



Careers in Science Intern Program

Annual Report

January 1, 2023 - December 31, 2023





The California Academy of Sciences inspires the next generation of STEM leaders—thanks to generous philanthropic support.

The California Academy of Sciences recognizes that the lack of diversity in science, technology, engineering, and mathematics (STEM) is a significant detriment to the communities excluded from these opportunities, as well as the scientific community itself. Since 1996, the Academy's [Careers in Science](#) program has supported Bay Area students from backgrounds that are systematically excluded from STEM fields to find their paths to success. Careers in Science is a year-round paid internship that engages highly motivated San Francisco-based high school students. Youth gain a robust set of skills through specialized training, research in the field and lab, mentorship from STEM professionals, and unique opportunities to educate visitors on the museum's public floor.

The goals of the Careers in Science intern program are to diversify and expand America's STEM workforce, foster the educational and career success of youth, and increase STEM literacy and environmental stewardship.

In 2023, the California Academy of Sciences served a total of 44 interns: 28 interns participated during the 2022–2023 school year and 16 new interns joined the program in June. This report features program highlights from January 1 to December 31, 2023.

Trainings and Speaker Series

Careers in Science interns attend trainings to increase their understanding of science concepts, enhance STEM career awareness, and develop professional and life skills ranging from networking to goal setting. This year, interns had the exciting opportunity to hear from local scientists, activists, and Academy staff about science topics like biodiversity and regeneration, as well as media literacy and ethical artificial intelligence. Priyanka Mohanty, Senior Research Analyst at UC Berkeley, shared her research from the Lawrence Berkeley National Laboratory and recommended actions people can take to mitigate the effects of climate change; Elora López-Nandam, *Hope for Reefs* Postdoctoral Researcher, discussed threats to reefs around the world and the Academy's work in coral

spawning and reef regeneration; and Daniel Dietrich and Sarah Killingsworth, wildlife photographers, led a hands-on conservation photography workshop.

#TeenScienceNight 2023

More than 1,400 attendees, representing all nine Bay Area counties and 103 California cities joined the Academy's annual **#TeenScienceNight**, planned for teens by teens. Youth ages 13–18 immersed themselves in the natural world at this teen takeover event, exploring science, music, art, and environmental justice. Careers in Science interns led event production, marketing strategies, and partnership coordination, and presented on dynamic topics during the event.

“Every participant of #TeenScienceNight will have the chance to expand their science knowledge and discover new opportunities to get hands-on in STEM, all in the span of one night. It’s an incredible experience for thousands of teenagers including myself.”

“Walking through the museum, seeing like-minded teenagers listening with rapt attention to young presenters and exploring all of our exhibits, was an eye-opening experience. I believe that it shows every teenager who dreams of a career in any science field that they are not alone in their hopes, and that they always have a place to go whenever they are curious about the natural world around them.”

“Thanks to you, I am able to implement all that I have learned throughout my treasured time with Careers in Science, so that teens are able to experience STEM through the eyes of a scientist, conservationist, activist, and so much more.”



Project Groups

To foster STEM and workforce development skills, Careers in Science interns participate in project groups. These are semester-long opportunities for small groups of interns to work with Academy professionals and community partners to develop workforce skills and deepen their knowledge and engagement in a STEM field.



In the **Biodiversity Research Project Group**—led by Dr. Sarah Jacobs, Assistant Curator of Botany and the Howell Chair of Western North American Botany and Dr. Rebecca Wilcox, postdoctoral researcher—interns studied flora and fauna and collected occurrence data to better understand spatial distributions of the Sierra Nevada species. They explored how food webs, ecosystems, wildlife communities, and biodiversity have changed over time in Sierra Nevada’s forest ecosystems.

In partnership with Cold Spring Harbor Laboratory as part of a grant from the National Institutes of Health, interns in the **DNA Barcoding Project Group** participated in a community science barcoding project in which they collected and processed the DNA of ants, beetles, and mosquitos. Led by Education Program Coordinator Vicky Huang and Program Assistant Ahmi Johnston-Powell, interns collected specimens, isolated and amplified their DNA, and interpreted and uploaded their findings into a scientific database. These observations help scientists track the movement of disease vectors and document biodiversity changes such as climate change and habitat loss.

The Long Term Monitoring and Experiential Training for Students Project Group was led by staff from the Greater Farallones Association, as well as Education Program Specialist Jordan Lee and Program Assistant Ethan Nguyen from the Academy. Interns were trained to collect and analyze mole crab populations in Ocean Beach. These data can be used by scientists to assess the health of sandy shoreline ecosystems across California.

Mentorships

Careers in Science interns participate in mentorships with Academy professionals to strengthen their workforce skills and provide first-hand experience with STEM careers. Mentorships provide an authentic work experience for youth, support scientific endeavors, and advance the Academy's mission to regenerate the natural world.

