



# Wheelhouse

The Center for  
Community College  
Leadership and  
Research

## Research Brief

Volume 5, Number 1  
January 2020

### LEADERSHIP

**Susanna Cooper**  
Managing Director

**Michal Kurlaender**  
Lead Researcher

**Deborah Travis**  
Director, Institute on Leadership

### BOARD OF ADVISORS

**Manuel Baca**  
Trustee, Mt. San Antonio College

**Thomas Bailey**  
President, Teachers College,  
Columbia University

**Helen Benjamin**  
Chancellor Emerita, Contra Costa  
Community College District

**Thomas Brock**  
Director and Research Professor,  
Community College Research Center

**Edward Bush**  
President, Cosumnes River College

**Larry Galizio**  
President and CEO, Community  
College League of California

**Brice W. Harris**  
Chancellor Emeritus,  
California Community Colleges

**Douglas B. Houston**  
Chancellor, Yuba Community College  
District

**Harold Levine**  
Dean Emeritus, UC Davis School  
of Education

**Lauren Lindstrom**  
Dean, UC Davis School of Education

This research brief was produced in  
partnership with



# A Leg Up on College

## The Scale and Distribution of Community College Participation Among California High School Students

By Elizabeth Friedmann, Michal Kurlaender, Alice Li, and Russell Rumberger

**RESEARCH SHOWS THAT DUAL ENROLLMENT**—a practice in which high school students take college courses while they are still in high school—has multiple benefits for student success in both systems. To capitalize on those benefits, California and other states have moved in recent years to increase high school students’ access to college courses.

In California, the historical lack of an integrated state data system that connects information from K-12 to higher education has hampered efforts to understand the extent of dual enrollment here. The prevailing narrative has been that California lags other states and the nation in dual enrollment, which is offered in 89% of U.S. high schools, with 11% of all high school students participating nationally.<sup>1</sup>

This report breaks new ground by matching high school and community college datasets to provide a clearer picture of college course-taking among California public high school students statewide. Our analysis of course-taking for the population of students who were seniors in the 2016-17 school year (n=408,650)—the most recent cohort for which data from both segments was available—shows that 12.6% (n=51,472) of California high school students take college courses, a rate higher than the national average and well above what previous reports suggest for California.<sup>2</sup>

A closer look at the matched dataset, however, reveals significant differences in college course-taking by race and socioeconomic status. Access to an important onramp to the early college experience, and its many demonstrated benefits, is not available to all California high school students.

**12.6%**  
of California  
high schoolers  
take community  
college courses

### TOPLINES

- > **College course-taking by public high school students is more prevalent in California than previously understood:** Nearly 13% of 2016-17 seniors enrolled in a community college course at some point during high school.
- > **Disparities in college course-taking by high school students are substantial:** Latinx and African-American students were underrepresented in community college course-taking compared to their share of overall high school students. Socioeconomically disadvantaged (SED) students were also less likely to dual enroll than their non-SED peers.
- > **College course-taking by high school is not equal:** The vast majority of California public high schools (82%) did not have any students concurrently enrolled in college credit courses, while approximately 18% of California’s public high schools had at least one student enrolled in a community college course during high school.

## Why It Matters

The benefits of dual enrollment are well established. High school students benefit from college course-taking opportunities by gaining early exposure to college experiences and accumulating units that can later be applied to a college degree.

An extensive body of research indicates that students who take college courses while they are still in high school:

- are more likely to graduate from high school,<sup>3</sup> to enroll and persist in college and to earn a bachelor's degree in shorter time.<sup>4</sup>
- outperform non-dual enrollment students on a range of college outcomes, including college enrollment, first-year grade point average (GPA), credit accumulation and persistence to the second year of college.<sup>5</sup>

In addition to student benefits, dual enrollment also confers institutional advantages to both K-12 and community colleges. It allows community colleges to strengthen relationships with local feeder high schools and increase enrollments, while allowing high schools to increase efficiencies in coverage of content and instruction while providing more curricular variety to students than might otherwise be achievable.

These benefits are particularly relevant for California, where educators and policymakers are increasingly focused on improving college attainment and time to degree, and where the college pipeline is heavily impacted by capacity constraints.

