Careers in Science Intern Program

Annual Report

January 1, 2022 – December 31, 2022

Thanks to generous philanthropic support, the California Academy of Sciences continues to inspire the next generation of bright leaders.

The Academy recognizes the lack of diversity in science, technology, engineering, and mathematics (STEM) is a significant detriment to both the communities excluded from these opportunities, as well as the scientific community itself. Since 1996, Careers in Science 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 teenagers from San Francisco high schools. Youth gain a robust set of skills through specialized training, research in the field and lab, mentorship from STEM professionals, and opportunities to teach 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 2022, the California Academy of Sciences served a total of 44 interns: 32 interns participated during the 2021-2022 school year and 12 new interns joined the program in June. This report features program highlights from January 1 to December 31, 2022.

Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring

In February 2022, President Joe Biden honored the program with the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM). This award recognizes the dedication and hard work of teachers and mentors, and the important role they play in supporting learners who will be future STEM professionals.

In May 2022, Manager of Youth Engagement Leah Kalish traveled to Washington, D.C. to attend the Excellence Awards in Science and Engineering (EASE) Recognition Event, an event that recognizes individuals and organizations across the United States who

display exemplary mentoring of groups historically underrepresented in STEM sectors and the STEM workforce. Here, she accepted the PAESMEM on behalf of the Academy's Careers in Science Intern Program.

"I am deeply appreciative of the inspiration that America's teachers and mentors provide every day to support the next generation of STEM professionals. The work that teachers and mentors do ensures that our Nation's children are able to unlock—for themselves and all of us—a world of possibilities."

— President Joe Biden

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. Training topics vary every year depending on youth interest. This year interns had the exciting opportunity to hear from local scientists, activists, and Academy staff about science topics like botany, geology, and biodiversity to social justice issues like racism in STEM. Maricela Abarca, assistant curator of geology, discussed her career and life trajectory that led to her current role at the California Academy of Sciences; Angelia-Mae Valerio, STEM program manager at KQED, taught students how to spot bad science in online articles and how to recognize fake news; and Esperanza Magallanes, a U.C. Berkeley graduate, presented on financial aid in college, offering tools and resources for understanding financial aid packages and scholarships.

#TeenScienceNight

#TeenScienceNight is a teen-only science event where youth explore the power of science and wonders of the natural world alongside their peers. This year, six interns planned and hosted the 10th annual #TeenScienceNight—the first in-person teen event since 2019. Teens ages 13-18 gained free admission to the Academy for an evening of science exploration, enjoyment, and networking. Interns worked on event production, marketing strategies, and partnership coordination, with all 32 interns presenting at the event. Senator Scott Wiener also attended the event and accepted cards from the Careers in Science youth thanking him for his help in securing $2.1M to advance the Academy's *Thriving California* initiative.

The event inspired youth attendees to engage with science, art, and conversation, as well as reconnect socially with one another in a meaningful way. With over 1,800 attendees representing 71 California cities, 3 states, and 3 countries, the night was a major success.

Quotes from attendees:

"I've been interested in science and animals since I was young and I thought it would be fun to be around people my age who have the same interests as me."

"I attended TSN to network with people around my age and become friends with people who have similar interests like me."

"It was a fun, safe place for friends to hang out. The Academy of Sciences is such a great place to visit and the fact that this was free and only for teens was awesome."

Project Groups

To foster STEM and workforce development skills, Level 2 and 3 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.

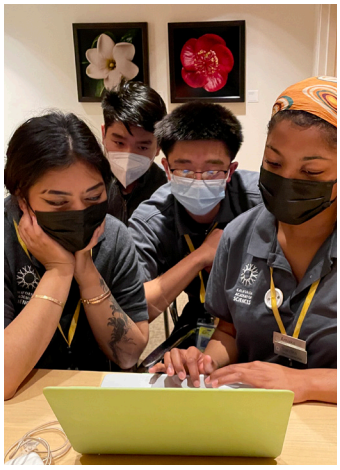
Coral Reefs Project Group: Ten interns received the unique opportunity to learn about the digital tools used in the study and conservation of coral reefs. Working with Jennifer Hoey, PhD, interns studied the morphology and ecology of coral reefs, focusing on the importance of these organisms. Additionally, Dr. Hoey taught Academy interns the basics of R-Studio—a coding software used by scientists to analyze physical trait variations in images of corals.

LIMPETS Project Group: The Long-term Monitoring Program and Experiential Training for Students (LIMPETS) is a program from the Greater Farallones Association that monitors large swaths of California's coastline, providing classrooms with the resources to monitor populations of the pacific mole crab (*Emerita analoga*)—a keystone species in sandy beach ecosystems. Interns participated in the LIMPETS program, gaining valuable experience contributing to coastal citizen science. Students collected and analyzed data to obtain a clearer picture of the health of California's sandy beach ecosystems, as well as the health of nearby offshore ecosystems.

Botany Project Group: Level 1 interns worked with Sarah Jacobs, PhD, assistant curator of botany and Howell Chair of Western North American Botany in the Academy's Institute for Biodiversity Science and Sustainability (IBSS) and Rebecca Wilcox, PhD. This fall, interns combined both lab and field work, which included off-site trips to local botanical gardens and hikes through Golden Gate Park.

