

The background of the entire page is a photograph showing a male teacher and two female students leaning over a desk, focused on a task. The teacher is on the right, smiling, while the students are on the left. A semi-transparent yellow rectangular box is overlaid on the middle of the image, containing the text and title.

UNIVERSITY
OF
CALIFORNIA

CalTeach

Science and Math Teacher Initiative

Program Highlights Report 2022–23 Outcomes

A close-up photograph at the bottom of the page shows several hands working together on a project. One hand is using a black stapler to staple a piece of white paper. Other hands are pointing at the paper, which is part of a binder. The scene is brightly lit, and the focus is on the collaborative work.

OVERVIEW The University of California Science and Math Teacher Initiative, also known as CalTeach, helps to address California's shortage of qualified K–12 mathematics and science teachers by improving California's undergraduate pipeline to mathematics and science teaching credentials.

California's position as a global leader in technology and innovation is challenged by a shortage of the math and science teachers needed to prepare future generations for the workforce.¹ Several factors contribute to this shortfall, which is nationwide in scope and is expected to worsen. These include significant decreases over the last few years in the number of people pursuing teaching credentials, in California and beyond; teacher retirements; and increasing K–12 enrollment in the near future.

The CalTeach program was launched by UC in 2005 to address the state's need for qualified teachers. CalTeach recruits and prepares talented undergraduates to explore careers as math or science educators. Housed at all nine of UC's undergraduate campuses — Berkeley, Davis, Irvine, Los Angeles, Merced, Riverside, San Diego, Santa Barbara and Santa Cruz — programs invite students majoring in math or science to add a sequence of CalTeach courses and fieldwork experiences that introduce them to teaching while they complete undergraduate degrees. These courses, together with research opportunities and hands-on experience in K–12 classrooms, complement participants' discipline-specific studies and prepare them to seek a teaching credential along with their B.A.

FEATURES

CalTeach gives students the skills and experience to pursue a teaching credential. Participants learn and practice conceptual teaching skills in courses held in local K–12 classrooms and through field experiences and summer internships at local schools. Mentor teachers oversee participants in K–12 math and science classrooms. Most CalTeach programs also offer a minor or concentration in math and/or science education that focuses on teaching those subjects.

Four UC campuses — Berkeley, Irvine, Merced and Los Angeles — offer accelerated credential programs that provide CalTeach students with two options: earn a teaching credential along with the baccalaureate degree, or combine the last year of undergraduate studies with the first year of credential studies.

In collaboration with UC faculty and graduate students, CalTeach programs also sponsor research that contributes to our understanding of effective practices for math and science education. Sample research topics include CalTeach graduates' preparedness for teaching, the effect of field experiences on attitudes toward teaching and public education, and effective methods for tracking the CalTeach graduates who enter teaching careers.

CalTeach reaches students and schools throughout the state. Since its inception, more than 25,000 UC undergraduate students have explored careers in teaching math or science through CalTeach. Of these, roughly 3,100 CalTeach participants have gone on to receive single-subject math or science credentials.

“As I took higher-level math classes at UCSD, I found myself really loving the subject, but I also felt unsure about how teaching at the secondary level would allow me to develop as a mathematician. Taking CalTeach classes helped me realize that I can simultaneously be a teacher and a doer of math because teaching is complex, and it requires us to deeply understand our content areas in order to curate intentional lessons for our students. Moreover, CalTeach has shown me that the beauty of math education lies in purposeful exploration, productive struggle and the community we engage with.”

ANGELIE HOANG, CALTEACH STUDENT
UC SAN DIEGO



¹Linda Darling-Hammond, Leib Satcher and Desiree Carver-Thomas, *Teacher Shortages in California: Status, Sources, and Potential Solutions* (Palo Alto, CA: Learning Policy Institute, 2018).

“CalTeach was a huge highlight of my undergraduate experience! I started CalTeach as means of having an internship and extracurricular, but ended up loving it and becoming pretty invested in it. The staff is so welcoming and supportive and the community of CaT students is awesome! Everyone is so caring and helpful to each other, which is something I never experienced in my big STEM classes. Not only is the CalTeach community awesome, I learned so much from my seminars and classroom internships and it led me to pursuing teaching as a career and loving it! CalTeach is so awesome in every way!”

CASSIDY ALMOND, UC SANTA CRUZ ALUMNA
SANTA CRUZ COUNTY BIOLOGY TEACHER

“CalTeach helped establish my teaching aspirations. They offered me lots of love and support, which guided my journey into a credentialing program. I would not be where I am if it wasn't for CalTeach.”