## Onramp Not Open to All

Previous research has also found that access to dual enrollment is highly unequal.<sup>6</sup> A nationally representative survey of high school students found that, overall, 10.9% earned high school credit through dual enrollment from 2009 to 2013, but rates differed among racial subgroups: Whites, 13%; Asians, 10.1%; African Americans, 6.5%; and Latinx, 8.7%.<sup>7</sup> These national findings are mirrored in our California analysis. Another recent study found big differences across school districts in dual enrollment participation.<sup>8</sup>

## California Results

Overall, 12.6% of 2016-17 seniors enrolled in a community college course at some point during their high school careers. This finding is substantially higher than other rates previously reported for formal dual enrollment participation. It aligns

## DATA AND METHODS

Results from this brief are drawn from two data sources:

- Statewide student-level data, including individual demographic characteristics, from the California Department of Education's College/Career Indicator for the 2016–17 public high school graduating cohort.<sup>9</sup>
- Data from the California Community Colleges Chancellor's Office "special admit" population of all high school students statewide who concurrently enroll in a community college. These data include credits attempted and earned, and course characteristics, with observations in the community college data that span the duration of students' four normative high school years.

This analysis is unique in that it links administrative data from two education sectors, a rare opportunity given the absence of a statewide longitudinal data system. The California Community Colleges Chancellor's Office does not require colleges to collect high school codes for current high school students. Until very recently, the California Department of Education did not require high schools to report dual enrollment. This may be the first time that community college and K-12 data have been merged to examine high school students' college course-taking patterns statewide.

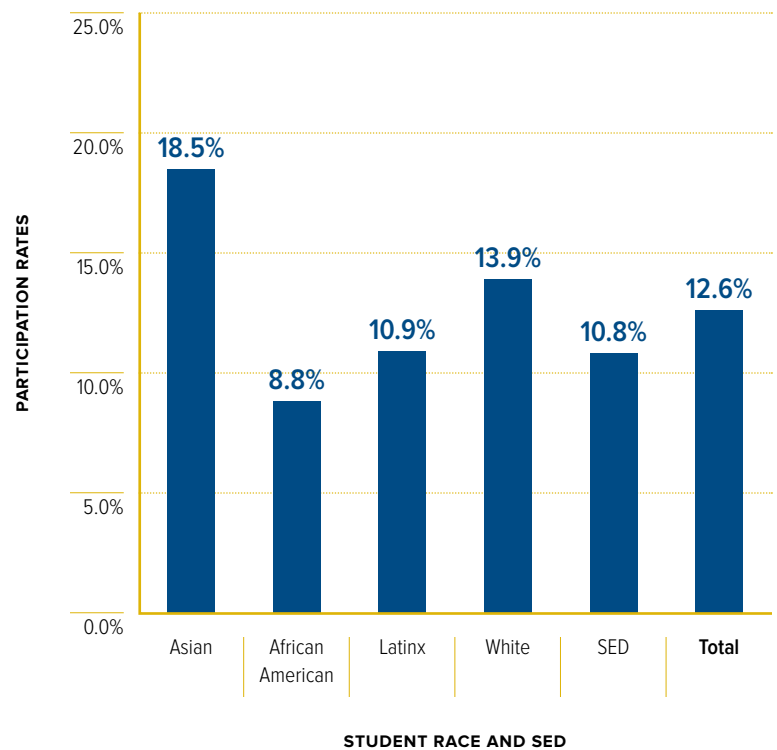
Enrollment rates reported here may undercount the full population of concurrently enrolled students for several reasons. First, we limited the sample of high school students to those included in the 4-year graduating cohort, excluding some students, such as those who may take longer to graduate. Second, our data match used unique and non-missing first and last name and date of birth in each dataset, resulting in the removal of some high school students and community college special admits with missing data elements. In addition, the matched sample may differ from the full special admit population at the California Community Colleges because the full special admit population also includes students enrolled in private high schools or participating in home-schooling. Finally, we may have missed some students if they were not accurately classified as special admits in the CCCCCO data.

It is important to note that while the bulk of dual enrollment in California happens through community colleges, some high school students may also enroll in courses at the California State University. They are not captured in this analysis. We also do not capture other means through which high school students complete college-level coursework, such as Advanced Placement (AP) or International Baccalaureate (IB) programs.

closely, however, with the reported counts of community college participation by high school students—the “special admit” population—that appears in DataMart at the Community Colleges Chancellor’s Office. Figure 1 shows California high school students’ community college course participation rates by race/ethnicity and by socioeconomically disadvantaged (SED) status.

Large differences by race and SED status are notable. For example, Asian and White students are overrepresented in community college course-taking, while Latinx and SED students are underrepresented. Figure 1 shows community college course-taking rates by race and SED. Approximately 19% of Asian students and 15% of White students participated in community college courses compared to 9% of African American, and 10% of Latinx and SED students. The low participation rates of Latinx and SED students is particularly concerning given that Latinx students make up 50% of all high school seniors and SED students constitute 65% of high school seniors.