DNA Barcode Project Group: As part of an NIH Science Education Partnership Award-funded research project, eight Careers in Science Leadership Council members participated in an intensive DNA Barcode Project training led by Dr. Sharon Pepenella and entomologist Jeffry Petracca from the Cold Spring Harbor Laboratory in New York. Interns learned about insect collection and dissection, and DNA extraction, amplification, and sequencing.

Mentorships



Level 3 interns are eligible for mentorships with Academy professionals to further develop their workforce skills and provide deeper exposure to careers in STEM. Mentorships provide an authentic work experience for youth, and support scientific endeavors, as well as the Academy's mission.

Library Archive Mentorship

Under the mentorship of Katherine Montana, an Academy library research assistant, four Level 3 interns researched the Academy's untold stories, profiling staff from the past who did not receive credit for their contributions and instead were marginalized because of their 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.

Steinhart Aquarium Mentorship

Steinhart Aquarium staff—Kelsey Paulling, Ryan Schaeffer, Carissa Mendoza, and James Deponte—trained eight interns in the caretaking and maintenance of the Academy's many different live specimens and exhibits. Through this mentorship, interns learned hands-on about both the aquatic and terrestrial animals present at the Academy.

Special Events and Trips

UC Hasting Reserve Annual Expedition—During the San Francisco Unified School District's spring break, 30

interns traveled to the UC Hastings Reserve for a field expedition—the first in-person overnight trip since 2019. Over four days, youth participated in field work, studied insects, and heard from guest speakers like Dr. Haley Ohms, a National Oceanic and Atmospheric Association scientist who led a tour of the Los Padres Dam.

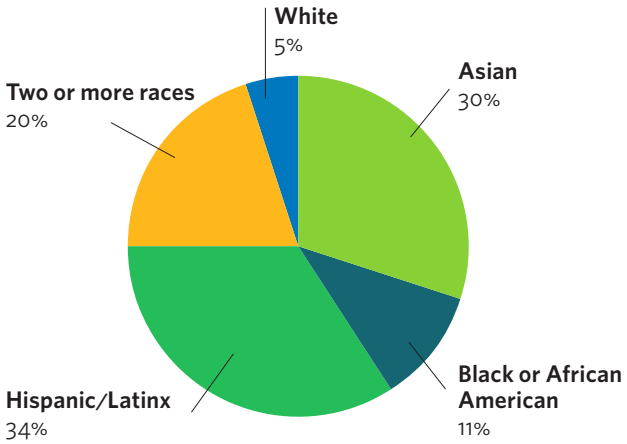
Pepperwood Preserve: Over the summer, interns took a trip to Pepperwood Preserve in Sonoma County, where they camped and hiked for three days alongside staff. The 28 interns who attended participated in team building activities, spent nights stargazing, and learned about the local ecosystems—even discovering a non-venomous king snake during a hike.

Literacy for Environmental Justice: Careers in Science partnered with local nonprofit Literacy for Environmental Justice (LEJ) to bring 30 interns on a kayaking tour of Candlestick Point and visit the EcoCenter at Heron's Head Park. Interns explored conservation and sustainability topics while birdwatching and investigating tidal ecosystems.

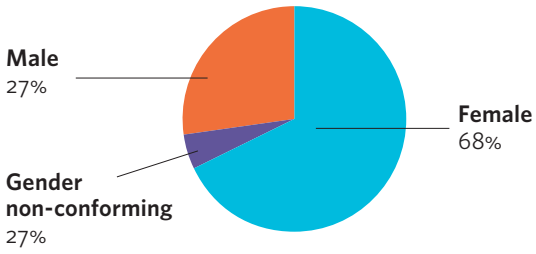
Berkeley Labs: The Berkeley Labs *Let's Talk About STEM* program provided the interns with an immersive presentation, complete with scientist interviews and hands-on activities. Berkeley Labs staff members Angela Green and Baishakhi Bose presented on their career trajectories and work with the Lab, followed by an activity led by Lab undergraduate staff members in which students created LED light circuits using copper tape.

Participant Demographics

Race/Ethnicity



Gender



College Attendance

We are committed to supporting Careers in Science interns through high school and offer them resources to succeed as they prepare for their future. Of all Careers in Science graduates, 98% of Careers in Science alumni enrolled in a 2- or 4-year college or university; 95% earned a college degree; and 70% of all college graduates earned a STEM-related degree. Read the Careers in Science report to learn more about the program's impacts and outcomes over the last 25 years.

We are also pleased to share that in May 2022, all 15 seniors in the program graduated from high school and enrolled in college for the Fall 2022 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, multiyear programming and includes surveys from Careers in Science alumni who participated between 1995–2005.

STEM Pathways for Underrepresented Students in HigherEd (PUSH) Network: This is a professional development and networking experience led by the University of Pittsburgh Broadening Equity in STEM Center and the STEM Learning Ecosystem Community of Practice (SLECOP). The goal is to help pre-college STEM programs understand where their students are and provide evidence that participation in quality pre-college STEM programs leads to STEM persistence in college. Careers in Science's participation is expected to lead to program accreditation that may give interns an extra advantage when they apply 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.