Coral Reef Mentorship

Led by Postdoctoral Researcher Dr. Jennifer Hoey, interns used ImageJ and R-Studio programming software to analyze variations across *Madracis* coral species. They also used CloudCompare to document habitat characteristics and categorize colonies. By helping to determine how accurate the habitat measurements are, interns played a role in developing novel analyses that use 3D data for coral conservation.

Steinhart Aquarium Mentorship

Under the supervision of various Academy biologists, interns learned how to maintain a collection of freshwater and marine aquatic animals and plants. Interns assisted with cleaning animal habitats and feeding a variety of animals in back-of-house areas of Steinhart Aquarium and Osher Rainforest.



Library Archive Mentorship

Under the mentorship of Katherine Montana, an Academy Library Research Assistant, interns researched the stories of Academy staff who made meaningful contributions to the institution but did not receive credit because of their marginalized identities. Using archival materials from the Academy Library, interns shed light on stories that have not been told in their entirety until now. Their final project was titled [Untold Stories from the Archives](#) and was [referenced in the New York Times](#).



Experience Engineering Mentorship

Led by Academy Electronic Engineer Tosh Chiang, interns assisted in providing technical support for Academy exhibitions and venues. Interns learned engineering fundamentals including soldering, coding, and other skills used in maintaining Academy hardware.

Horticulture Mentorship

Careers in Science interns worked under the supervision of Landscape Horticulturist Rachel Alexander to assist with garden restoration projects at the Academy's gardens, terraces, and Living Roof. Interns learned how to restore disturbed garden spaces, remove invasive species, perform seed collection and packaging, and identify California native plants and pollinators.

Local Recognition & Enrichment Trips

In March 2023, Careers in Science was recognized as a **Warriors Community Foundation Hoops 4 Kids** recipient, among eight other Bay Area organizations, all supporting underserved youth. For a closer look, watch this [video](#).

Throughout the year, Careers in Science interns attended several enrichment outings, including:

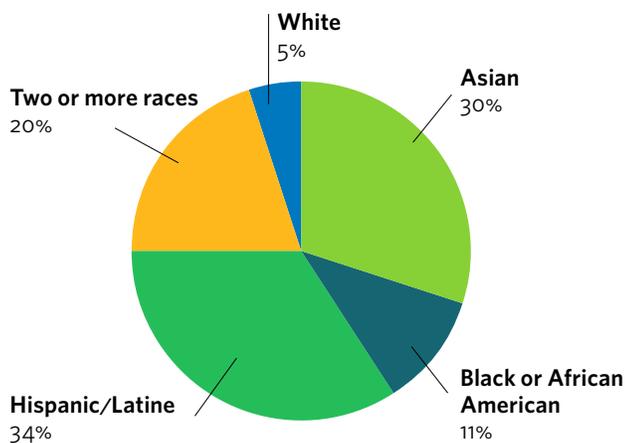
Bay Area Youth Climate Summit (BAYCS): In partnership with BAYCS and Youth Action for the Planet, the Academy hosted the fourth annual Bay Area Youth Climate Summit, a youth-led learning and climate action event. Interns participated in workshops with 14 partner organizations and heard from keynote speaker, Molly Kawahata, former Climate Advisor to the Obama White House.

UC Hastings Reserve: During the annual week-long field expedition at UC Hastings Reserve in Carmel Valley, interns led and participated in activities about adaptation, camouflage, birds, nature painting, and foraging. Interns also conducted insect collection and wet lab sessions for the DNA Barcoding project.

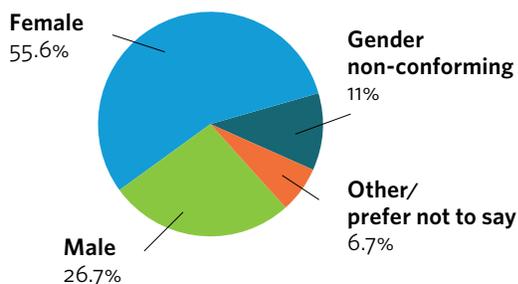
Walker Creek Ranch: During this overnight trip to Walker Creek Ranch in Petaluma, interns explored watersheds, participated in hikes, and learned about salmon cycles and macroinvertebrates, with a focus on climate change and conservation.

Participant Demographics

Race/Ethnicity



Gender



Impact and Outcomes

Careers in Science is the proud recipient of the [2022 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentorship](#).

We are committed to supporting the academic success of all interns in high school and beyond. A 2021 survey of Careers in Science alumni showed that 98% enrolled in a 2 or 4-year college or university after graduation; 95% earned a college degree; and 70% of those college graduates earned a STEM-related degree. Read the Careers in Science alumni [report](#) to learn more about the program's impacts and outcomes.

We are also pleased to share that in May 2023, all 15 seniors in the program graduated from high school and enrolled in college for the Fall 2023 semester. This group was accepted by over 70 universities with scholarships collectively totaling more than \$125,000 for their first year. 80% of students said that they intend to pursue a STEM-related degree.

