ACS Scholars
Chemistry for Life®

25th ANNIVERSARY

AMERICAN CHEMICAL SOCIETY SCHOLARS PROGRAM

IMPACT REPORT

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ACS Scholars
Chemistry for Life®

VISION

The future chemical enterprise will be racially and ethnically inclusive to take full advantage of society's rich diversity.

MISSION

The American Chemical Society Scholars Program will be the premier catalyst to foster the intellectual talents of individuals from historically underrepresented groups who are motivated to pursue degrees, careers, and leadership positions in the chemical sciences.

ACKNOWLEDGEMENTS

The ACS Scholars program would like to thank the many ACS members, corporate sponsors, endowment founders, donors, ACS governance and ACS staff of past and present who have supported, and continue to support this 25+ year endeavor.

We give special recognition to Zaida Morales-Martinez for her 21 years of service as the ACS Scholars Mentoring Consultant. Her dedicated service to ACS Scholars in this role has resulted in numerous mentor pairings and networking connections. We truly appreciate her commitment to and investment in the ACS Scholars Program.

We also acknowledge Iona Black, a long-time application reviewer and ACS Scholars advocate. Iona passed away in 2020, only a few short months after helping to select the 2020 ACS Scholars cohort. She will truly be missed..

EXECUTIVE SUMMARY

Scholars 2020: Year in Review

The ACS Scholars Program started in 1995 in response to the underrepresented number of African American, Hispanic, and American Indian undergraduate students receiving chemistry degrees and in professional roles in the chemical enterprise. Since then, over 3,500 students have participated. **Annually, there are between 300 and 400 Scholars with an additional 100-160 new Scholars inducted each year. The scholarship program provides not only financial support, but also mentoring and professional development.**

While the year 2020 marked the 25th anniversary of ACS Scholars, it was also an unprecedented year with the COVID-19 pandemic, economic uncertainty, and global protests for social justice. **These events have affected students especially, making decision-making for upcoming semesters increasingly difficult, finances even more constrained, and has increased concerns of the health of family and friends (particularly those from socioeconomically marginalized communities). In spite of these challenges, ACS Scholars have remained steadfast and resilient.** In response to these challenges, scholarship award use was expanded for the 2020-2021 academic year. This adjustment afforded students the opportunity to use their scholarship funds as needed for tuition, books, supplies, as well as room and board.

With much of the in-person celebratory events canceled, **the 25th anniversary served as an opportunity to increase student engagement and recognition. Several of the year's program highlights listed to the right demonstrate our commitment to providing such opportunities for the ACS Scholars.**

Program Highlights

25th Scholars Cohort: 360 ACS Scholars for the 2020-2021 academic year, which included 100 newly selected Scholars.

ACS Connects: Launch of a new mentoring and networking platform. To date there are 308 registered users representing 2016-2020 ACS Scholars cohorts.

Scholars Research Spotlight: 14 student research projects featured across ACS Scholars social media platforms.

C&EN Articles: 6 bi-monthly featured articles showcasing ACS Scholars alumni who were interviewed by current ACS Scholars and recent graduates under the direction of C&EN editor Linda Wang.

Zaida Morales-Martinez Recognition: 21 years of dedicated service. A video tribute, plaque, and gift box were awarded in honor of her retirement.

Merck Corporate Mentoring program launched: 8 ACS Scholars paired with a Merck mentor as part of the scholarship sponsorship opportunity.

Society of Chemical Industry partners with ACS Scholars: Internship opportunities and scholarship sponsorship for current ACS Scholars.

Webinars: BASF - Internships 101 Webinar, Mentoring: Finding Meaningful Connection on ACS Connects, Calvin Terrell: Conversation on Race and Self Care, and Virtual Game Nights.

Stock photo from American Chemical Society

ACS SCHOLARS: ORIGINS

The ACS Scholars Program, along with the ACS Committee of Minority Affairs, were created to "change the face of chemistry" by increasing representation of Black/African-American, American Indian, and Hispanic/Latinx in the chemical enterprise. The creation of an undergraduate scholarship program could help to broaden the pipeline by helping to reduce the financial burden of college education. The addition of mentors and network access further increased the value of the program for participants assisting them with acquiring the skills and credentials needed for success in chemical science careers.

To me, becoming an ACS Scholar is joining an inclusive community of like-minded individuals who want to use the sciences and particularly chemistry to better the world through research and developing new products and chemicals. It's an honor to be a part of this selective community of such individuals...

