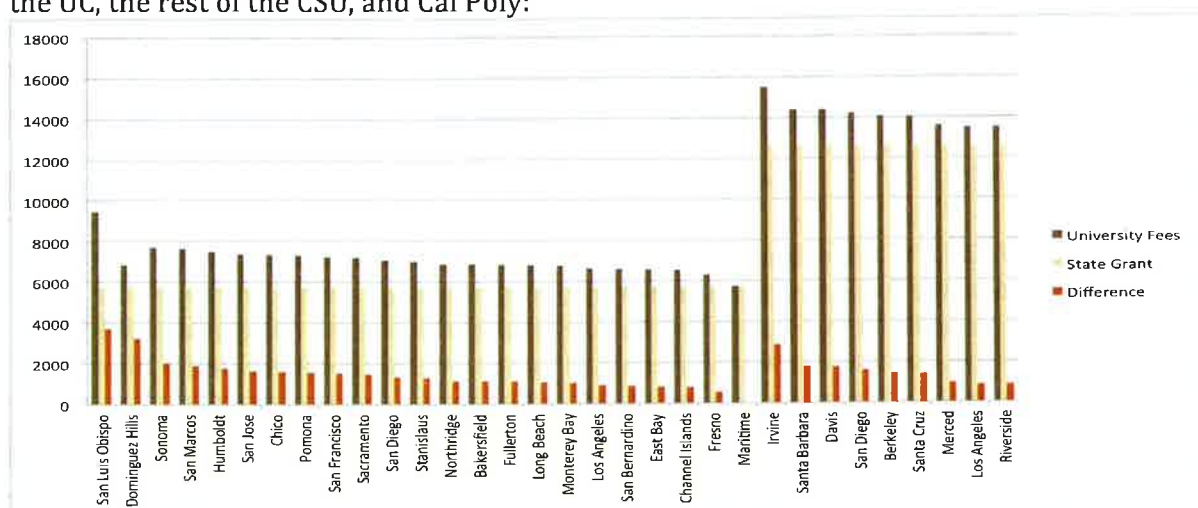


## Cal Poly First Generation / Low Income STEM Challenge

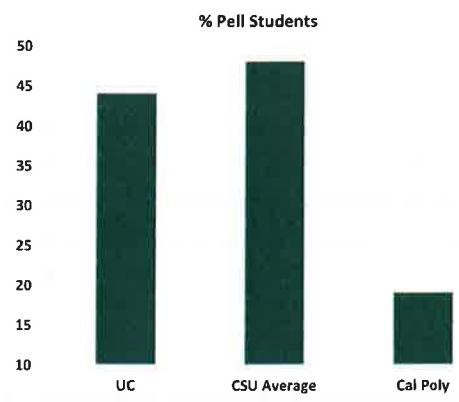
### Background

According to the Public Policy Institute of California, by 2025 the state will face a significant shortage of up to 1.5 million college educated workers. The United States Department of Labor predicts that within the next decade the nation will fall short by approximately 1 million workers with expertise in the areas of science, technology, engineering, and mathematics (STEM). STEM professionals are needed to ensure continued innovation in solving problems that, if unresolved, will lead to human suffering. These problems are in areas such as health care, renewable resources, water management, and agriculture. Cal Poly offers some of the best STEM degrees in the country and our graduates are very successful. For example, 93% of our 2015-2016 engineering graduates were employed or in graduate school within 9 months of graduating.

