Enrolled in Algebra 2 by Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	11.2	11.7	10.8	11.1	11.1	11.7	10.8	9.8	9.5	9.3
Race/ethnicity										
Asian	6.2	5.6	4.9	4.8	5.4	5.8	4.9	4.5	4.4	4.5
Black	13.5	14.9	13.3	13.6	14.0	14.2	13.5	12.2	11.7	11.6
Filipino	9.4	9.0	7.8	8.2	8.4	8.2	8.1	6.8	5.9	6.0
Latinx	13.7	14.8	13.8	14.1	13.9	14.6	13.5	12.3	11.9	11.4
Pacific Islander	12.7	12.4	12.7	12.8	12.6	12.2	12.9	12.1	10.2	11.4
White	8.3	7.8	7.2	7.5	7.4	7.7	7.2	6.5	6.4	6.3
Two+ races	9.9	9.1	8.2	8.6	9.2	9.1	8.7	7.1	7.0	6.8
Socioeconomically disadvantaged										
No	9.1	8.8	8.0	8.1	8.2	8.4	7.9	6.7	6.7	6.3
Yes	12.9	13.9	13.1	13.2	13.2	14.1	13.0	12.0	11.5	11.2
Gender										
Female	11.5	11.9	10.9	11.2	11.2	11.8	10.9	9.8	9.6	9.4
Male	11.0	11.6	10.7	11.1	11.1	11.6	10.8	9.9	9.4	9.3

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. Students may be included in multiple math categories if they took more than one math course during their senior year.

Table A5. Percentage of 12th-Grade Class Enrolled in Precalculus by Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	12.9	12.5	12.5	13.1	14.6	13.9	14.9	14.1	12.6	11.9
Race/ethnicity										
Asian	13.7	12.2	11.7	13.3	15.3	14.8	16.6	15.6	13.9	13.5
Black	12.0	11.5	12.4	11.8	12.6	12.3	13.2	12.3	11.7	11.1
Filipino	16.2	14.8	14.3	16.2	20.6	19.9	20.5	20.0	17.0	16.0
Latinx	13.4	13.1	13.2	13.5	15.1	14.1	14.9	14.0	12.6	11.7
Pacific Islander	13.7	14.5	13.5	13.4	13.9	15.2	15.7	13.3	12.2	12.7
White	11.5	11.4	11.2	12.2	13.1	12.6	13.8	13.4	11.8	11.3
Two+ races	12.0	11.8	11.3	11.6	12.9	12.7	14.5	14.1	11.7	11.4
Socioeconomically disadvantaged										
No	12.5	11.9	11.9	12.7	14.4	14.0	15.2	14.8	13.1	12.3
Yes	13.2	12.9	12.9	13.4	14.8	13.7	14.7	13.6	12.2	11.7
Gender										
Female	13.7	13.2	13.3	13.7	15.7	14.8	16.0	15.4	13.3	12.4
Male	12.1	11.8	11.7	12.5	13.6	12.9	13.8	12.8	11.9	11.5

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. Students may be included in multiple math categories if they took more than one math course during their senior year.

Table A6. Percentage of 12th-Grade Class Enrolled in Calculus by Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	12.5	12.7	12.9	12.6	11.6	11.5	11.3	10.0	9.6	9.8
Race/ethnicity										
Asian	32.5	32.8	32.4	31.4	30.6	29.9	30.0	26.8	25.3	26.3
Black	5.9	6.2	6.3	5.8	4.9	5.0	5.2	4.9	4.3	4.2
Filipino	19.7	20.3	20.9	19.4	18.1	17.5	18.3	15.5	15.4	17.0
Latinx	8.2	8.7	9.1	8.4	7.3	7.6	7.1	6.0	6.1	6.1
Pacific Islander	8.2	8.7	7.8	8.0	8.6	7.8	7.5	6.7	5.2	5.2
White	14.1	14.3	14.2	14.4	13.6	13.3	12.9	11.9	11.3	11.9
Two+ races	15.0	13.9	15.3	15.3	14.0	14.2	13.7	13.1	12.8	12.9
Socioeconomically disadvantaged										
No	17.0	17.2	17.2	17.5	16.6	16.2	15.9	14.6	14.2	15.2
Yes	9.1	9.4	9.6	9.2	8.1	8.2	7.9	6.7	6.5	6.7
Gender										
Female	12.7	12.9	13.3	12.8	11.6	11.5	11.3	10.0	9.3	9.4
Male	12.4	12.6	12.6	12.4	11.6	11.5	11.2	10.0	10.0	10.3

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. Students may be included in multiple math categories if they took more than one math course during their senior year.