Figure 1. Community College Course Participation Among High School Students by Race and Socioeconomic Disadvantage



## KEY TERMS

Available California data do not allow us to distinguish between **dual enrollment**—in which students take college-level courses that count for both high school and college credit—and **concurrent enrollment**—in which students take college courses while also enrolled in high school, but don’t necessarily receive dual credit. We were, however, able to observe all community college participation among California high school students in the cohort that graduated in 2017. For the sake of brevity in this brief, the term dual enrollment may capture other forms of community college participation among high school students. Dual enrollment is provided in multiple settings in California, including courses taught on high school campuses and at community colleges.

In California, high school students are eligible to enroll in any community college in the state as a “special admit” and are exempt from paying course fees if they enroll in fewer than 12 units.<sup>10</sup> These students are not necessarily in a formal dual enrollment program established by their high school and a community college, but are nonetheless accumulating college credits that may or may not be used to fulfill high school graduation requirements.

**Special Admit:** California Community College enrollment designation for any current K-12 student taking a CCC course.

**Assembly Bill 288 (AB 288):** California legislation enacted in 2015 allowing college classes to be taught on high school campuses exclusively for high school students (unlike the previous law requiring that all college courses be open to the general public). Expires January 2020 but extended through Assembly Bill 30, signed into law October 2019.

**College and Career Access Pathways (CCAP) Partnership:** Authorized as part of AB 288, CCAPs allow community college districts and high schools to enter a joint partnership and offer dual enrollment courses that count for both a high school diploma and an Associate of Arts degree.

**Early College High Schools:** Partnerships between K-12 schools and local colleges in which students can earn both a high school diploma and up to two years of college credit.

**Middle College High Schools:** High schools located on college campuses that allow students to take college courses concurrently with high school courses.

