

Berkeley Engineering's K-12 Strategic Plan Summary

Berkeley Engineering seeks to create a robust, impactful K-12 outreach program that reaches California students from kindergarten through twelfth grade. Our mission is to diversify the engineering pipeline by providing opportunities for all students to engage in engineering activities, whether or not they are UC-bound. We believe that all students benefit from exposure to engineering and, more broadly, to STEM and scientific thinking, no matter their future careers. Berkeley Engineering's core values drive us to "*create knowledge equitably in service of a diverse society.*" Correspondingly, we aim to create opportunities for all students, especially students from communities that are underrepresented in the STEM workforce, to explore engineering.

We aim to develop a coordinated K-12 outreach program that serves underserved communities throughout the state of California and supports the recruitment of nontraditional applicants to the College of Engineering. We will build on our successful programs, like *Girls in Engineering*, and increase support for student organizations engaged in K-12 outreach. We envision a broad range of new outreach activities and projects, from opportunities to learn about Berkeley Engineering's majors to hands-on workshops and summer engineering design camps. To maximize our impact, we plan to serve students and their families directly and partner with educators throughout California.

Vision

Engineering for All K-12: All children have the opportunity to explore engineering and see themselves as engineers.

Mission

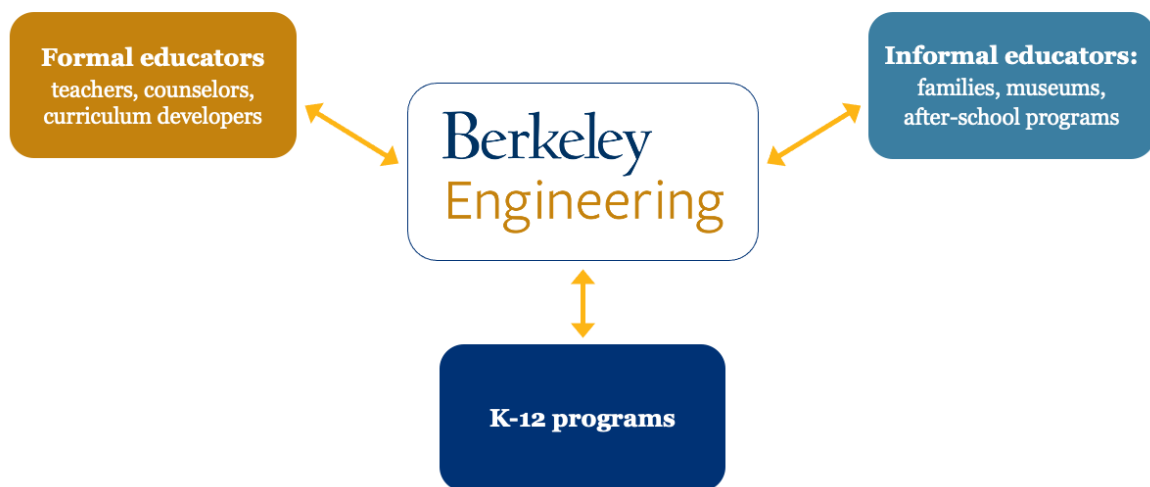
Diversify the pipeline of aspiring engineers by providing accessible, engaging opportunities for students throughout California to explore engineering, whether or not they are UC Berkeley bound.

Guiding Principles

- We strive to reach underserved communities and serve diverse groups of participants that mirror the full diversity of California's K-12 student population.
- We believe that the world not only needs more innovators but needs innovators with diverse perspectives to create new technologies and products that have a universal appeal.
- We focus on hands-on, experiential learning, as hands-on learning is a hallmark of Berkeley's undergraduate engineering curriculum.
- We create opportunities for students to learn how engineers make a difference in people's lives and improve our world.

- We strive to co-create with formal and informal educators to serve K-12 learners.
- We consider accessibility and cultural competence when designing, developing, and evaluating programs.
- We include students' families in the process of informal STEM education.
- We recognize that bias and historic inequity continue to impact participation and success in STEM subjects like engineering. Our work seeks to overcome the status quo by following best practices related to culturally relevant curriculum, universal design, and family engagement.

Our Approach



Our overarching objective is to provide opportunities for K-12 learners throughout California to explore engineering. To maximize our impact, we plan to provide opportunities for students and support the work of informal and formal educators. There are benefits and constraints to serving each of these populations (K-12 students, formal educators, and informal educators). For example, on-campus programming for K-12 students enables us to offer longer, flagship programs that introduce students to UC Berkeley's campus and atmosphere. Such programs also utilize campus' unique resources, such as laboratories and faculty/student volunteers, most effectively. However, by nature, these programs are limited in size, and thus we cannot reach a large number of students through these programs. By partnering with formal or informal educators, we can reach a much wider audience and potentially impact how K-12 learners are introduced to engineering. However, in-school programs like workshops are often very time-limited, one-time events, constraining the types of activities we can implement. Given these factors, we believe that serving students directly and supporting educators are both critical routes to bolstering engineering education, and we plan to dedicate similar resources to both channels.

To contact Berkeley Engineering's K-12 outreach team, email k12engineering@berkeley.edu.