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ACS Project SEED

2022 Program Report
to Donors

February 2023



During summer 2022, the American Chemical Society proudly administered the ACS Project SEED program for the 54th consecutive year, again inviting economically disadvantaged high school students to experience chemistry research, discover exciting scientific career paths, and build college preparation and professional development skills.

After two summers offering the program virtually due to the pandemic, ACS was excited to welcome Project SEED participants back into labs during summer 2022. That enthusiasm extended to others involved in the program as we received more than 1,000 applications from students and 300 project proposals from scientists eager to serve as mentors. In addition, we ushered eight new Project SEED sites into the program.

More than 250 Project SEED students engaged in hands-on, in-person research for 8-10 weeks at various participating research sites. An additional 17 students participated in a virtual research project. Almost 100 students participated in a two-week Virtual Summer Camp, the model for which was

developed during the pandemic to keep students connected to the chemical sciences. The Virtual Summer Camp again provided students with mentoring support and access to presentations on a range of chemistry-related topics.

To reinvigorate Project SEED this year, new elements devised during the five-week-long 2020 and 2021 Project SEED Virtual Summer Camps were incorporated into the program. Specifically, every in-person or virtual research student attended the first-ever, week-long Project SEED virtual orientation. It incorporated lab safety and résumé-building courses as well as professional development training to prepare them for their work in the lab.

The 2022 program also offered each of these student researchers the opportunity to attend a weekly virtual seminar on topics ranging from sustainability to analytical chemistry careers to composite materials. Through these virtual offerings, students engaged with top scientists as well as other Project SEED students across the country, enabling them to begin to establish their first scientific social network.

Like the thousands of Project SEED students before them, the 2022 participants were thrilled with their summer experience. Indeed, year after year, Project SEED participants report that they leave with a better understanding of science, an enhanced appreciation for chemistry and laboratory research, and a clearer vision for their future.

What's more, all Project SEED alumni are eligible to compete for ACS Project SEED College Scholarships as they prepare to enter their freshman year in college. These scholarships help to sustain their excitement for science and equip them to take the next step in their academic journey.

Scholarships are awarded to students who demonstrate a high potential to succeed in chemistry and declare a major in chemistry or another branch of science or engineering. The prestige of the scholarships encourages and empowers students to excel during their undergraduate years and beyond.

Thanks to your steadfast support, ACS is stronger and better equipped to foster the talent of inquisitive students through the Project SEED program. "What I love about Project SEED is that each student has his or her own project, and although many come into the program not having had the opportunity to know what chemistry is, they discover a love for it," says Anja Mueller, a professor of chemistry and biochemistry at Central Michigan University, who has been a Project SEED mentor since 2006. "Project SEED opens their eyes to opportunities they never knew existed and it's very exciting to see where that leads them."