Table A7. Percentage of 12th-Grade Class Enrolled in Non-AP Statistics by Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	6.4	7.3	8.2	8.8	8.9	9.6	10.4	10.2	10.4	10.7
Race/ethnicity										
Asian	7.1	8.1	8.4	9.1	8.6	7.7	7.9	8.1	8.1	7.8
Black	5.9	6.6	7.3	8.6	9.2	10.3	10.9	10.9	11.2	11.8
Filipino	8.3	9.4	10.3	10.5	9.6	10.0	11.0	10.9	11.2	11.1
Latinx	5.8	6.7	7.9	8.8	9.0	10.0	11.1	10.7	10.9	11.5
Pacific Islander	6.5	6.9	8.1	8.2	8.2	8.4	9.6	10.6	10.8	9.8
White	7.4	8.1	8.7	8.6	9.0	9.5	9.9	9.9	10.0	10.0
Two+ races	7.1	7.7	8.9	9.1	8.8	9.4	10.1	9.6	10.0	10.0
Socioeconomically disadvantaged										
No	7.7	8.5	9.1	9.4	9.4	9.6	10.1	10.0	11.1	10.7
Yes	5.5	6.3	7.4	8.4	8.6	9.6	10.6	10.4	9.9	10.8
Gender										
Female	7.1	7.9	8.9	9.6	9.8	10.5	11.3	10.9	11.1	11.6
Male	5.8	6.7	7.5	8.1	8.1	8.8	9.5	9.6	9.6	9.9

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. Students may be included in multiple math categories if they took more than one math course during their senior year.

Table A8. Percentage of 12th-Grade Class Enrolled in AP Statistics by Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	7.4	8.0	8.1	8.3	8.0	7.7	8.0	7.6	8.4	8.1
Race/ethnicity										
Asian	18.6	19.5	20.2	20.8	20.9	20.9	22.0	22.6	25.1	23.8
Black	3.8	4.3	4.6	4.5	4.5	3.7	4.1	3.2	3.5	3.8
Filipino	11.8	12.9	13.0	12.2	12.1	11.4	12.6	11.9	13.8	13.4
Latinx	4.3	4.9	5.2	5.1	4.8	4.2	4.4	3.7	4.4	4.3
Pacific Islander	5.9	5.7	6.0	6.2	6.3	6.2	6.2	5.2	7.4	6.5
White	9.4	10.2	9.9	10.3	9.8	10.1	10.2	9.9	10.6	10.3
Two+ races	9.4	10.3	9.7	11.1	10.3	10.5	10.7	11.3	12.6	12.1
Socioeconomically disadvantaged										
No	10.9	11.8	11.8	12.6	12.1	12.2	12.7	12.6	13.4	13.7
Yes	4.7	5.2	5.3	5.4	5.2	4.5	4.7	4.0	4.9	4.7
Gender										
Female	8.2	8.9	9.2	9.3	9.0	8.6	9.0	8.4	9.3	8.9
Male	6.6	7.1	7.1	7.4	7.0	6.8	7.1	6.7	7.6	7.3

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. Students may be included in multiple math categories if they took more than one math course during their senior year.