National Science Foundation-Funded Collaborations

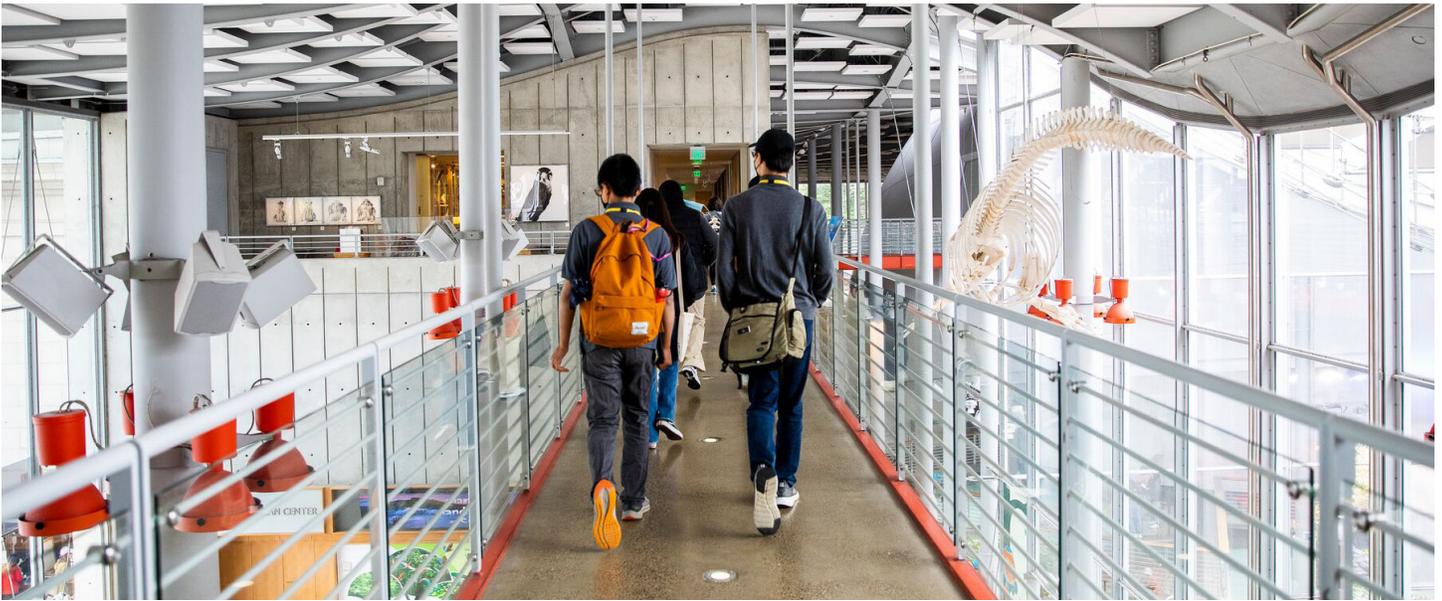
We are excited to announce that Careers in Science is representing the Academy on two collaborative research and professional development projects funded by the National Science Foundation, an independent agency of the United States government that supports fundamental research and education in all non-medical science and engineering fields.

Roads Taken: A Retrospective Study of Program Strategies and Long-term Impacts of Intensive, Multi-year, STEM Youth Programs:

This project brings together six museums to explore the long-term impacts of youth participation in STEM-focused, multi-year programming by connecting with and studying alumni who participated between 1995-2005.

STEM Pathways for Underrepresented Students in HigherEd (PUSH) Network:

This is a performance improvement project led by the University of Pittsburgh Broadening Equity in STEM Center and the STEM Learning Ecosystem Community of Practice (SLECoP). The goal is to enhance the quality of pre-college STEM programs and demonstrate evidence that youth who participate in such programs experience higher levels of STEM persistence than their peers. Through STEM PUSH, Careers in Science is currently applying for accreditation that would give interns an advantage when applying to college.



Thank you for your partnership

Thank you for another incredibly successful year of the Careers in Science intern program. As we look ahead to the new year, we are emboldened by our youth—their vision, dedication, and curiosity—and remain committed to providing greater access and opportunities in STEM; advancing diversity and removing structural barriers to success; and supporting all youth to pursue their dreams. On behalf of the California Academy of Sciences, we thank you for the critical role you play in this work.

The Careers in Science program is generously supported by Angela Nomellini and Kenneth Olivier; Campos EPC Foundation; Hearst Endowed Fund for Science Education; John and Marcia Goldman Foundation; Koret Foundation; L.B. Research and Education Foundation; Quest Foundation; San Francisco Department of Children, Youth & Their Families; Sunset Heights Association of Responsible People; The Kimball Foundation; The Sato Foundation; United Airlines; and Warriors Community Foundation - Hoops 4 Kids.