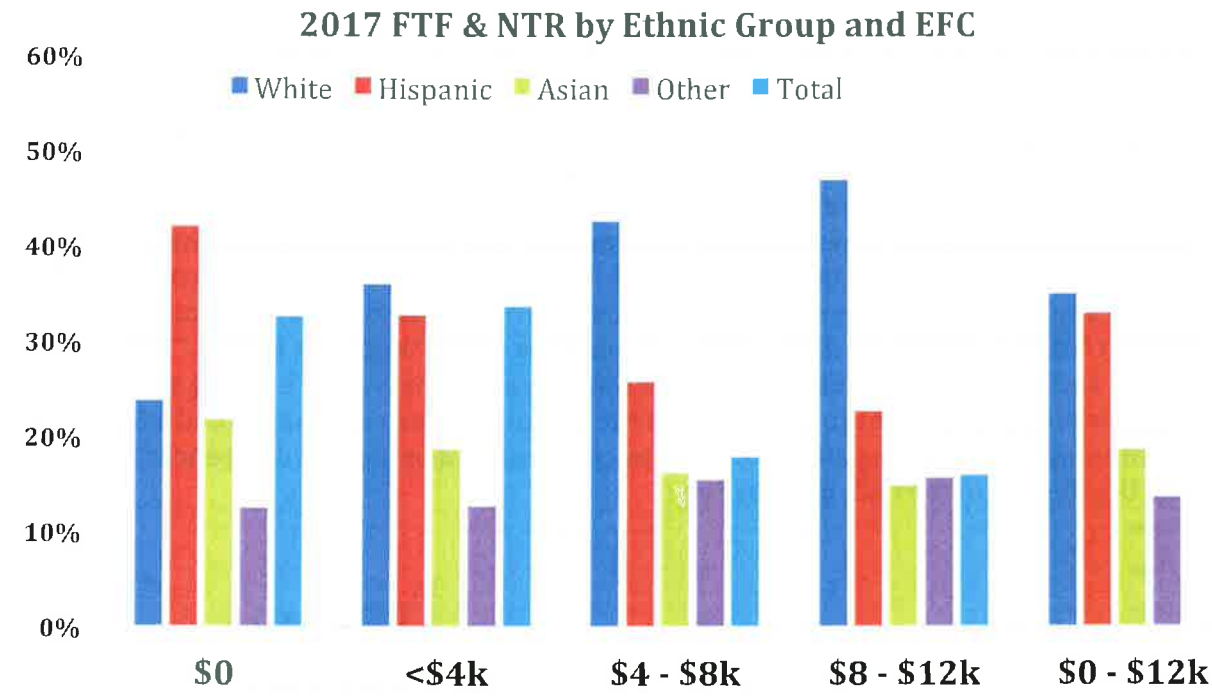
While the cost of attendance at Cal Poly is among the best in value in higher education across the United States, it is prohibitive to many California students from low income families. Despite tuition and fees that remain lower than the cost of attendance at all University of California (UC) campuses, Cal Poly is *in fact* the most expensive public university in California. While the UC provides aid to students with family incomes under \$165,000, Cal Poly is not in the position to provide aid for even the lowest income families for our on-campus fees. Over the past few decades, Cal Poly students have approved multiple fees to support the hands on pedagogy for which our campus is known. Unfortunately, in so doing they did not build financial aid into the fee structures. The State University Grant, or Cal Grant A / B, covers only \$5740 in tuition and does not begin to impact fees. In addition to the fees, the combination of our “high cost majors,” learn by doing, and the limited financial aid we can offer mean that it is more enticing to students from low income families to attend *any* of the UCs or in some cases not attend a four-year institution. The following 2016-17 cost-fee comparison displays the differences between the UC, the rest of the CSU, and Cal Poly:



The 2016-17 percentage of Pell students at Cal Poly is well below both the UC system and the rest of the CSU:



This represents the current expected family income to cover total cost of attendance by ethnic group:



Cal Poly is committed to education equity. We believe that high achieving students from all demographics deserve exposure to our learn by doing pedagogy. Furthermore, we believe that all students benefit from a more diverse environment that more closely resembles the society in which we live and the workforce of the future. We believe it is a moral imperative that our student body reflects the demographics of California. Our long-term goal is to be a 25% Hispanic serving institution. Not only is learn by doing at Cal Poly incomplete without diversity and inclusion, STEM professions are incomplete without diversity and inclusion. Diverse and inclusive professional STEM teams are better able to arrive at solutions that improve the human condition because they draw from multiple perspectives and

experiences. Cal Poly is morally obligated and well positioned to equip students from all demographics with the STEM expertise that society needs.