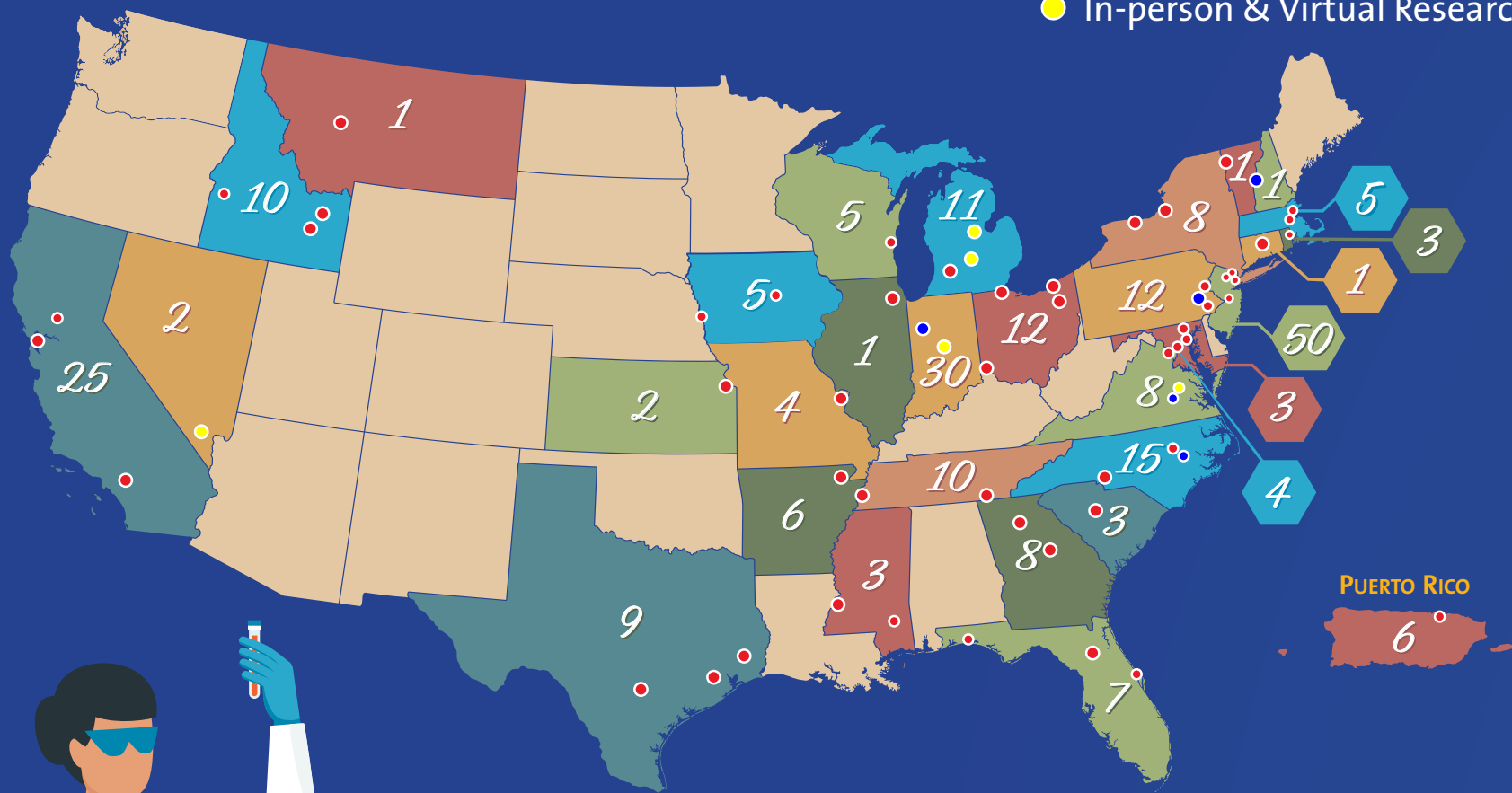
On behalf of these students, we sincerely thank you for your generous support of this transformative program. The aspiring scientists you support today may be among the most important innovators and thought leaders of tomorrow.



ACS Project SEED

2022 RESEARCH SITES

- In-Person Project SEED Research Site
- Virtual Project SEED Research Site
- In-person & Virtual Research Site



In 2022, we were happy to usher in the return to in-person Project SEED sites. While we were excited for the program to return to its original format, we were also able to apply new ways of administering Project SEED that came out of our efforts in 2020 and 2021.

The map on the preceding page demonstrates the reach of the program's research sites this year. The number included with each state and territory indicates the total number of students that participated within that area.

98% of student participants said the program made them want to learn more about STEM in the future.

Natalya D.

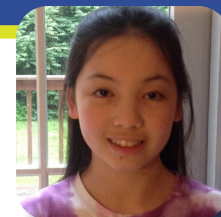
Project SEED Site: Lafayette College, Easton, Pennsylvania

Title of Research Project: Synthesis of Novel Organometallic Catalysts

*"The best part of my 2022 Project SEED experience was conducting experiments and analyzing the results. **It was exciting to test the properties of the compounds that I had synthesized and see if a reaction turned out as I had predicted.** I also enjoyed learning new laboratory techniques, such as cyclic voltammetry and NMR spectroscopy.*

"Participating in Project SEED allowed me to gain hands-on experience in science. The program affirmed my interest in STEM fields and introduced me to the real-world applications and advancements of scientific knowledge.

"Without the generous support of Project SEED donors, I would not have had the opportunity to participate, be introduced to advanced chemistry concepts, and contribute to cutting-edge research. Thank you!"



“Many of the Project SEED students working in my lab tell me that they were very intimidated about coming to a college campus to do research as a high school student. Yet, at the end of the summer, their confidence has expanded; they see that they can work in a science lab and with people pursuing their PhDs. I think that confidence is priceless and will stay with them for the rest of their lives.”