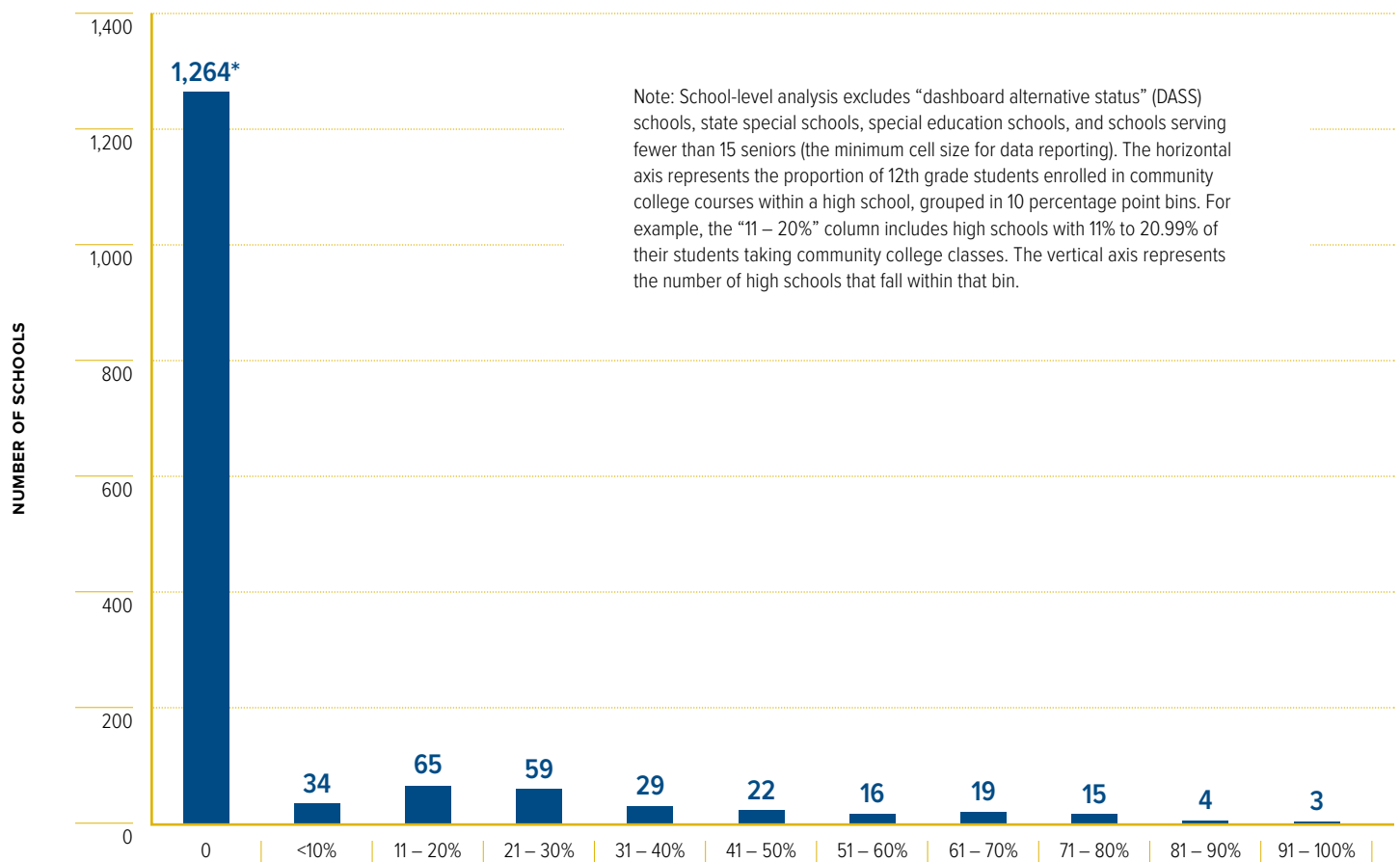
### Opportunity Is Not Equal

Not all students have access to college courses during high school. Figure 2 shows that high school students' participation in college courses varies substantially statewide. Approximately 18% of public high schools (266) serving 15 or more seniors had at least one student enrolled in a community college course. Twenty-two schools had very high levels of participation with more than 70% of 12th graders enrolled in community college courses. Of the schools with greater than 70% participation, most are small schools serving fewer than 100 seniors, nine are charter schools and nine others are alternative schools of choice; eight are early or middle college high schools.<sup>11</sup> We observed

**82%** of California high schools have *no* students enrolled in community college courses

nine public school districts in which more than 70% of seniors participated in college credit course-taking; all of these districts serve fewer than 120 seniors district-wide and are located in rural areas. Notably, however, about 82% of California public high schools (1264) have no students enrolled in community college; most of these are traditional schools.<sup>12</sup>

Figure 2. Proportion of Community College Participation by Public High School



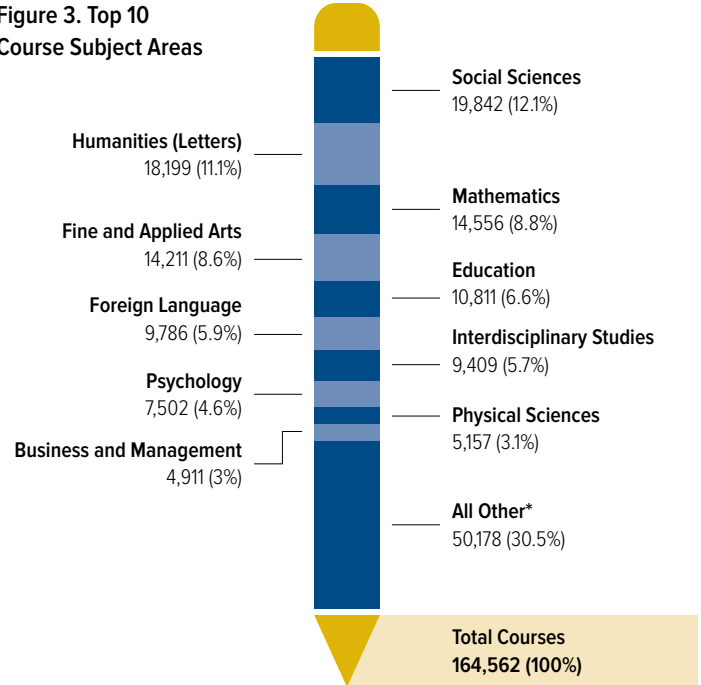
\* Schools with no community college participation (n=1264).

### What, When and How Much?

Figure 3 shows the wide range of dual enrollment courses taken across subject areas. The most common were social sciences and humanities (letters), accounting for almost one-quarter of all dual enrollment courses. An additional 9% of students each took classes in mathematics and fine arts. The most popular individual courses taken were psychology, communications, health, English and sociology.