NORMAN ALVAREZ, UC DAVIS ALUMNUS
LOS ANGELES COUNTY SCIENCE TEACHER

PROGRAM OFFERINGS

CalTeach provides a rich array of academic and career preparation opportunities for students interested in pursuing a math or science teaching credential. Its components are grounded in current research on the best practices in teacher preparation. Although campus programs have distinct approaches to teacher preparation, common features across CalTeach programs include:

- Equity in STEM teaching and learning
- Recruiting and advising
- Coherent curriculum
- Field experiences and mentor teacher support
- STEM partnerships
- Teacher professional growth experiences
- Ongoing program evaluation and research
- Faculty leadership, collaboration and research

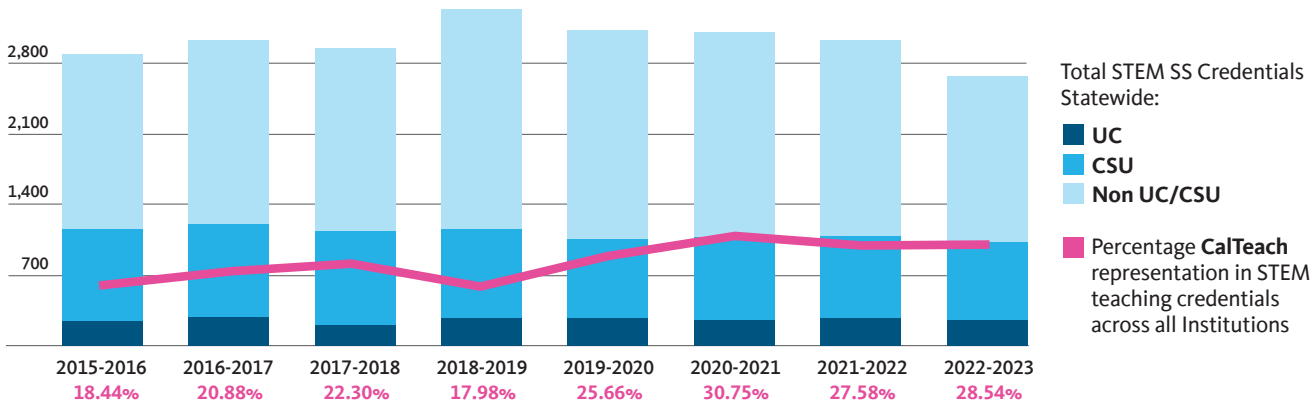


YEAR IN REVIEW In 2022–23, CalTeach continued to expand its recruitment and preparation of UC undergraduates for careers as math or science teachers. Despite statewide decreases in the number of people entering the teaching profession, participation in CalTeach continues to flourish. The following sections provide an overview of the program’s recent achievements.

IMPACT

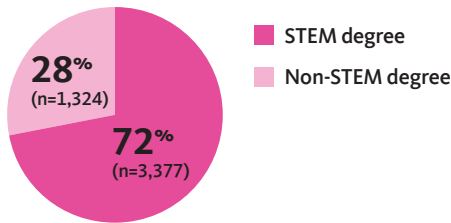
CalTeach graduates are earning math and science teaching credentials

During the last three years, approximately 30 percent of the STEM credentials obtained in the state were earned by CalTeach participants. Since the 2015 academic year, there has been a 10.1 percent increase in CalTeach participants who earned a STEM credential.

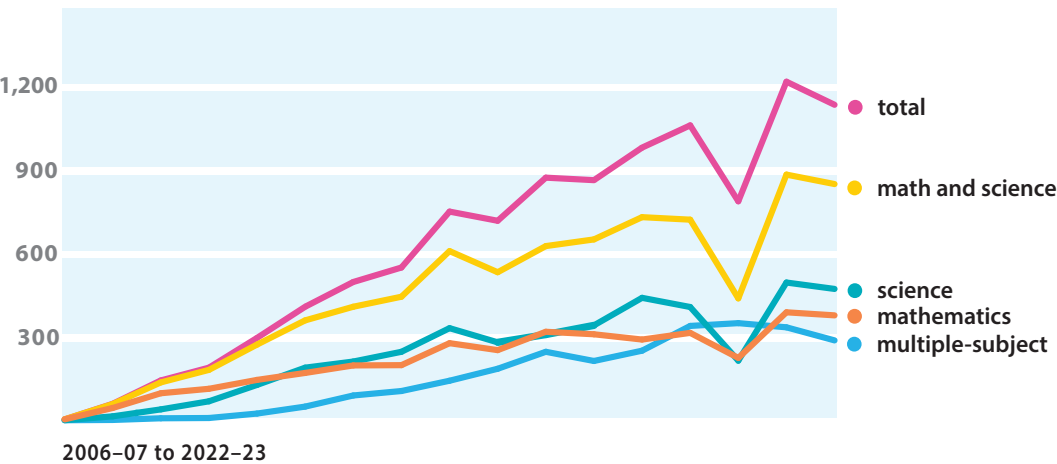


Majority of CalTeach credential earners have UC STEM degrees

Between academic years 2015–2016 and 2022–2023, 72 percent of CalTeach STEM credential earners graduated with a STEM undergraduate degree from a University of California institution.



