INDEPENDENT ANALYSIS UNIT

DATA BRIEF

Racial Disparities in STEM Course Taking in L.A. Unified Mirror National Patterns

Megan Besecker May 2019

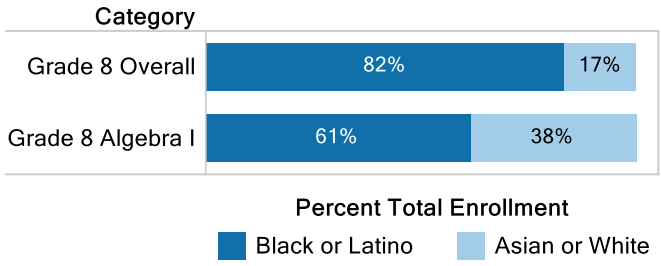
Access and Success

The Independent Analysis Unit (IAU) of L.A. Unified recently examined patterns of student course taking in the District in key subjects described by the acronym STEM—Science, Technology, Engineering, and Mathematics. The study was in response to a national report released by the Department of Education, which found racial disparities regarding access to STEM coursework exist on a national scale. The IAU found **racial disparities in L.A. Unified mirror national patterns: black and Latino students have *less access* to and *lower success rates* in STEM-related courses than Asian and white students.** In this data brief, the IAU highlights five important disparities from our larger report on STEM course taking—the causes of which are unidentified and likely complex. Further analysis is needed to identify strategies to address these disparities.

1. Racial Disparities in Algebra I Enrollment

Black and Latino students are underrepresented in early Algebra — a class that opens doors to upper-level STEM.

Grade 8 Enrollment Compared to Grade 8 Algebra I Enrollment, by Black or Latino and Asian or White Students



Note: Totals for all remaining racial/ethnic subgroups sum to 1% and are not shown. Data for these racial subgroups can be found in the full report.

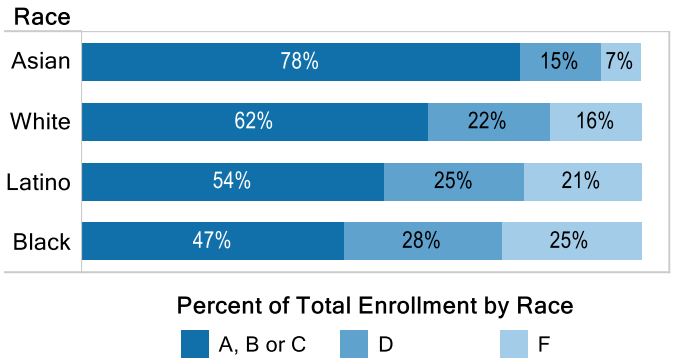
- In L.A. Unified, students who access and enroll in Grade 8 Algebra I are following the accelerated course sequence.
- Students who are interested in careers in STEM gain an advantage by taking this pathway — researchers have linked early mastery of Algebra I to advanced STEM courses, graduation, and higher-paying jobs.
- Asian and white students were disproportionately represented in grade 8 Algebra I — **the share of Asian and white students in Algebra I is more than double their representation in Grade 8 overall**.
- The reasons for low Algebra I enrollment among Black and Latino students are complex and multifaceted; further research on this issue is warranted.

See p. 4-7 in our full report, found here: STEM Course Taking

2. Racial Disparities in Algebra I Success

Black and Latino students pass Algebra I at lower rates than their Asian and white peers across every grade span.

Grade Letter Received in Grade 9-10 Algebra I, by Race



Note: Only Grade 9-10 is shown because most students in L.A. Unified took Algebra I in that grade span; however, the pattern was the same in other grades.

- Consistent across all grades (8-12), passing rates by racial/ ethnic subgroup followed the same pattern: Asian students had the highest achievement rates, followed by white students, Latino students, and black students.
- Most students took Algebra I in grades 9-10 (83%). The data show that **most black students and a near majority of Latino students fell short of meeting California's A-G requirements in Grade 9-10 Algebra I**, which is costly for the student and the District.
- Compared to eighth graders, fewer high school students received a C or better in Algebra I. Achievement rates (by grade letter received) are more similar between racial group in eighth grade than in high school.
- The causes of disparities in passing rates are unidentified, but raising achievement in Algebra I could substantially reduce the number of students who would need to retake the course for college readiness.