Table A9. Percentage of 12th-Grade Class Enrolled in Other Math Classes by Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	7.7	7.6	8.6	9.9	10.6	7.2	6.8	7.6	8.6	9.0
Race/ethnicity										
Asian	5.7	5.8	6.0	6.6	6.8	5.4	4.1	4.8	5.5	5.8
Black	9.2	9.2	9.8	11.4	11.9	6.8	6.8	7.4	7.8	8.7
Filipino	7.9	7.6	8.8	9.1	9.6	7.1	6.2	6.8	8.3	8.6
Latinx	7.8	7.7	9.0	10.5	11.4	7.5	7.2	8.2	9.3	9.8
Pacific Islander	8.4	8.2	9.1	12.1	13.2	8.9	7.3	8.6	8.9	9.3
White	7.6	7.7	8.6	9.7	10.3	7.1	6.9	7.5	8.3	8.5
Two+ races	8.7	8.7	9.5	10.5	11.2	8.2	7.0	8.0	8.8	9.3
Socioeconomically disadvantaged										
No	7.7	7.7	8.5	9.7	10.1	7.2	6.7	7.4	7.9	8.4
Yes	7.6	7.5	8.7	10.0	11.0	7.2	6.9	7.7	9.0	9.4
Gender										
Female	7.6	7.6	8.7	9.9	10.6	7.5	7.0	7.7	8.9	9.3
Male	7.7	7.7	8.6	9.9	10.6	6.9	6.6	7.5	8.3	8.7

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. Students may be included in multiple math categories if they took more than one math course during their senior year.

Table A10. Percentage of 12th-Grade Class Enrolled in No Math by Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	29.1	28.0	27.3	25.4	24.9	26.3	25.8	28.3	28.8	29.4
Race/ethnicity										
Asian	17.7	17.6	17.7	16.3	15.9	16.8	16.2	18.9	19.0	19.7
Black	31.0	29.1	29.3	28.8	27.7	28.6	27.9	30.8	31.6	31.3
Filipino	22.9	22.8	21.8	20.9	19.2	21.3	19.5	24.2	24.8	25.0
Latinx	29.3	27.8	26.7	25.1	24.5	26.2	25.7	28.4	28.7	29.6
Pacific Islander	29.1	30.9	30.2	27.3	26.2	27.0	26.0	27.7	29.8	30.6
White	33.1	32.3	31.9	29.6	29.5	30.5	30.3	32.4	33.5	33.7
Two+ races	28.3	28.9	27.4	25.7	25.6	26.8	26.0	28.5	28.9	29.5
Socioeconomically disadvantaged										
No	28.6	28.1	27.5	25.0	24.7	25.9	25.5	27.9	28.4	28.9
Yes	29.5	27.9	27.1	25.7	25.0	26.6	26.0	28.6	29.1	29.8
Gender										
Female	28.3	27.5	26.4	24.7	24.0	25.5	24.8	27.8	28.5	29.2
Male	29.9	28.5	28.1	26.1	25.8	27.1	26.7	28.7	29.1	29.6

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year.

Table A11. Percentage of 12th-Grade Class Enrolled in Math (Including Dual Enrollment) by Demographic Group

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
All	71.4	72.6	73.4	75.3	75.8	74.5	75.1	72.7	72.1	71.6
Race/ethnicity										
Asian	83.5	83.8	83.8	85.3	85.9	85.3	86.1	83.6	83.4	82.9
Black	69.3	71.2	71.1	71.7	72.7	72.0	72.6	69.9	69.1	69.4
Filipino	77.6	78.0	78.9	79.8	81.5	79.6	81.3	77.2	76.5	76.2
Latinx	71.0	72.5	73.7	75.3	75.9	74.3	74.8	72.2	71.8	71.0
Pacific Islander	71.3	69.7	70.4	73.3	74.7	73.4	74.7	72.9	71.2	70.1
White	67.6	68.6	69.0	71.4	71.6	70.6	71.0	68.9	67.9	67.8
Two+ races	72.4	72.1	73.3	75.3	75.5	74.3	75.4	73.0	72.4	71.9
Socioeconomically disadvantaged										
No	72.2	72.8	73.5	76.1	76.4	75.4	76.0	73.7	73.2	72.9
Yes	70.8	72.4	73.3	74.7	75.4	73.9	74.5	72.0	71.4	70.9
Gender										
Female	72.2	73.2	74.4	76.1	76.8	75.5	76.3	73.3	72.6	72.1
Male	70.6	72.0	72.4	74.5	74.9	73.6	74.0	72.1	71.7	71.3

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year.