We have learned how to attract and retain first generation and low income students. In 2012 we created the Cal Poly Scholars program. Cal Poly Scholars provides students from California Partner High Schools with scholarships for up to five years, Ipads, mentoring, study skill workshops, and other assistance. Students in the program are required to live in "Scholars in Living Communities" for two years. Staff monitor their participation in co-curricular events and advising services. We also facilitate industry interaction to assist students in developing their learn by doing opportunities. This program has proven that we can both attract under-represented students to Cal Poly and retain them.

Through the Cal Poly Scholars program we successfully attract Asian and Hispanic-Latino students to Cal Poly. We have not been as successful as we would like in attracting women, Asian Pacific Islander students, Native American students, and African American students. However, we know how to attract these students.

This academic year we launched two new proposition 209 compliant programs to support students from under-represented minority groups. The first is the McCoy program. A generous donor and friend of the university has provided funding that allows us to give an annual scholarship of up to \$20,000 per year to African American students in engineering. The second is the Meritorious Scholars program, also donor supported, which will allow us to provide 12 students from under-represented minority groups with scholarships of up to \$15,000 per year in majors across the campus.

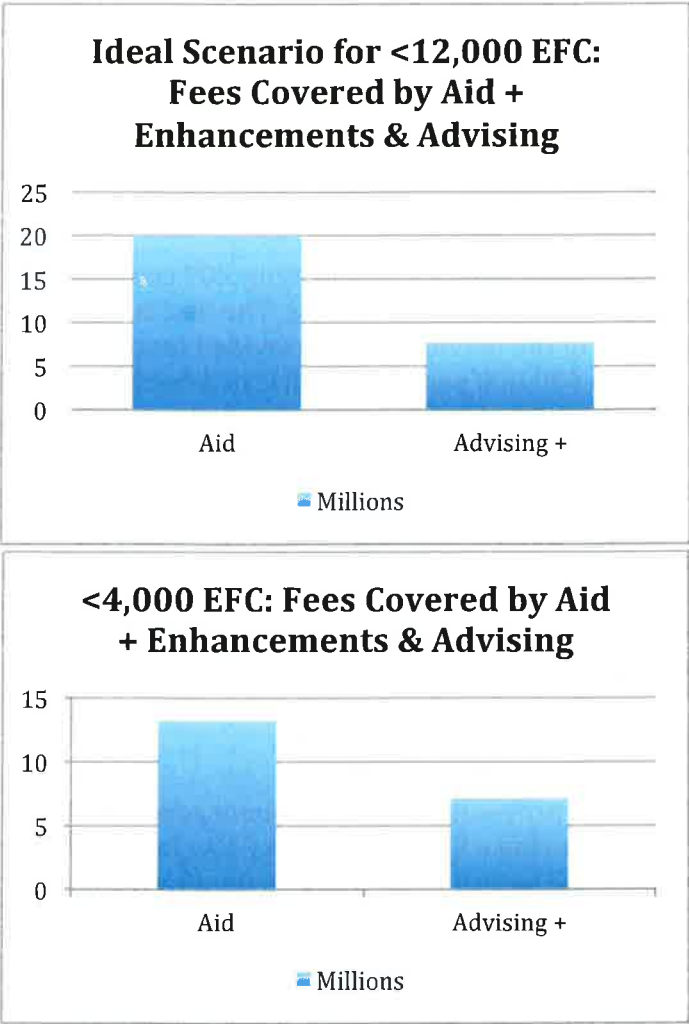
Our development team is dedicated to securing donor support for more proposition 209 compliant scholarships for students from under-represented minorities, including women in STEM fields. We are actively seeking donors who will pledge significant amounts annually for five years to help diversify the student body at Cal Poly.

### **First Generation / Low Income STEM Challenge**

In addition to securing more proposition 209 compliant scholarships, in the 2017-18 academic year we are announcing a first generation / low income STEM Challenge at Cal Poly. The STEM Challenge will launch in fall 2018 as funding permits. We will start phasing in full financial aid for on campus tuition and fees for students with an estimated family contribution of less than \$4000.