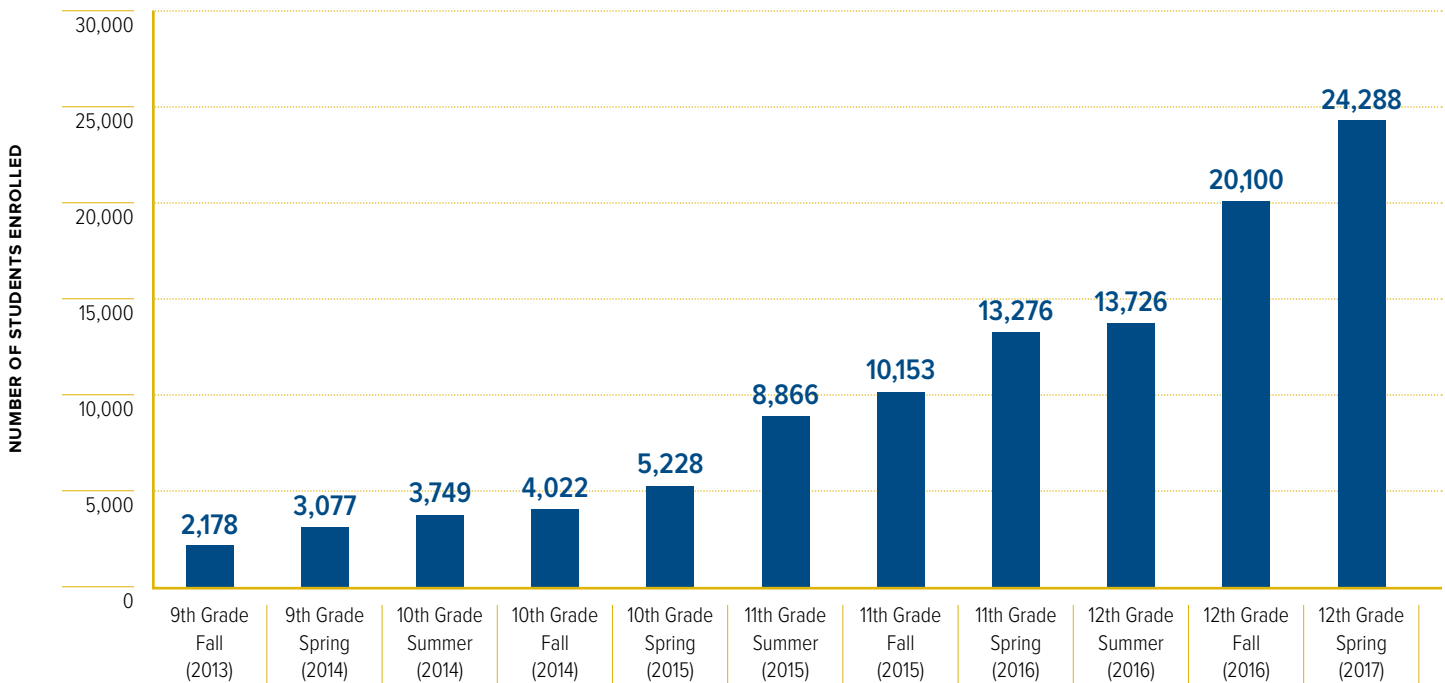
When, in the course of their high school careers, did students take these courses? Figure 4 shows that the timing of community college course participation is, not surprisingly, heavily weighted toward the senior year. Approximately 20% of all community college course-taking occurred in the fall of students' senior year, with 25% of courses taken in spring of senior year.

Figure 3. Top 10 Course Subject Areas



\* "All Other" includes 13 other course subject areas, each with fewer than 3% enrollment.<sup>13</sup> Social Sciences includes history, political science and sociology. Humanities (Letters) includes English, Language Arts, Comparative Literature, Speech Communication, Creative Writing, Philosophy and Reading. Education includes physical education courses.

Figure 4. Class of 2016–17 High School Participation in Community College Courses (Enrollment Numbers by Term)



Each bar represents the number of students enrolled in a given term. These are not mutually exclusive, as a student could enroll across multiple terms.

Figure 5 shows the timing of dual enrollment courses during the day. Of particular note is that the majority of participating students took community college courses during the course of a typical school day (i.e., before 3pm). A little more than a quarter of students enrolled in classes that took place in the afternoon or evening.

Figure 6 shows that most course units taken by high school students were transferable, meaning the units could count toward eventual transfer to CSU or UC. The plurality of students earned between 3 and 5.9 units (equivalent to one to two courses) over their high school years; an additional 16% earned between 6 and 8.9 units (equivalent to two to three courses).<sup>14</sup> Finally, a considerable percentage of students did not earn any units; these students enrolled in credit-bearing community college courses but failed to complete the course requirements to earn credit.