“I wouldn’t be able to work with the Project SEED students if it wasn’t for the collective efforts of donors, ACS staff and the Project SEED committee. As part of the selection subcommittee, I get to do my little part in helping to make sure students from across the country get to work on engaging and educational projects.”

Emily Smith

ACS Project SEED Committee
Iowa State University

*“Project SEED provides such a great way to usher high school students into the world of science and a lab culture that supports and inspires. Project SEED not only shows them what research is like at a university, but they also get to see and meet the wave of students that are graduating with BS and MS degrees and going on to medical, dental, graduate school, and serving in the Air Force as officers. **It is exciting for me to see a high school student that is unsure about his or her future integrate into my research team and work side by side with students that are on their way to their future careers.**”*

Lisa Warner

ACS Project SEED Mentor
Boise State University



Sheba G.

Project SEED Site: North Carolina State University, Raleigh, North Carolina

Title of Research Project: Synthesis of Novel Organometallic Catalysts

*“Through Project SEED, I loved exploring topics I don’t learn about in school, and I’ve noticed I’m ahead of my classmates because of my participation in the program. **The experience has motivated me to major in biochemistry in college.** I’m very grateful to have had this opportunity to be in a lab.*

*“In addition, I gained the support from everyone at the local ACS section, and I’ve made so many new friends and amazing memories. I know this program will set me up for success. **Project SEED changed my life, and I can’t wait to come back next summer.**”*



Troy “Daniel” J.

Corpus Christi, Texas

Virtual Research Project through the ACS North Carolina Local Section Site

Title of Research Project: Chromacademy: Chromatography and mass spectrometry eLearning training classes across 8 key channels

“I loved many aspects of the Project SEED program, which I participated in for two summers. My 2022 research project involved using an online chromatography training program called CHROMacademy. I was able to interact with the man who helped create it and share the knowledge I gained through the program. That moment was exciting because it proved to me that I have internalized what I had learned.

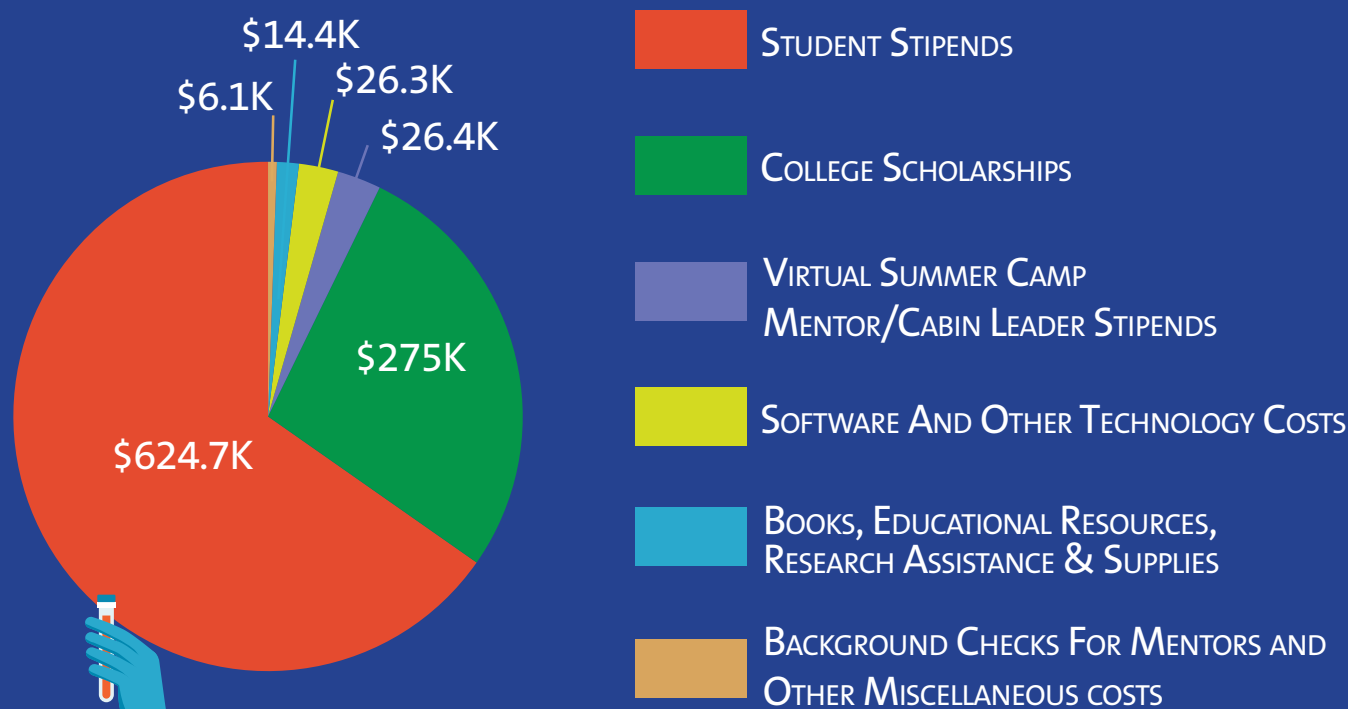
“I’ve always known I wanted to be a chemical engineer and Project SEED reinforced that choice and gave me an enormous boost in confidence. Despite participating only online, I’ve learned so much about complex chemistry topics and scientific career paths. I also found a community of remarkably intelligent scientists and mentors with whom I hope to remain in contact for a very long time.