CalTeach credential earners total and by subject



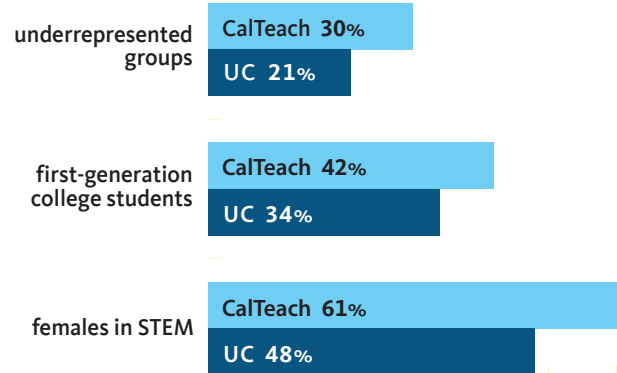
Data sources for this report include the following:

- California Commission on Teacher Credentialing (CTC)
- CalTeach Administrative Data
- University of California Data Warehouse

DIVERSITY

CalTeach graduates in STEM majors are highly diverse

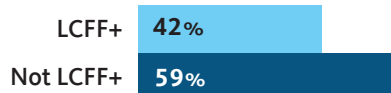
In comparison with all STEM majors at UC, CalTeach graduates are more diverse across demographic indicators, including gender, ethnicity and families' college background.



In keeping with the program's mission to prepare educators who themselves reflect the growing diversity of California students, nearly three-quarters of 2022–23 CalTeach STEM graduates were from underrepresented¹ or Asian backgrounds.

CalTeach participants are working in high-need schools

In 2022–23, CalTeach students participated in field placements in more than 262 K–12 schools ranging widely in economic and educational characteristics, where they gained real-world classroom experience. 42 percent of field-placement hours were earned in high-need schools designated as having LCFF+ status.

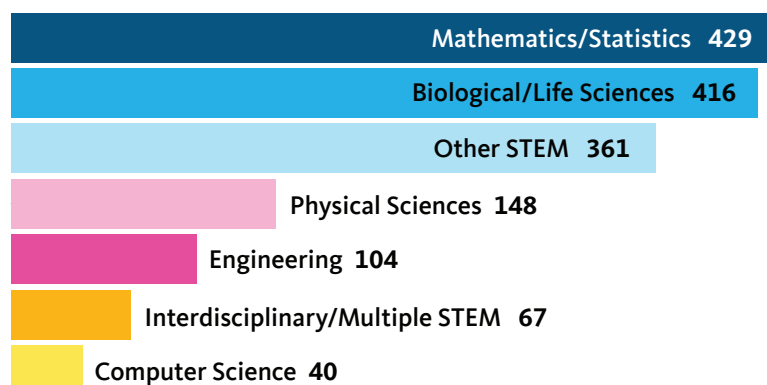


A school earns LCFF+ status when more than 75 percent of students enrolled (unduplicated count) are English language learners, foster youth, and/or are eligible for free/reduced meal prices. These schools are eligible for supplemental funding under California's Local Control Funding Formula (LCFF)

PREPARATION

CalTeach attracts STEM majors systemwide

Across all UC campuses, 75 percent (n = 1,565) of CalTeach participants in 2022–23 were STEM majors, with most students majoring in mathematics/statistics or biological/life sciences.



¹Includes African American, Chicana/Latinx, American Indian and Alaska Native.



FUNDING

In addition to its state funding allocation, CalTeach has received support from foundations, private industry and other extramural sources. All CalTeach programs have received support from the National Science Foundation (NSF), such as NSF S-STEM grants and the Noyce Scholars program. This funding has provided scholarships, fellowships, stipends and programmatic support for the recruitment and preparation of STEM majors and professionals to become K–12 teachers.

Since its inception in 2005, various CalTeach campus programs have also received funds from corporations, including Agilent Technologies, Amgen, Bechtel, Hitachi, JPMorgan Chase and Verizon, and through partnerships with 100Kin10, the Hearst Foundations, the Howard Hughes Medical Institute, the Knowles Science Teaching Foundation, Math for America, the National Math Education Advancement Foundation, National Math and Science Initiative, The Allergan Foundation, Tides Foundation and the UTeach Institute. Our campus development offices continue to welcome corporate and individual gifts to further the impact of CalTeach programs on future teachers.

Finally, every campus that is home to the CalTeach program provides significant monetary resources from its own academic departments, as well as in-kind contributions in the form of dedicated faculty and administrator time, classroom space, student scholarships and other kinds of support.

CalTeach programs are housed at each of UC's nine undergraduate campuses. To donate to CalTeach, please contact one of the campuses listed below.

Berkeley	calteach.berkeley.edu
Davis	mast.ucdavis.edu
Irvine	calteach.uci.edu
Los Angeles	cateach.ucla.edu
Merced	calteach.ucmerced.edu
Riverside	smi.ucr.edu
San Diego	physicalsciences.ucsd.edu/academics/cal-teach
Santa Barbara	education.ucsb.edu/academic-programs/calteach-science-math-initiative/undergraduates
Santa Cruz	calteach.science.ucsc.edu

For more information about CalTeach, visit calteach.universityofcalifornia.edu

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