– Brandon T. McReynolds, Class of 2020

Stock photo from Canva.com

1991

Dr. S. Allen Heininger, President of the American Chemical Society, appointed a task force on minorities in the chemical sciences. The task force recommended creation of the Committee on Minority Affairs (CMA).

1994

Dr. Carlos G. Gutierrez, the first chair of the Committee on Minority Affairs (CMA) proposed the minority scholarship program. The program was approved for $5 million for 5 years.

1995

The ACS Minority Scholars Program officially launched in the fall of 1995 by awarding scholarships to 200 students.

1996

ACS builds relationships with advocacy organizations such as:

- American Indian Science and Engineering Society
- Society for the Advancement of Chicanos and Native Americans in Science
- National Organization for the Professional Advancement of Black Chemists and Chemical Engineers

1997

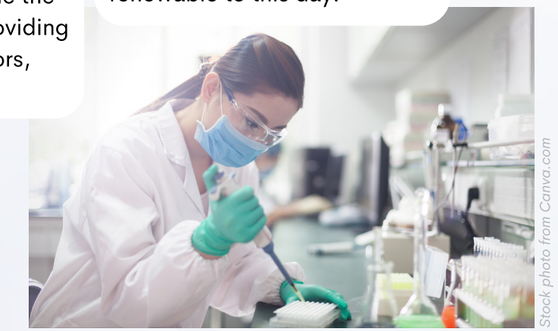
The scholarship program was renamed the ACS Scholars Program. PPG Industries and Tripos Corporation became the first corporate donors, providing renewable funding, mentors, and paid internships.

1999

The ACS Board of Directors granted a time extension of the program to 2005, and an additional appropriation of $300,000 per year .

2000

The Scholars Program began once again awarding renewable scholarships. They remain renewable to this day.



Stock photo from Canva.com

2002

The Scholars Program was again granted an extension by the Board, this time from 2005 to 2008.

2005

The Scholars Program was granted an extension by the Board through spring 2010.

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2007

The Scholars Program was granted an extension by the Board through 2013.

2018

The first ACS Scholars profile series was published online, highlighting a few of the many Scholar Alumni and their career paths.

2020

ACS Connects, a social media platform, is launched, allowing current and former ACS Scholars to find and connect with mentors, share updates, and network.

Each year there are approximately 300-400 students in the ACS Scholars Program, attending more than 160 colleges and universities nationwide.

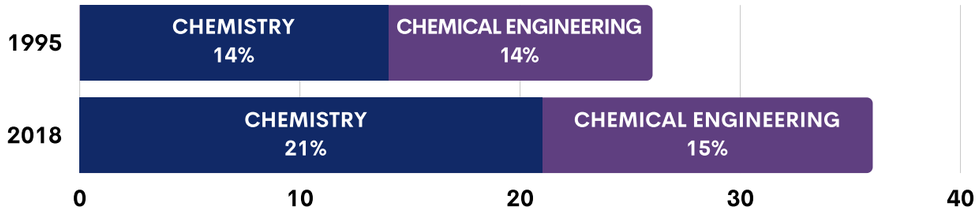
Stock photo from Canva.com

The American Chemical Society Scholars Program was created to increase the number of African American, Hispanic, and American Indian bachelor degree recipients in chemistry-related disciplines, and ultimately the broader chemical enterprise. Often, the barriers to degrees in science and engineering fields for marginalized groups is financing their studies, receiving mentoring and advisement, and accessing an effective network for internships and full-time career opportunities (*M.E. Brazziel, W. F. Brazziel, Journal of Science, Education, and Technology*).

The ACS Scholars Program aimed to address those gaps via the provision of scholarship funding, and later introducing mentoring, conference travel awards, and internship access.

When the program first started in 1995, only 13.8% of all Science and Engineering Bachelor degree recipients identified as either African American, Hispanic, or American Indian. **As of 2018, the percentage of Science and Engineering Bachelor degrees conferred to under-represented groups increased to 24%**.

Breakdown of Major within Science and Engineering Bachelor Degree Receipients



NSF, Science and Engineering Degrees, by Race/Ethnicity of Recipients: 1995–2004; National Center for Science and Engineering Statistics, tabulations of the Integrated Postsecondary Education Data System Completions Survey, National Center for Education Statistics

This increase in the number of graduates in science and engineering fields is attributed to a number of initiatives, organizations, and programs aimed towards these historically underrepresented groups created along the way. ACS Scholars has helped to achieve this goal.