Using a range of tools, but primarily financial aid, we will recruit and retain high achieving first generation and low income students from California partner high schools into STEM majors at Cal Poly. We seek to grow the number of female and under-represented minority students in STEM fields across Cal Poly, beginning with engineering majors. Students selected for the STEM Challenge will be given financial aid packets from a "Cal Poly Grant" program we will create, additional intrusive advising, and a technology package. As funds grow, we will provide students whose estimated family contribution is low with enough aid to cover all of their tuition and fees. Long term, our goal is that students selected for the STEM challenge will be debt free at graduation.

Phasing in full financial aid for on campus tuition and fees for students with an estimated family contribution of less than \$4,000 will require approximately \$20.3 million per year on a recurring basis by 2021. Our ideal scenario is to provide full financial aid for tuition and fees for students with an estimated family contribution of less than \$12,000. This will require approximately \$27.7 million per year on a recurring basis. We are confident we can accomplish these goals through internal creative revenue stream ideas, such as industry partnerships, donors, and growth in financial aid. The majority of funds will go to aid and some will be reserved to hire faculty, enhance advising, and other support services.



We know from our own data that students who live on campus during their freshman and sophomore years not only increase retention rates, those students are also more likely to graduate on time. Eventually all students will live on campus for their first two years, but immediately all selected STEM Challenge students will live on campus for two years beginning the first year of the challenge. They will work in a living-learning community that is focused on their success and progress. They will become part of a supportive network in which they will learn from the hands on experiences they are exposed to in our curricular

and co-curricular activities. Graduates will join the large Cal Poly alumni family that helps to solve the big problems society faces.

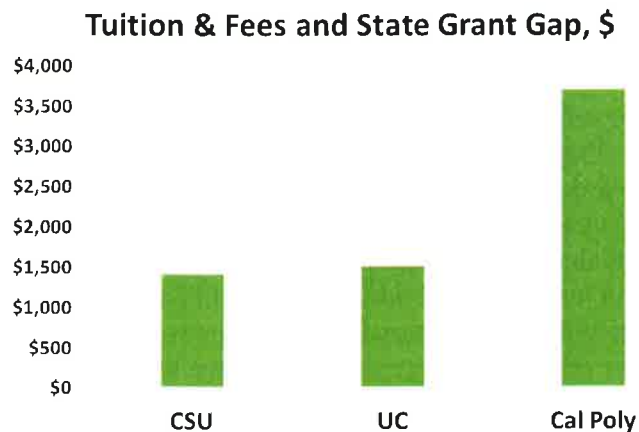
Our recruitment activities will begin early, through outreach to prospective students about opportunities such as our Engineering Possibilities in College summer camp and other outreach programs we will develop specifically for prospective STEM Challenge students. Our goal is that within 10 years, our student body will not only reflect the diversity of the state of California, we will also have increased the number of women in STEM majors, and be a 25% Hispanic serving institution. In addition, we will have eliminated all achievement gaps. The STEM Challenge will serve as a major vehicle in meeting these goals. Through the STEM Challenge and other initiatives discussed herein, we will grow the number of first generation and low income students in all demographics of California.

### **Need for the STEM Challenge: Cal Poly and Student Body Diversity**

Faculty and staff have employed many strategies to increase diversity since the passing of proposition 209. Consequently, Cal Poly's student body has been more diverse each year since 2002.

In 2016-17, we dropped early decision in our admissions process because we learned that it disadvantaged low income students. In the past, 25% of our incoming class was determined by December 15, well before financial aid packets are available. Consequently, students from low income families, even if selected through early decision, could seldom choose Cal Poly because they did not know how much would be available in financial aid. As a result of dropping early decision, this fall the number of incoming students from under-represented minorities is 30% more diverse than it was last year. In addition, the incoming freshman class has the highest overall GPA of any incoming class at 3.94, with an average ACT score of 31. However, we need to do much more in order to meet our diversity and inclusion goals.