Figure 5. Course Start Time

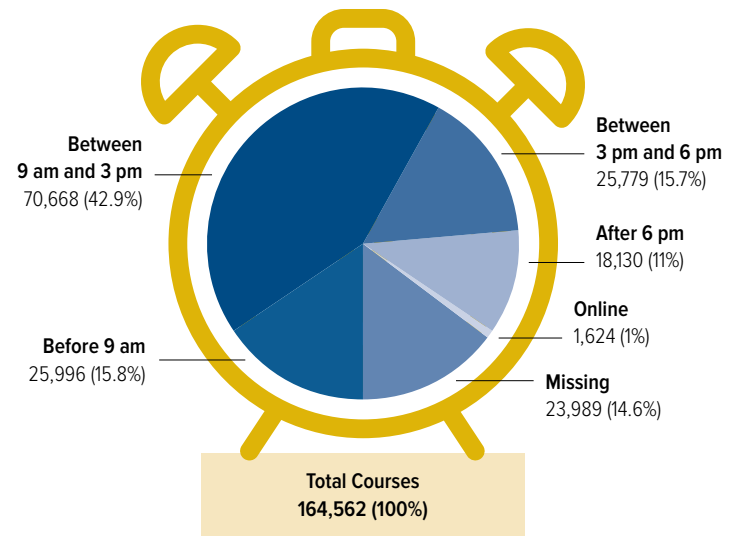
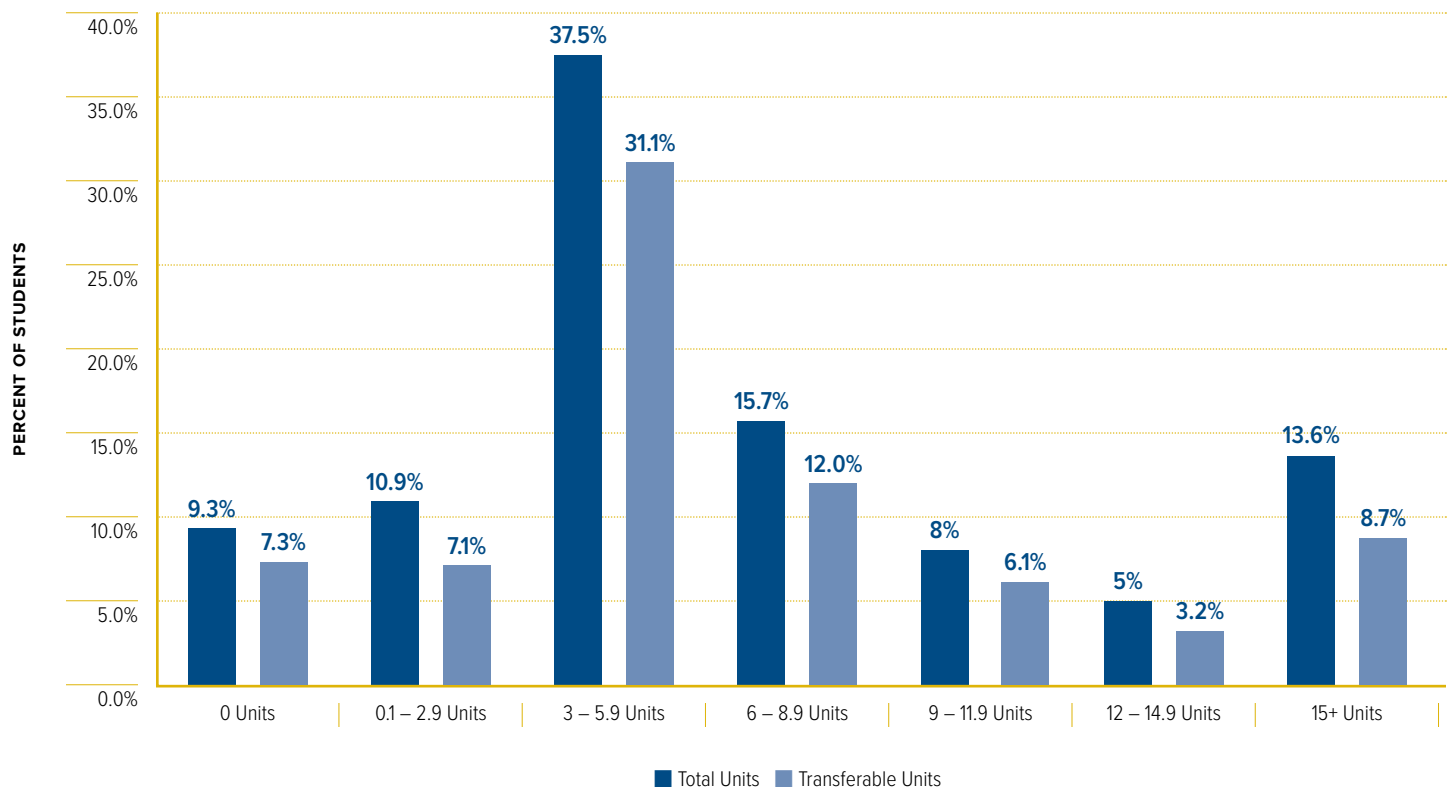