Following the 20th anniversary of ACS Scholars, an in-depth survey of program alumni and a comprehensive update of alumni information was conducted. A total of 535 alumni and current Scholars participated. Slightly over 30% were ACS Scholars at the time, and 9% had withdrawn from the Scholars program.

71% of alumni and current Scholars reported that they were very satisfied with the program, noting networking, internship opportunities, mentoring, and other professional development as primary benefits. 90% listed reduced financial concerns while in college as an additional benefit.

First-generation college students and alumni were even more likely to point out the influence of the ACS Scholars Program, with statistically-significant agreement that the program helped their opportunities to attend college, pursue a chemistry related major and complete their degree. Many also said the program encouraged them to pursue graduate degrees in chemistry-related fields (*ACS Scholars Program 1995-2016 Survey Analysis Report*).

Nearly 75% of alumni were employed full-time in chemistry-related fields.

Additionally, 70% of alumni indicated that they used their technical skills and education to a considerable or very great extent in their full-time careers (only 4% weren't using those skills at all). Similar trends were found when comparing the 2016 survey data to alumni updates of the 1995 ACS Scholars (primarily through LinkedIn and web updates or individual).

Stock photo from Canva.com

DEMOGRAPHICS OF ACS SCHOLARS: SINCE PROGRAM INCEPTION

Stock photo from Canva.com

Since 1995, over 3,500 students from over 691 colleges and universities across the United States and its territories have become ACS Scholars. Of the total participants, updates on about 50% were found. Over half received advanced, terminal, and/or professional degrees, including 450+ alumni who received a PhD, Md/PhD, or PharmD. An additional 165 earned an MD, 129 received an MBA, and 58 received a JD. Scholar alumni have taken on roles in industry (738), medicine/healthcare (290), academia/education (259), and government/military (96). Some top employers include ExxonMobil, Procter & Gamble, Dow Chemical, Intel Corporation, and DuPont.

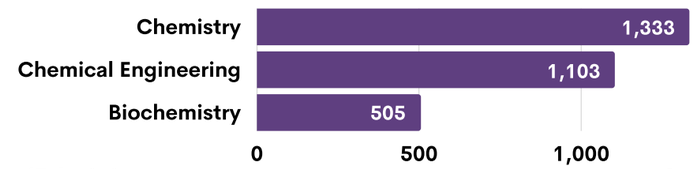
239 Former ACS Scholars in education:

- **34 Assistant Professors**
- **14 Associate Professors**
- **5 Full or named professors**
- **78 in K-12 related roles, including teachers and principals**

455 Former ACS Scholars received one or more of these graduate degrees:

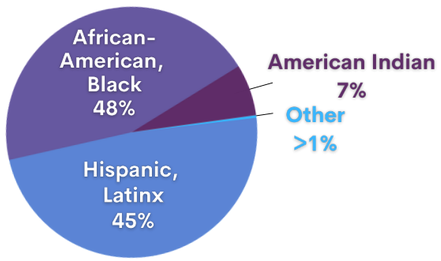
- **PhD**
- **MD/PhD**
- **MD**
- **PharmD**

Most Popular College Majors of ACS Scholars



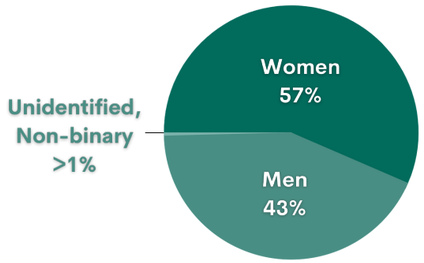
Race/Ethnicity

N = 3,199



Gender Identity

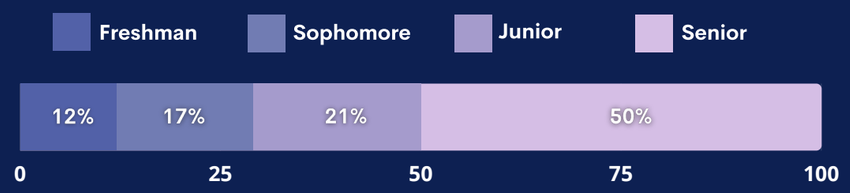
N = 3,199



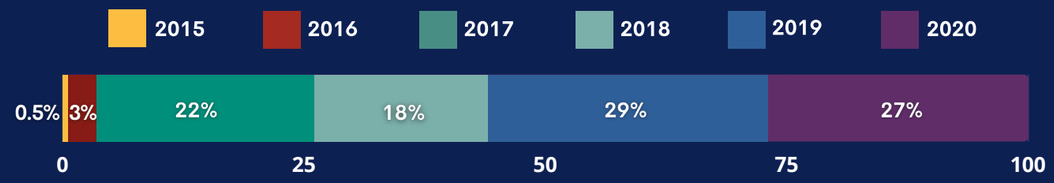
A CLOSER LOOK: ALL CURRENT SCHOLARS

While the current group of ACS Scholars does differ a bit from the overall program demographics, with a greater percentage of women and Hispanic/Latinx individuals, the greatest shift is seen in the most popular college majors, with chemical engineering overtaking chemistry as the most popular.