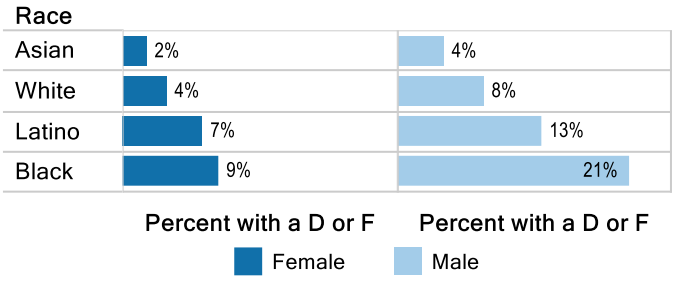
See p. 7-9 in our full report: STEM Course Taking

Data are from the Office of Data and Accountability and cover transcript and demographic information from 2015-2016. The full report contains data for all racial/ ethnic groups.

3. Gender Disparities in Algebra I Success

More males than females fall short of California's A-G requirements in early Algebra across all racial subgroups.

Percent Students with a D or F in Grade 8 Algebra I, by Race and Gender



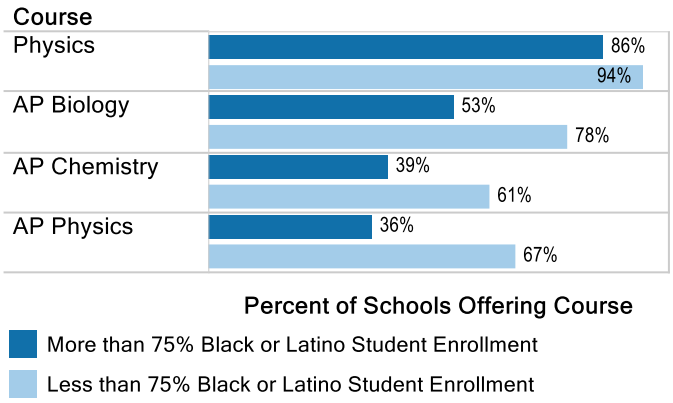
- More black males fall short of California's A-G requirements in early Algebra, compared to Asian, Latino, and white males. The same is true for females, but the gap between racial groups is narrower.
- The difference between the percent of males and females receiving a D or F was largest for black students (12 percentage-points) — a gap two to six times greater than their Asian, Latino, and white peers.
- **Black males passed 8th grade Algebra I at the lowest rate of any student group**. This finding aligns with research on barriers black males face in their STEM educational opportunities.

See p. 8 in our full report: STEM Course Taking

4. Disparities in STEM Course Access

High schools with large shares of black and Latino students are less likely to offer upper-level STEM courses.

Upper-level STEM Course Availability, by School Type



- All District high schools offer each of the lower-level STEM courses. However, fewer than 90% of District high schools offer Calculus and Physics, and fewer than 60% of high schools offer AP science classes.
- **Students attending schools with smaller shares of black and Latino students (less than 75%) have greater access to upper level STEM courses**. For example, 100% of schools with less than 75% black or Latino student enrollment offer Calculus, compared to 88% of schools with more than 75% black or Latino student enrollment (not shown here; see full report).
- In the AP sciences, the gap between course availability at the two school types is wide — ranging from a 22 percentage-point difference in AP Chemistry to a 31 percentage-point difference in AP Physics.

See p. 9-10 in our full report: STEM Course Taking

5. Disparities in STEM Course Enrollment

Black and Latino students are underrepresented in upper-level STEM courses, especially at schools with smaller shares of black and Latino students.

- Across all high schools in the District, **smaller shares of black and Latino students enrolled in upper-level STEM courses compared to their non-black and Latino peers.** The difference was statistically significant.
- Some schools in the District have smaller shares of black and Latino students (less than 75%), though the majority of students at these schools are still black or Latino (65%). However, most students enrolled in upper-level STEM courses at schools with smaller shares of black and Latino students (less than 75%) are *not* black or Latino— the majority of students in these courses are white or Asian.

See p. 11-14 in our full report: STEM Course Taking

Upper-level STEM Course Enrollment by School Type, by Black or Latino, Asian or White, and Native/ Pacific Islander/ Unknown Race Students