*“I want to sincerely thank those contributing money to support Project SEED. By doing so, you benefit young minds that will be the future of America. **Project SEED provides a means for all hard-working, bright children to shine and reach their potential. Thank you for your support!**”*



Project SEED

2022 Financial Expenditures



Of the \$1 million in total Project SEED expenditures, 92% went to student participants in the form of stipends and scholarships. An additional \$297 thousand in student stipends were provided through the generous support of matching funds from Project SEED research sites and local sections.

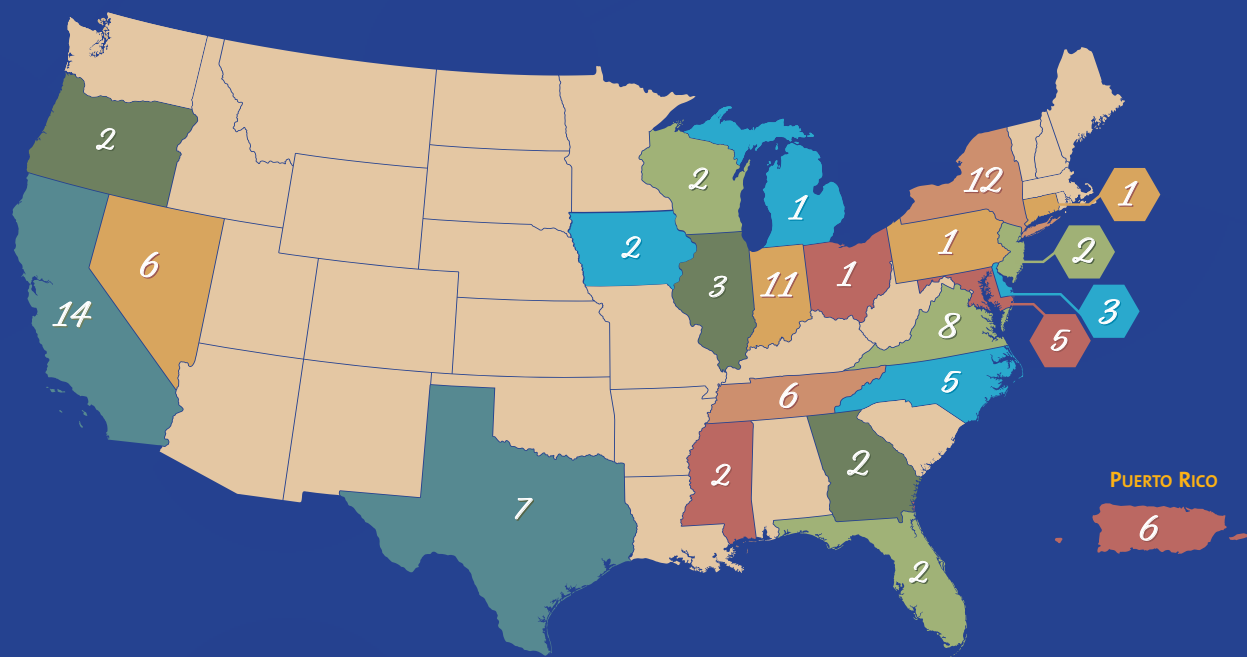
Virtual Summer Camp

For a third consecutive year, ACS offered a Project SEED Virtual Summer Camp (VSC) option to students. This year's VSC was aimed at students who did not live near a Project SEED program site, could not commit to a longer program, or had not yet completed coursework necessary to prepare them for work in a lab.