Table A12. Number of 12th-Grade Students Who Did Not Take Math in 12th Grade and Who Enrolled in an 11th-Grade Math Class

	2016	2017	2018	2019	2020	2021	2022	2023	2024
Up to Algebra 2	37,374	35,415	32,883	31,554	33,253	33,502	30,793	33,822	35,162
Algebra 2 or similar	32,671	33,345	36,257	41,369	45,144	47,380	56,614	55,894	57,844
Precalculus	20,321	19,706	15,563	10,519	10,946	9,170	10,896	9,709	10,005
Calculus	3,860	4,272	4,146	3,590	3,559	3,654	4,152	3,361	3,705
Statistics	2,446	2,786	2,258	1,483	1,439	1,838	1,941	2,264	3,037
AP Statistics	1,565	1,797	1,810	1,516	1,678	1,686	1,898	1,911	2,122
Other	7,638	7,338	7,430	7,501	8,104	3,673	3,642	3,970	5,295
No math	15,714	15,187	13,884	12,977	13,900	15,013	14,691	15,366	16,840

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year.

Table A13. Percentage of 12th-Grade Students Who Did Not Take Math in 12th Grade and Who Enrolled in an 11th-Grade Math Class

	2016	2017	2018	2019	2020	2021	2022	2023	2024
Up to Algebra 2	32.6	31.2	30.3	30.2	29.9	30.6	26.0	28.4	27.8
Algebra 2 or similar	28.5	29.3	33.5	39.6	40.6	43.3	47.9	46.9	45.8
Precalculus	17.7	17.3	14.4	10.1	9.9	8.4	9.2	8.1	7.9
Calculus	3.4	3.8	3.8	3.4	3.2	3.3	3.5	2.8	2.9
Statistics	2.1	2.5	2.1	1.4	1.3	1.7	1.6	1.9	2.4
AP Statistics	1.4	1.6	1.7	1.5	1.5	1.5	1.6	1.6	1.7
Other	6.7	6.5	6.9	7.2	7.3	3.4	3.1	3.3	4.2
No math	13.7	13.4	12.8	12.4	12.5	13.7	12.4	12.9	13.3

Note. A 12th-grade cohort is defined as all California public high school students enrolled on April 15 during 12th grade of the relevant year. Students may be included in multiple math categories if they took more than one math course during their senior year.

Table A14. Number of Students by Cohort and Demographic Group

	2017	2018	2019	2020	2021	2022	2023	2024
All	385,414	408,096	402,958	405,715	409,133	402,625	399,270	404,583
Race/ethnicity								
Asian	36,386	41,270	39,644	40,432	42,158	42,164	41,312	41,218
Black	22,640	22,256	21,736	21,075	20,255	19,701	18,990	19,063
Filipino	12,226	12,893	12,917	12,517	12,682	12,037	11,743	11,383
Latinx	200,333	214,964	216,153	220,513	222,651	221,167	222,355	228,235
Pacific Islander	1,987	2,028	1,904	1,955	1,878	1,780	1,735	1,627
White	97,844	98,944	94,782	93,084	92,791	88,397	84,874	84,035
Two+ races	10,194	10,809	11,356	12,253	12,877	13,399	14,369	15,227
Socioeconomically disadvantaged								
No	169,189	168,168	166,587	167,679	171,083	166,057	164,335	151,638
Yes	216,225	239,928	236,371	238,036	238,050	236,568	234,935	252,945
Gender								
Female	189,618	201,086	198,288	199,459	200,777	196,945	195,323	196,980
Male	195,796	207,010	204,670	206,228	208,240	205,342	203,361	206,874

Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years.

