



A COMPLEX EQUATION: CONFRONTING MATH OBSTACLES ON THE TRANSFER PATH

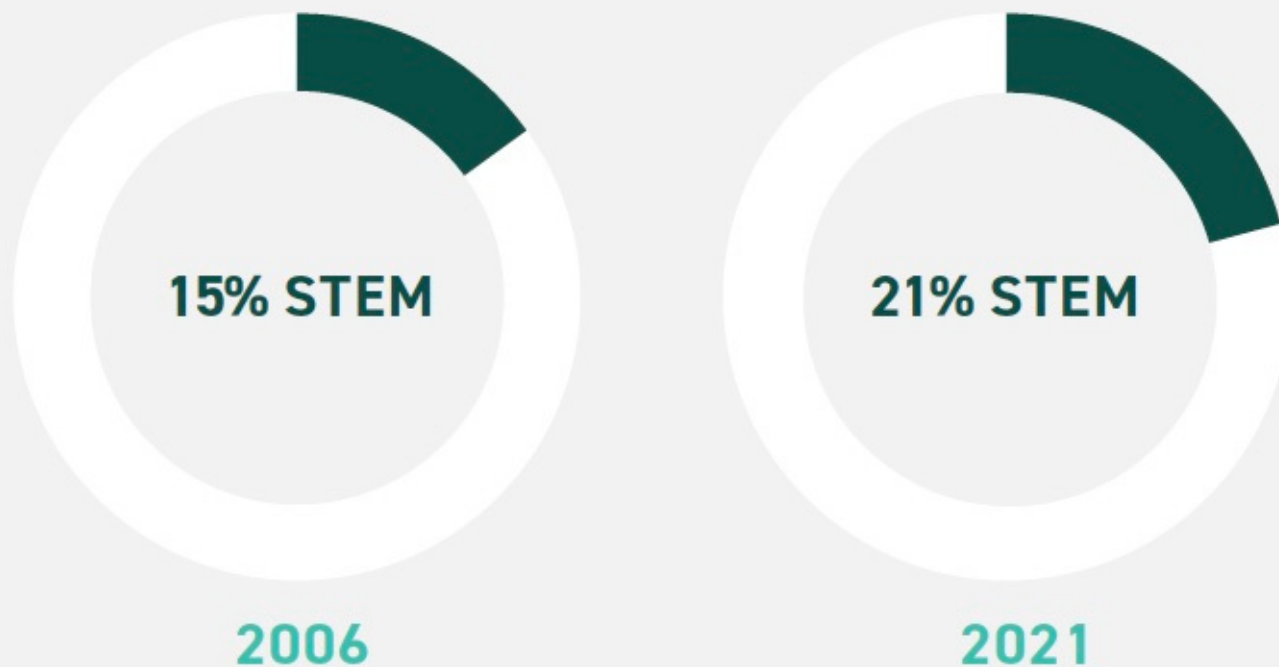
September 15, 2025

THE NARROW PATH TO STEM TRANSFER

STEM DEGREES ARE GROWING AS A PROPORTION OF BACHELOR'S DEGREES —

increasing by **40 percent** nationally over
15 years.*

STEM DEGREES AS A PROPORTION OF
B.A./B.S. DEGREES NATIONALLY



*California saw a 25 percent increase from
2011 to 2017.

But non-transfer students are more
likely to earn those degrees.†

FIRST-TIME COMMUNITY COLLEGE STUDENTS



FIRST-TIME UNIVERSITY STUDENTS



† Percent of entering students who earn a STEM
degree within six years.

Three Math Obstacles to Transfer Success



The gate. Math anxiety and math prerequisites act as a gatekeeper for many students pursuing math-intensive fields.



The maze. The complexity, inconsistency, and opacity of math requirements makes the transfer experience difficult and inefficient.



The pace. Course scheduling challenges can delay progress and lengthen time to degree.

The gate.

“ We know that just math as a subject is the biggest barrier to transfer for our students. ... Sometimes it’s just the amount of it.”

– Community college professor



The maze.

Math Courses Required for Transfer Eligibility by Major per ASSIST (highest calculus course plus other required math courses)

	CAL STATE DOMINGUEZ HILLS	CAL STATE LONG BEACH	CAL STATE SAN BERNARDINO	UCLA	UC RIVERSIDE
MATH	Calculus III plus three courses*	Calculus III plus two courses*	Calculus II plus three courses*	Calculus III plus three courses	Calculus III plus one course (Differential Equations)
BIOLOGY	Statistics and Trigonometry	Calculus I	Calculus II or Business Calculus	Calculus II	Calculus II
COMPUTER ENGINEERING	Calculus II plus two courses*	Calculus II plus two courses	Calculus II plus three courses*	Calculus III plus three courses	Calculus II plus one course (Calculus III strongly recommended)
PSYCHOLOGY	Statistics	Statistics	No math listed	Statistics or Calculus I	Calculus I or Business Calculus

The pace.