Cal Poly students are high achieving students. We compete for students with UC Berkley, UC Davis, UC Santa Barbara, and private institutions such as Stanford University. However, we are not competitive with those same institutions in the recruitment of first generation and low income students primarily because we cannot currently provide comparable financial aid. The fee gap between what the state grant covers disproportionately disadvantages first generation and low income students at Cal Poly compared to students on all UC and CSU campuses:



The gap will be even greater if the UC budget increases by 2.5 %, as was presented at the most recent UC Regent meetings. The UC projects that if the increase is approved, there will be a partial increase for students whose annual family income exceeds \$80,000 with significant coverage for students whose family income is below \$165,000. Furthermore, they expect that with the increase, they will be able to provide students from low income families with more aid, ensuring that the change in net cost due to the tuition adjustment for students whose family income is \$100,000 or less will be negative \$100.

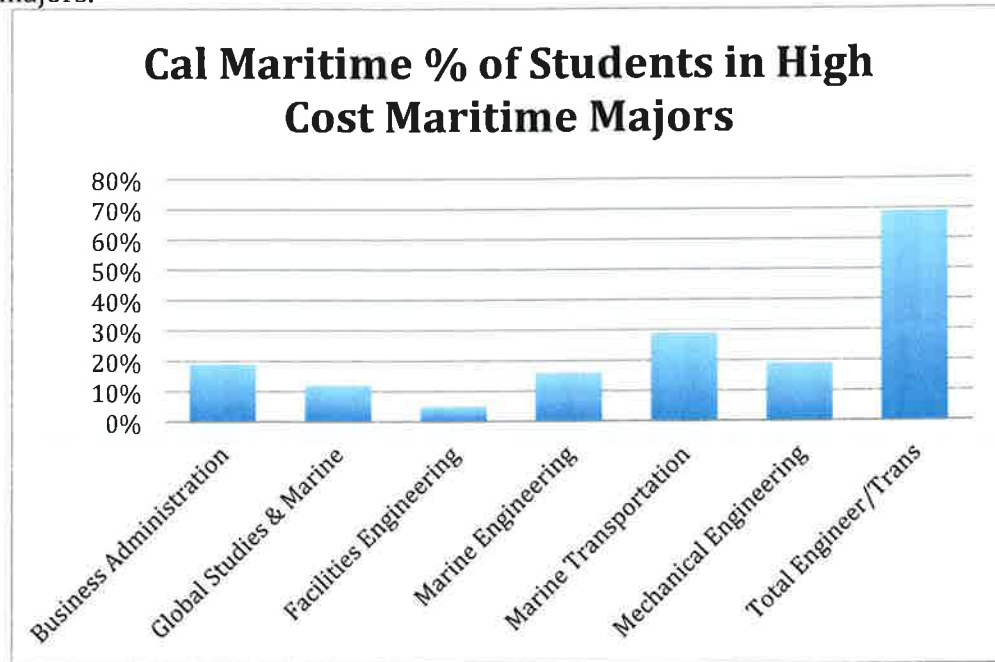
It is unjust that at Cal Poly we have a large set of fees not covered by the state grant for first generation and low income students – it is an injustice we must address. As public institutions, all UC and CSU campuses should be truly accessible to people from all corners of the state of California. These systems were built to serve students from all demographics and anywhere we find access barriers of our own making for first generation and low income students we are obliged to do what we can to remove them.

All CSU campuses are critical to preparing people for the workforce. Three CSU campuses play a unique role in preparing people for the STEM workforce: Cal Maritime, Cal Poly Pomona, and Cal Poly San Luis Obispo. Cal Maritime is one of only seven maritime universities in the United States and the only one in the west. Traditionally, higher education lists of “high cost majors” include health, engineering, agriculture and architecture. Factoring in maritime majors with traditional high cost majors, Cal Maritime in fact has the greatest number of high cost majors and the most students enrolled in high cost majors in the CSU. Cal Maritime has six majors, four of which are high cost maritime majors:

- Marine Engineering Technology
- Marine Transportation
- Facilities Engineering Technology
- Mechanical Engineering

The remaining two majors at Cal Maritime are Business Administration and Global Studies and Maritime Affairs. Consequently, including the unique high cost maritime majors in

ascertaining the percentage of high cost majors by CSU campus, 67% of Cal Maritime majors are in STEM. The vast majority of their students (69%) are enrolled in maritime STEM majors.