Table A15. Percentage of Cohort Enrolled in Algebra 2, Precalculus, or Calculus at Some Point During High School (Grades 9–12) by Demographic Group

	2017	2018	2019	2020	2021	2022	2023	2024
All	75.5	75.7	75.4	75.6	77.3	77.9	76.5	75.6
Race/ethnicity								
Asian	93.1	92.8	92.1	92.1	93.2	93.0	92.4	92.1
Black	68.1	68.4	67.6	68.5	69.6	70.3	69.0	68.8
Filipino	88.9	88.1	87.8	87.6	89.2	90.1	89.2	88.5
Latinx	71.0	71.1	71.2	71.7	73.4	73.9	72.4	71.3
Pacific Islander	75.4	74.6	73.6	73.3	75.5	74.6	72.7	71.4
White	78.3	78.6	78.0	77.6	79.3	80.5	79.3	78.4
Two+ races	77.7	79.5	78.5	78.9	80.7	82.1	80.3	79.8
Socioeconomically disadvantaged								
No	82.2	83.2	82.7	82.5	84.2	85.1	84.9	84.0
Yes	70.3	70.4	70.2	70.7	72.3	72.9	70.6	70.5
Gender								
Female	79.6	79.5	79.4	79.6	81.5	82.2	80.5	79.2
Male	71.6	72.0	71.4	71.6	73.2	73.8	72.7	72.2

Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years.

Table A16. Percentage of Cohort Enrolled in Precalculus or Calculus at Some Point During High School (Grades 9–12) by Demographic Group

	2017	2018	2019	2020	2021	2022	2023	2024
All	45.9	43.5	39.6	38.1	38.1	36.8	34.2	33.4
Race/ethnicity								
Asian	79.7	77.5	74.4	72.8	74.0	73.5	70.3	70.1
Black	33.7	31.0	27.9	26.9	25.7	24.2	22.6	22.0
Filipino	65.0	62.8	57.8	55.8	56.2	55.5	51.1	50.5
Latinx	37.7	34.4	31.0	29.7	29.5	27.6	25.6	24.7
Pacific Islander	40.3	39.6	36.4	33.7	34.5	30.0	27.3	27.1
White	50.6	48.9	44.5	42.5	42.2	41.5	38.5	38.3
Two+ races	50.8	50.2	45.5	44.2	44.4	45.8	41.9	40.7
Socioeconomically disadvantaged								
No	55.6	54.6	50.2	48.8	48.8	48.7	46.0	46.2
Yes	38.3	35.7	32.1	30.6	30.4	28.4	26.0	25.7
Gender								
Female	49.3	46.3	41.9	40.3	40.5	39.4	35.9	34.5
Male	42.6	40.8	37.3	36.0	35.8	34.3	32.6	32.3

Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years.

Table A17. Percentage of Cohort Enrolled in Calculus at Some Point During High School (Grades 9–12) by Demographic Group

	2017	2018	2019	2020	2021	2022	2023	2024
All	17.8	17.6	15.9	15.5	15.5	14.6	13.9	14.2
Race/ethnicity								
Asian	50.5	49.7	47.4	46.2	47.0	45.9	43.6	45.2
Black	8.5	8.0	6.7	6.5	6.6	6.3	5.5	5.6
Filipino	28.2	27.8	24.8	23.3	24.0	22.4	21.5	23.0
Latinx	11.4	10.7	9.1	9.1	8.7	7.8	7.6	7.7
Pacific Islander	10.9	12.1	12.2	10.2	11.0	9.4	8.2	7.5
White	19.9	20.1	18.8	18.0	17.7	17.0	16.0	16.7
Two+ races	21.1	22.1	20.6	20.0	19.5	20.4	19.5	19.0
Socioeconomically disadvantaged								
No	24.8	25.6	23.9	23.2	23.2	22.8	21.9	23.4
Yes	12.4	12.0	10.2	10.0	9.9	8.9	8.4	8.7
Gender								
Female	18.3	17.9	15.9	15.5	15.5	14.7	13.6	13.7
Male	17.4	17.3	15.9	15.5	15.4	14.6	14.2	14.6

Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years.