- Two required courses meeting on the same day and time.
- Sequential pathways in which certain courses are offered only once a year.
- Enrollment caps within lower-division major courses, which leave students waiting to take required courses.



TRANSFER STUDENT REPRESENTATION IN STEM

Transfer students are underrepresented in STEM majors.

PERCENTAGE OF B.A./B.S. DEGREES AWARDED IN STEM BY STUDENT STATUS



 TRANSFER STUDENTS  NON-TRANSFER

And even more so in some departments, such as computer science at UC Berkeley.

STATE GOAL FOR TRANSFER REPRESENTATION BY CAMPUS



UCB COMPUTER SCIENCE NEW ENROLLEES



SOURCES: California State Auditor, 2024, Figure 13; Velasco et al., 2024b, p. 29; Velasco et al., 2024c

Competing Priorities

- Innovation vs. standardization
- Institutional autonomy vs. systemwide consistency
- Efficient completion vs. academic quality





THANK YOU

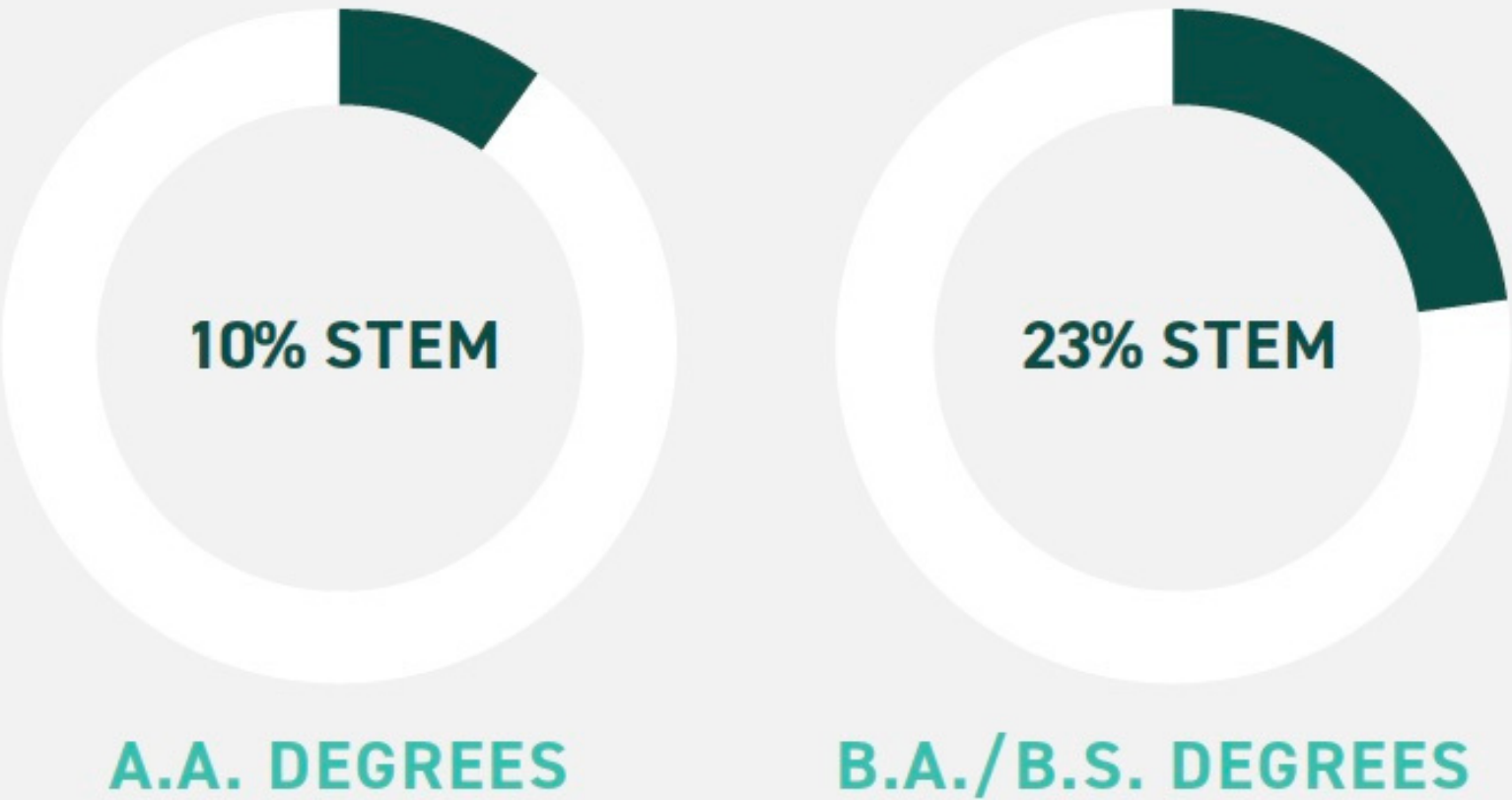
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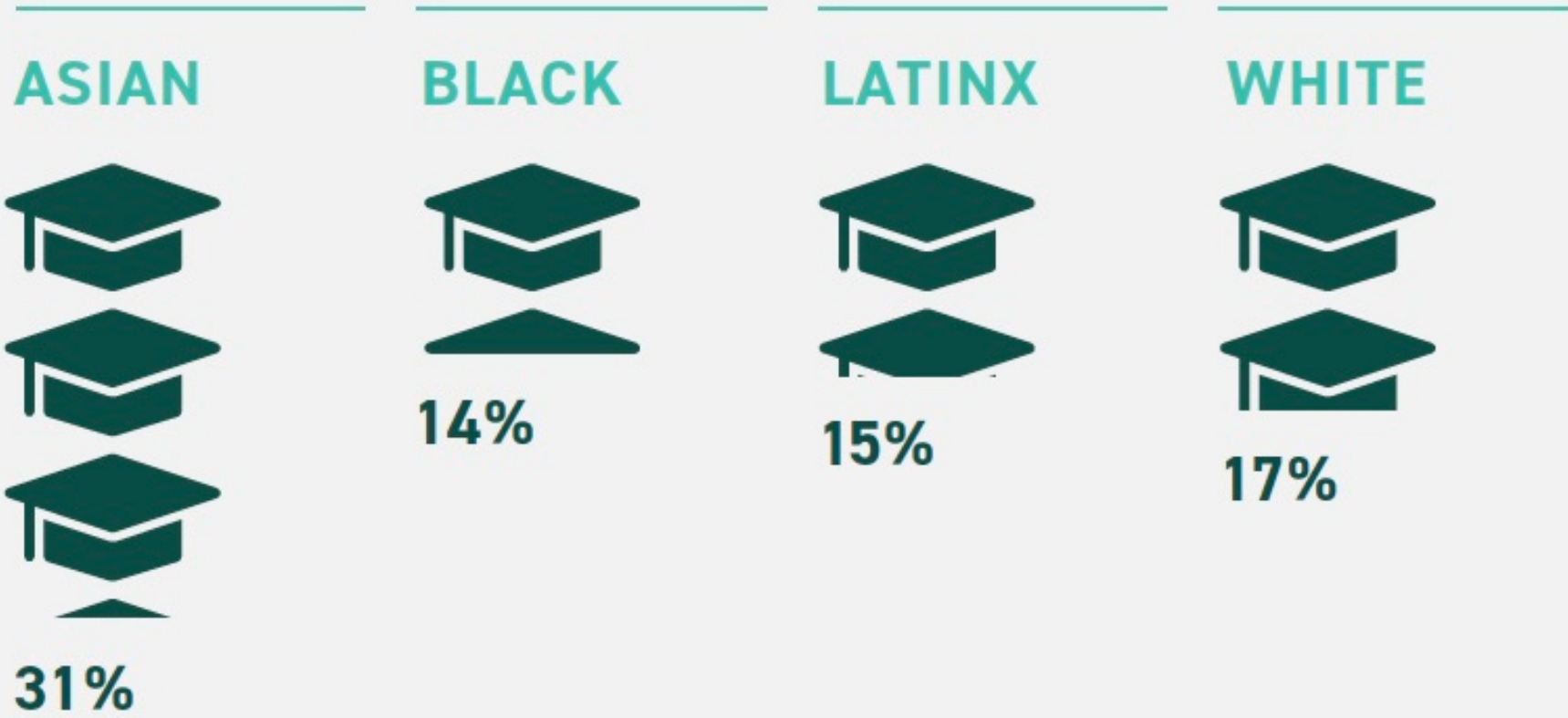
Even before transferring, community college students are less likely than university students to complete **STEM degrees.**

DEGREES AWARDED IN 2022-23



And racial disparities are stark.

PROPORTION OF TRANSFER STUDENTS' BACHELOR'S DEGREES IN STEM[‡]



[‡]For 2015-16 enrollees. Proportion across all groups was 18 percent.