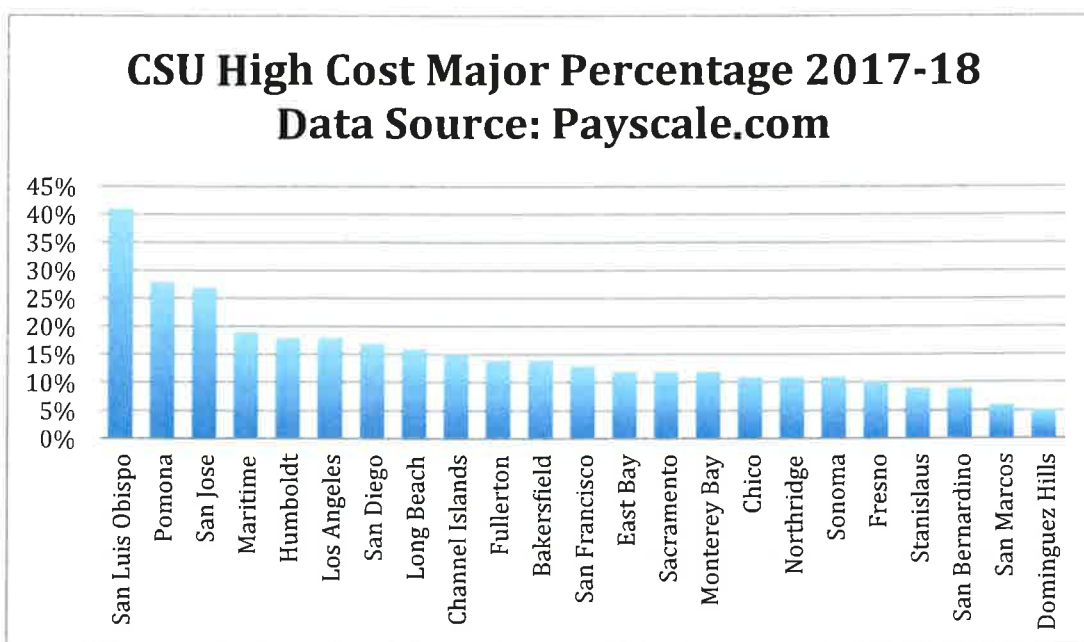
With their polytechnic missions, Cal Poly San Luis Obispo and Cal Poly Pomona clearly also offer students many STEM opportunities. Students gain expertise in agriculture, engineering, and architecture. 41% of students at Cal Poly San Luis Obispo are in STEM majors and 28% of students at Cal Poly Pomona are in STEM majors.

Both Cal Poly campuses belong to a very small group of universities in the United States classified as “comprehensive polytechnic.” The Carnegie Foundation classifies a university as “comprehensive polytechnic” when it offers graduate programs in four areas: Humanities, Social Science, STEM and the Professions. In the U.S. there are only *five* four-year comprehensive polytechnic universities:

- Illinois Institute of Technology (Ph.D.)
- Massachusetts Institute of Technology (Ph.D.)
- Virginia Polytechnic Institute and State University (Ph.D.)
- California Polytechnic State University — Pomona (Masters)
- California Polytechnic State University — San Luis Obispo (Masters)

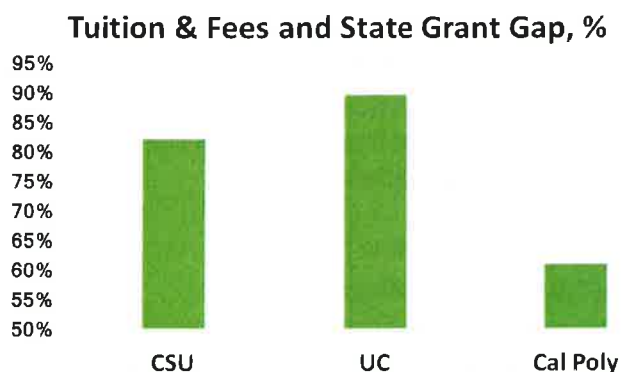
Theayscale data used in the chart below does not consider maritime majors, as we do above.