Figures indicate the number of Project SEED students who participated in the Virtual Summer Camp in each state or territory.

ACS Project SEED

2022 VIRTUAL SUMMER CAMP PARTICIPATION



Project SEED Scholarships

All Project SEED participants are eligible to compete for ACS Project SEED College Scholarships. Scholarships are awarded to students who demonstrate a high potential to succeed in chemistry and declare a major in chemistry or another branch of science or engineering. The scholarships help sustain students' excitement for science by providing the financial support they need to take the next step in their academic journey.

In 2022, more than 40 students were awarded either one-year, nonrenewable or multiple-year, renewable Project SEED College Scholarships. Biographies of a sampling of these talented students are included here.



Brody Littleford **University of Pennsylvania**

Brody Littleford graduated from the Marine Academy of Technology & Environmental Science in Manahawkin, New Jersey. He participated in the 2021 Project SEED Virtual Summer Camp, which he said helped him expand his scientific knowledge and the scope of his career ambitions. He is now pursuing a bachelor's degree in chemistry at the University of Pennsylvania as a Roy & Diana Vagelos Scholar in the Molecular Life Sciences and a Questbridge National College Match Scholar. His career goal is to conduct laboratory research.



Ai Vy Nguyen **University of California, Berkeley**

Ai Vy Nguyen graduated from George Washington High School in San Francisco, California. During summer 2021, she attended the Project SEED Virtual Summer Camp. The program enabled her to explore different careers in science and meet chemistry professionals, including women and underrepresented individuals who inspired her to pursue a STEM degree. She is now a first-year student at the University of California, Berkeley, where she intends to major in chemistry. During summer 2023, she will be conducting research under the mentorship of Jose Martinez Fernandez, a Project SEED alum who is now a graduate student in the Tilley Group at UC Berkeley.

Fernando Camacho
University of Puerto Rico,
Mayagüez



Fernando Camacho graduated from the Secondary School of the University of Puerto Rico in San Juan. He participated in the 2020 and 2021 Project SEED Virtual Summer Camps. During Project SEED 2022, he worked under the guidance of Dr. Xianyong Wu at the University of Puerto Rico, Río Piedras, on a project entitled, “Building an innovative aqueous manganese ion battery for energy storage.” Fernando is now pursuing a bachelor’s degree in chemical engineering at the University of Puerto Rico, Mayagüez. His career goal is to earn a PhD and work in the chemical industry, focusing on energy storage and electrochemistry.

Seymour Haque
Florida Atlantic University



Seymour Haque graduated from Florida Atlantic University High School in Boca Raton in May 2022. A participant in the 2021 Project SEED Virtual Research Pilot Program, he conducted computational chemistry research under Dr. Sabina Maskey at the Quest Student Research Institute in Chantilly, Virginia. His project involved investigating the binding interactions between small-molecule inhibitors and protein receptors. Seymour is majoring in biological sciences and biochemistry at Florida Atlantic University. He plans to become a physician scientist.

Chinenye Nwokenaka
University of Texas at Austin



Chinenye Nwokenaka graduated from Hightower High School in Missouri City, Texas in May 2021. She says her participation in Project SEED for two consecutive summers broadened her understanding of various careers in chemistry. She is now earning a bachelor’s degree in biochemistry at the University of Texas at Austin. She aspires to pursue her interest in both research and medicine.

Norah Kerendian
University of California, San Diego



Norah Kerendian graduated from William Howard Taft Charter High School in Woodland Hills, California in 2022. She participated in the 2021 Project SEED Virtual Summer Camp, where she discovered her passion for cosmetic chemistry. Norah is now a chemistry major at the University of California, San Diego. She aspires to start her own environmentally friendly cosmetic company.

Looking ahead

During summer 2022, ACS again served hundreds of scientifically curious high school students through the Project SEED program. With our steadfast commitment to experiential learning, we welcomed more than 250 students back into labs to conduct hands-on research, engaged 17 more in virtual research projects, and provided mentoring and science instruction to almost 100 students through a third (albeit abbreviated) Virtual Summer Camp.