Figure 6. Cumulative Units Earned



## Conclusion

This analysis provides a comprehensive picture of participation in community college course-taking across California high schools for various student subgroups, providing a baseline against which future trends can be measured. Given the demonstrated benefits of dual enrollment—in credit earning, college going, persistence, efficiency and the savings that come with it—it is encouraging that these numbers are substantially higher than perception or earlier research indicated.

Yet, racial and socioeconomic disparities in dual enrollment bear close attention and action, especially in a state where educators and policymakers are increasingly focused on college readiness and success for African-American and Latinx students who have been underrepresented in postsecondary education. The overwhelming majority of high schools in which zero students are engaged in dual enrollment offers another stark testament to the uneven landscape of educational opportunity in California.

There is more to understand about dual enrollment in California. Future analysis will include a closer look at the number of community colleges statewide that are active on the

receiving end of high school student enrollment. But this much is clear: schools, districts and community colleges can do more to ensure reasonable access to college-level coursework. In light of the state's recent extension of the law allowing high school and community college partnerships for dual and concurrent enrollment, it is possible to ensure that many more students, and especially those from groups underrepresented in the college population, have access to college course-taking opportunities and the learning, experience and acceleration that such opportunities provide.

This analysis serves as a strong example of what can be learned by bringing data from disparate education sectors together. In California today, important questions about the implementation and impact of policies and programs go unanswered for lack of longitudinal data. The state appears to be taking early steps toward linking data across now siloed systems, which would have many benefits. Foremost among those benefits would be better-informed decisions about policy and practice—dual enrollment is but one example—with substantial implications for student opportunity and success.

Elizabeth Friedmann is a research fellow for Wheelhouse. Michal Kurlaender is professor at the UC Davis School of Education, faculty director at PACE and lead researcher for Wheelhouse. Alice Li is a graduate student in economics at the UC Davis Department of Economics. Russell Rumberger is professor emeritus at UC Santa Barbara.

The research reported here was supported through the generosity of the Stuart Foundation and by the Institute of Education Sciences, U.S. Department of Education, through Grant R305E150006 to the Regents of the University of California. The opinions expressed are those of the authors and do not represent the views of the Stuart Foundation, the Institute of Education Sciences or the U.S. Department of Education, Wheelhouse or PACE funders or board of advisors, or of the state agencies providing the data.

Wheelhouse, PACE and the authors are grateful to the College Futures Foundation for its support of this brief and its dissemination. We also thank the California Department of Education and the California Community Colleges Chancellor's Office for providing the data necessary for this analysis.