Table A18. Percentage of Cohort Enrolled in Any Statistics Class at Some Point During High School (Grades 9–12) by Demographic Group

	2017	2018	2019	2020	2021	2022	2023	2024
All	20.0	20.3	19.3	19.8	21.1	20.6	21.9	22.5
Race/ethnicity								
Asian	36.0	37.1	35.0	35.1	36.7	37.5	40.0	39.3
Black	14.6	15.5	15.2	15.5	16.9	16.1	17.2	18.7
Filipino	27.4	26.8	24.9	24.5	26.5	25.5	28.5	29.0
Latinx	15.9	16.1	15.4	15.9	17.4	16.5	17.6	18.5
Pacific Islander	17.5	17.8	16.6	17.4	18.7	19.1	21.8	21.0
White	22.7	22.6	21.6	22.3	23.0	22.8	23.8	24.4
Two+ races	22.6	24.2	22.2	22.6	23.4	23.9	26.3	26.0
Socioeconomically disadvantaged								
No	25.3	26.1	24.5	25.0	26.1	26.2	28.4	29.1
Yes	15.7	16.2	15.6	16.0	17.5	16.6	17.3	18.4
Gender								
Female	21.9	22.1	21.2	21.6	23.0	22.3	23.6	24.2
Male	18.1	18.5	17.4	18.0	19.2	19.0	20.2	20.8

Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years.

Table A19. Percentage of Cohort Enrolled in AP Statistics at Some Point During High School (Grades 9–12) by Demographic Group

	2017	2018	2019	2020	2021	2022	2023	2024
All	10.0	10.1	9.6	9.1	9.6	9.1	10.0	9.8
Race/ethnicity								
Asian	27.0	26.7	26.6	26.6	27.9	28.5	30.8	30.3
Black	5.6	5.4	5.3	4.2	4.6	3.6	4.2	4.5
Filipino	14.9	15.0	14.6	13.7	14.6	14.1	16.2	16.2
Latinx	6.1	6.0	5.6	4.9	5.1	4.3	5.0	5.0
Pacific Islander	7.6	7.9	7.6	7.5	7.6	6.8	9.3	8.3
White	12.1	12.4	11.8	11.9	12.2	11.9	12.6	12.5
Two+ races	11.9	13.5	12.5	12.3	12.6	13.2	14.9	14.4
Socioeconomically disadvantaged								
No	14.6	15.3	14.6	14.6	15.3	15.2	16.0	16.8
Yes	6.4	6.5	6.1	5.3	5.5	4.8	5.8	5.6
Gender								
Female	11.1	11.2	10.6	10.1	10.6	10.1	10.9	10.7
Male	8.9	9.1	8.6	8.2	8.6	8.2	9.1	9.0

Note. Students are included in a graduating cohort if they are enrolled in 12th grade on April 15, have course-taking data for that year, and have course-taking data for the 3 previous years.

Table A20. State Course Codes 2016–17 to 2018–19

Code	Name
Up to Algebra 2	
2400	General Math/Basic Math/Vocational Math
2401	Consumer Math/Senior Math
2402	Remedial Math/Proficiency Development
2403	Beginning Algebra/Algebra 1 (1-year course)
2413	Geometry
2420	Math A
2421	Math B
2423	Accelerated Math (any of Grades 4–8)
2424	Pre-Algebra
2425	Integrated Mathematics 1 College Prep
2426	Integrated Mathematics 2 College Prep
2428	Beginning Algebra Part 1 (first year of 2-year course)
2429	Beginning Algebra Part 2 (second year of 2-year course)
2431	Math 6 (Grade 6 standards)
2432	Math 7 (Grade 7 standards)
2433	Algebra Readiness
2434	Grade 6 Mathematics—Common Core
2435	Grade 7 Mathematics—Common Core
2436	Grade 8 Mathematics—Common Core
2437	Algebra 1—Common Core
2439	Geometry—Common Core
2440	Integrated Mathematics 1—Common Core
2441	Integrated Mathematics 2—Common Core
2446	Algebra 1A—Common Core
2447	Algebra 1B—Common Core
2467	International Baccalaureate (IB) Middle Years Programme Algebra 1
Algebra 2 or Similar	
2404	Intermediate Algebra/Algebra 2
2427	Integrated Mathematics 3 College Prep
2438	Algebra 2—Common Core
2442	Integrated Mathematics 3—Common Core
2473	Middle Years Programme Algebra 2