In addition to fees unique to Cal Poly, the combination of high cost majors, learn by doing, and our residential campus culture, the cost of attending Cal Poly is not feasible for many high achieving first generation and low income students. The State Grant covers significantly less tuition and fees at Cal Poly than it does in the rest of the system or the CSU.

The following chart reflects State Grant tuition and fees coverage for 2016-17:

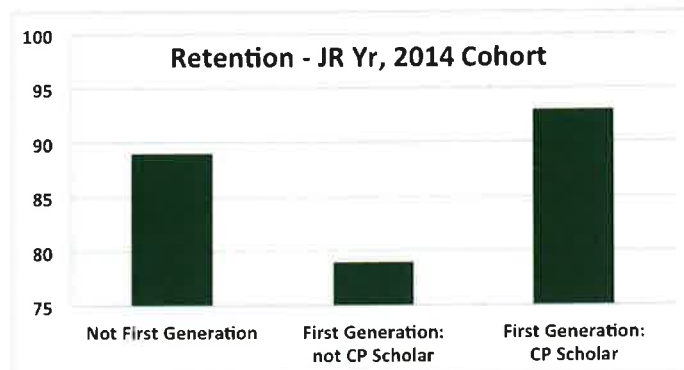


In spite of the financial challenges we will have to support first generation and low income students, we must do so, because the value of a Cal Poly degree, in any field, is very high. Our graduates are successful when they leave and employers report that they are ready to work on day one. First generation and low income students deserve as much access to the quality education we can provide as students from any other demographic. Consequently, our STEM challenge is necessary.

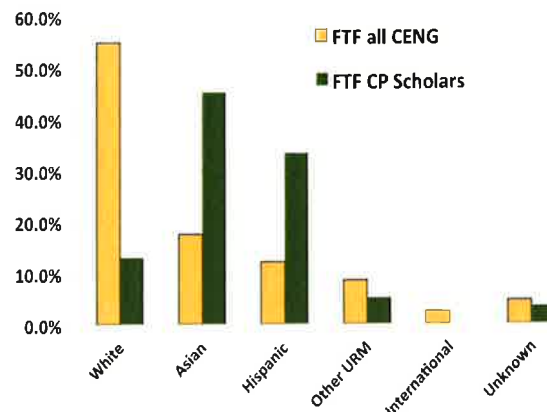


### Successful Track Record: Cal Poly Scholars Program

The family income of students in the Cal Poly Scholars program is limited to \$80,000 and the estimated family contribution is limited to \$12,000. Data shows that through the Cal Poly Scholars Program we improve retention rates among first generation and low income students, close achievement gaps, and provide students in the program with the support and opportunities to achieve higher levels of academic performance than peers who do not participate in the program.



There are currently approximately 250 students in the Cal Poly Scholars program. Over a five year period within engineering at Cal Poly generally, 22% are first generation students. However, within Cal Poly Scholars over the same period, 69% are first generation. The majority of CP Scholars identify as Asian or Hispanic:



### Conclusion

It is incumbent upon Cal Poly that we educate a student body that reflects the demographics of the state. In our STEM Challenge we will recruit, retain and graduate high achieving first generation and low income California students using an array of outreach efforts and internal programs. Within the next ten years, because of the STEM Challenge, we will meet our goal to reflect the demographics of the state of California by serving more women in STEM, more students from under-represented minorities in STEM, and be a 25% Hispanic serving institution. Finally, we will eliminate achievement gaps.