We worked to seamlessly blend the rich, longstanding elements of the Project SEED program with exciting new practices to deliver an exciting, multi-faceted experience to students.

In 2023, we plan to again engage students in both in-person and virtual research projects and enrich those experiences through virtual programming. Specifically, we plan to continue to provide a Project SEED virtual orientation, incorporating lab

safety and résumé-building courses as well as professional development training to prepare them for their work in the lab.

We also plan to continue to offer the successful seminar series that enables Project SEED students to learn about the work—and sometimes circuitous career path—of accomplished scientists from a variety of backgrounds and chemistry-related disciplines.

We also hope to devise a virtual platform that would allow program participants across the country to better connect and share information about their research projects with one another. These connections will become the bedrock for students' burgeoning professional network.

Another goal for 2023 is to attract additional mentors to allow us to better respond to student enthusiasm for the program, which attracted more than 1,000 applicants this past summer.



At a time when today's youth are bombarded with multi-media messaging and events that distract them from their educational pursuits, we are grateful for the opportunity to partner with you to bring the wonders of chemistry to students who might not otherwise experience it. Together each year, we are helping hundreds of economically disadvantaged high schoolers explore new scientific horizons, discover exciting career paths, and most importantly, begin to see themselves as the scientists who will shape our future. **Thank you!**

“The best part about being in the program was meeting scientists in the lab who were approachable and welcoming. My mentors helped me develop countless new skills and build my confidence. I now understand how broad the field of chemistry is and how fun and exciting it is to be a scientist.”



Leander Q.
Indianapolis Project SEED
Project SEED site: Indiana University School of Medicine, Indianapolis

Meet the Project SEED Staff



Corrie Kuniyoshi, PhD Student Experiences Portfolio Manager

Dr. Corrie Kuniyoshi is the manager of the ACS Student Experiences team. In this role, she leads Project SEED and the ACS Scholars Program as well as other initiatives that serve more than 700 students per year while supporting the growth of an inclusive chemical science enterprise. She ensures that students receive mentoring and educational support and access to ACS programming to fuel their excitement for chemistry and chemistry-related careers. Through her dedicated efforts, she helps students build lasting connections to the vast ACS network of members and volunteers. Corrie also collaborates with ACS governance to guide the strategic direction of ACS educational programs.

During her 17 years at ACS, she has served as project manager for the *ACS Chemistry* and *Chemistry in Context* textbooks and was the chief editor of *GPChemist.acs.org*, a magazine focused on professional development for graduate students. She co-led the development of ChemIDP.org, a nationally recognized career planning tool, and is the primary investigator on the NSF-funded project, “Impact Indicator and Instruments for Individual Development Plans (IDPs).” Corrie earned her PhD in physical-organic chemistry from the University of California, Los Angeles.



Emily Speidell

Program Specialist

Emily Speidell is a program specialist for the Project SEED program. She helped plan and launch the 2021 Virtual Summer Camp and the 2022 Project SEED program, training leaders and creating the program content. In addition, she handled onboarding all students by confirming their eligibility and providing schedules and orientation. She also helped to build the new *Project SEED Reach* platform that will allow consolidation of all SEED Summer Program logistics. Prior to joining ACS in 2021, Emily taught biomedical science and forensics at Decatur Central High School in Indianapolis, Indiana. Prior to working as a teacher, Emily was a molecular biology technician in the Genomic Breeding Group at Dow AgroSciences in Indianapolis. Emily earned a BS and MS in biology with a chemistry minor from Ball State University and an MA in secondary education from University of Indianapolis.



Mahalia Randle

Program Manager

Mahalia Randle is a program manager in the ACS Education Division. She manages the ACS Scholars Program, which provides scholarships and mentoring to help underrepresented students advance their chemistry education. Mahalia also oversees the selection and award process for the Project SEED College Scholarship Program. She is responsible for strategic planning around alumni and student engagement and manages the mentoring component of Project SEED and the ACS Scholars Program. Before joining ACS, Mahalia served as assistant program officer for the College Success Foundation in Washington, DC, where she administered \$3 million in scholarships to more than 300 students. She earned a BA in English from Langston University and a MEd in Educational Leadership from Northern Arizona State University.

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:

ACS Office of Philanthropy

American Chemical Society
1155 Sixteenth Street NW
Washington, DC 20036

e: donate@acs.org

t: 202.872.6210