Continued on next page

Table A20 (continued). State Course Codes 2016–17 to 2018–19

Code	Name
Precalculus/Trigonometry	
2407	Trigonometry
2408	Intermediate Algebra and Trigonometry
2409	Solid Geometry/Trigonometry
2414	Analytic Geometry/Precalculus
2422	Math Analysis
2444	Precalculus—Common Core
2468	Middle Years Programme Geometry and/or Trigonometry
Calculus	
2415	Calculus
2480	AP Calculus AB
2481	AP Calculus BC
Statistics	
2410	Probability and Statistics
2445	Statistics and Probability—Common Core
AP Statistics	
2483	AP Statistics

Code	Name
Other	
2411	Modern Abstract Algebra
2412	Linear Algebra
2417	Advanced Algebra/Advanced Geometry/Symbolic Logic/Theory
2430	Integrated Mathematics 4 (College Preparatory)
2443	Integrated Mathematics 4—Common Core
2460	IB Mathematical Studies Standard Level
2461	IB Mathematics Standard Level
2462	IB Mathematics Higher Level
2463	IB Further Mathematics Higher Level
2464	Middle Years Programme Coordinated Program of Math (CPM)
2469	Middle Years Programme Integrated Math Program
2484	Mathematical Modeling
2485	Financial Algebra
2490	College Credit Course—Mathematics
2498	Other Mathematics Course

Note. All other courses are categorized as "not math."

Table A21. State Course Codes 2019–20 to 2023–24

Code	Name
Up to Algebra 2	
9240	Math (Departmentalized K–8)
9241	Integrated Mathematics 1
9242	Integrated Mathematics 2
9245	Foundational Math Support
9248	Pre-Algebra
9249	Algebra 1
9250	Algebra 1A
9251	Algebra 1B
9255	Geometry
9260	Consumer Math
9264	IB Middle Years Programme Algebra 1
9275	Integrated Mathematics 1A
9276	Integrated Mathematics 1B
9277	Compacted Middle School Math
9279	Pre-AP Algebra 1
9285	IB Middle Years Programme Numbers

Code	Name
Algebra 2 or Similar	
9243	Integrated Mathematics 3
9252	Algebra 2
9253	Algebra 2 and Trigonometry
9261	IB Middle Years Programme Algebra 2
Precalculus/Trigonometry	
9247	Math Analysis
9256	Trigonometry
9257	Precalculus
9263	IB Middle Years Programme Geometry and/or Trigonometry
9274	Precalculus and Trigonometry
9281	IB Mathematics: Analysis and Approaches Standard Level
9282	IB Mathematics: Analysis and Approaches Higher Level
9283	IB Mathematics: Applications and Interpretation Standard Level
9284	IB Mathematics: Applications and Interpretation Higher Level
9362	AP Precalculus

Continued on next page

Table A21 (continued). State Course Codes 2019–20 to 2023–24

Code	Name
Calculus	
9258	Calculus (Non-AP)
9267	AP Calculus BC
9268	AP Calculus AB
Statistics	
9259	Probability and Statistics (Non-AP)
9286	IB Middle Years Programme Statistics and Probability
AP Statistics	
9266	AP Statistics

Code	Name
Other	
9244	Integrated Mathematics 4
9246	Higher Math Support
9254	Algebra—Financial
9262	IB Middle Years Programme Integrated Math Program
9265	IB Middle Years Programme Coordinated Program of Math
9269	IB Further Mathematics Higher Level
9270	IB Mathematics Higher Level
9271	IB Mathematics Standard Level
9272	IB Mathematical Studies Standard Level
9273	College Credit Course—Mathematics
9278	Compacted High School Math
9280	Math Reasoning with Connections (MRWC)
9674	Cambridge Advanced Mathematics (Pure) (AS Level) 9709

Note. All other courses are categorized as "not math."

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Policy Analysis for California Education

Stanford Graduate School of Education
507 Lasuen Mall, Suite 205
Stanford, CA 94305

Inquiry: info@edpolicyinca.org
Media: press@edpolicyinca.org

Office: 650.576.8484

edpolicyinca.org

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