- <sup>1</sup> Burns, L., & Leu, K. (2019). *Advanced Placement, International Baccalaureate, and dual-enrollment courses: Availability, participation, and related outcomes for 2009 Ninth-Graders: 2013* (NCES 2019-430). Washington, DC: National Center for Education Statistics. Statistics are based on the analysis of transcripts from a nationally representative survey of fall 2009 ninth graders who graduated by September 2013. Currently, dual enrollment is an option in all states, though a survey by the Education Commission of the States found widespread differences in the criteria that states use, with some states dictating some or all eligibility criteria, such as grade levels (e.g., 10-12) or minimum GPA, while other states leave some or all eligibility criteria to local districts and/or postsecondary institutions. In California, local community colleges work with neighboring school districts to establish dual enrollment programs.
- <sup>2</sup> Collins, L., Castro, N., Vargas, J. and Hooker, S. (2018). Unlocking potential: Advancing dual enrollment in California. Working Paper.
- Community College Research Center (2018). How does access to dual enrollment and Advanced Placement vary by race and gender across states? *The Mixed Methods Blog*. Prior research may have understated dual enrollment in California because it looked a point-in-time participation divided by total high school population, rather than the longitudinal analysis allowed by our matched data.
- <sup>3</sup> Berger, A., Turk-Bicakci, L., Garet, M., Song, M., Knudson, J., Haxton, C., Zeiser, K., Hoshen, G., Ford, J., Stephan, J. (2013). *Early college, early success: 80 Early College High School Initiative impact study*. Washington, D.C.: American Institutes for Research.
- Karp, M. M., Calcagno, J. C., Hughes, K. L., Jeong, D. W., & Bailey, T. R. (2007). *The postsecondary achievement of participants in dual enrollment: An analysis of student outcomes in two states*. St. Paul, MN: National Research Center for Career and Technical Education, University of Minnesota.
- <sup>4</sup> An, B. (2013). The impact of dual enrollment on college degree attainment: Do low-SES students benefit? *Educational Evaluation and Policy Analysis*, 35(1), 57-75.
- Berger, et al (2013).
- Speroni, C. (2011). High school dual enrollment programs: Are we fast-tracking students too fast? An NCPWR Working Paper. New York, NY: National Center for Postsecondary Research.
- <sup>5</sup> Community College Research Center. (2012). *What We Know About Dual Enrollment*.
- Marshall, R. P., & Andrews, H. A. (2002). Dual-credit outcomes: A second visit. *Community College Journal of Research & Practice*, 26(3), 237-242.
- Struhl, B. & Vargas, J. (2012). *Taking College Courses in High School: A Strategy for College Readiness*. Washington DC: Jobs for the Future.
- <sup>6</sup> Shivji, A., & Wilson, S. (2019). *Dual enrollment: Participation and characteristics* (NCES 2019-176). Washington, DC: National Center for Education Statistics.
- Nowicki, J. (2018). K-12 education: *Public high schools with more students in poverty and smaller schools provide fewer academic offerings to prepare for college*. Report to the Ranking Member, Committee on Education and the Workforce, House of Representatives. GAO-19-8. Washington, D.C.: U.S. Government Accountability Office.
- Xu, D., Fink, J. & Solanki, S. (2019). College acceleration for all? Mapping racial/ethnic gaps in Advanced Placement and dual enrollment participation. Community College Research Center Working Paper 113.
- <sup>7</sup> Burns & Leu (2019).
- <sup>8</sup> Xu, Fink & Solanki (2019).
- <sup>9</sup> The California Department of Education CCI data includes students in both the 1-year and 4-year graduating cohorts. This analysis was limited to students in the 4-year cohort who entered a California public high school as 9th graders and were expected to graduate in 4 years. This sample restriction excluded about 80,000 12th grade students who were not part of the 4-year cohort for a variety of reasons including, but not limited to, completing a 5th year (or more) of high school, receiving special education services until age 21, or attending alternative schools such as juvenile court, independent study or state special schools. This results in fewer total schools than might be expected in a full sample of California high schools (=2800). The schools missing from our sample are largely alternative schools serving special needs populations as described above.
- <sup>10</sup> Most districts restrict enrollment to students aged 16 and older, with age waivers for students aged 14 or 15.
- <sup>11</sup> These categories are not mutually exclusive. Some early or middle college high schools are charter schools, and some are alternative schools of choice.
- <sup>12</sup> Of the 1264 schools with zero students enrolled in community college courses, 1138 are traditional schools, while the remaining are Alternative Schools of Choice or missing classification.
- <sup>13</sup> This category includes all other course subject, or TOP, codes: Agriculture and Natural Resources, Architecture and Environmental Design, Biological Sciences, Media and Communications, Information Technology, Engineering and Industrial Technologies, Health, Family and Consumer Sciences, Law, Library Science, Military Studies, Public and Protective Services and Commercial Sciences.
- <sup>14</sup> In fact, nearly one quarter of students took exactly one course (3 units).



**Wheelhouse: The Center for Community College Leadership and Research** was established in 2016 to support California community college leaders through annual professional learning institutes and independent, actionable research. Wheelhouse is supported by the College Futures Foundation, the Bill and Melinda Gates Foundation, the Institutional Effectiveness Partnership Initiative (California Community College Chancellor's Office) and the James Irvine Foundation.

Join our email list at [education.ucdavis.edu/wheelhouse-mail-list](mailto:education.ucdavis.edu/wheelhouse-mail-list).

**Policy Analysis for California Education (PACE)** is an independent, non-partisan research center led by faculty directors at Stanford University, the University of Southern California, UC Davis, UCLA and UC Berkeley.