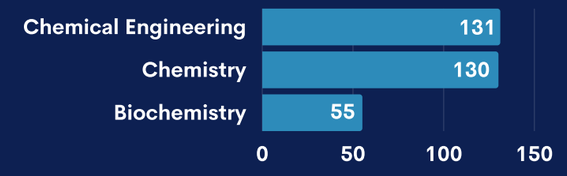
School Year



Cohort Year

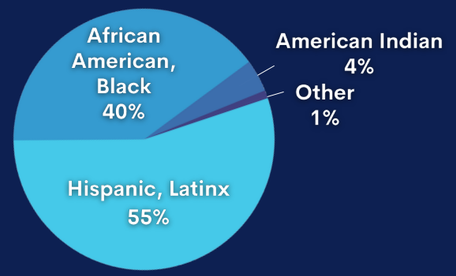


Most Popular College Majors



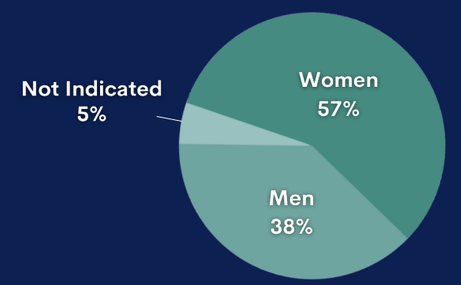
Race/Ethnicity

N = 357



Gender Identity

N = 357



25TH ANNIVERSARY: REFLECTIONS FROM CURRENT SCHOLARS

To me, being an ACS Scholar means opportunity. Acceptance as a Scholar by the American Chemical Society will provide me not only with financial support during my college career, but also the means to aid me in succeeding in my future career as a graduate student with an interest in scientific research, specifically using Biochemistry as a way to potentially solve current issues in the field of medicine.

- Alejandro Gomez Gonzalez

Being an ACS scholar surrounded by people with similar interests and the desire to help one another, rather than stepping on each other, is the security I have dreamed of since I was six years old. Being an ACS scholar to me means acceptance and support of my aspirations while being able to build relationships in a healthy, mentally stimulating environment. Thank you for what you have provided me with.

- Christalyn B. Aussler

Aaliyah Lemons

Photo submitted by Aaliyah Lemons

I truly appreciate your generous scholarship support. Because of you, I have been given some relief and time to focus more on schoolwork instead of how I will be having to pay for school. You have not only helped me, but also my family by helping me further my education. My goal was to work and try to help pay for my schooling, this would have been a lot, but with your help, I have had the chance to avoid that this year. Once again, I want you to know that I cannot thank you enough for your kindness.

- Aaliyah Lemons

This scholarship has a lot of meaning to me because it serves as a reminder that all my hard work is worth it. And It pushes me to keep moving forward and to not conform myself with less. I'm very grateful for this award, and I can't wait for everything that follows!!

- Shakira M. Martínez Vásquez

Shakira M. Martínez Vásquez

Photo submitted by Shakira M. Martínez Vásquez

Receiving this scholarship award has made me realize that there is much more I could achieve. It has been very exciting and has relieved me from some financial burden. Thank you to ACS.

- Felix Forcho

I'm thoroughly excited to be an ACS Scholar because I've never had a mentor outside of my family. As a role model for younger students in my community, I value the importance of mentorship greatly. I can't wait to see all the amazing things I'll learn as a mentee. Additionally, being an ACS Scholar will provide invaluable opportunities to network with professionals and students going through similar experiences. I now know that the year ahead will be enriched with lessons that I can carry with me for a lifetime.

–Oriana Nelson

Everything ACS stands for by promoting a diverse collective in STEM is my true goal in my educational endeavors. Being an ACS Scholar means I am on the right track to do just this and excel and that all the effort I have put into my work thus far is truly starting to shine through. Thank you for this amazing opportunity and I am beyond excited to be a member of the ACS unprecedented Scholar's Program.

- Victoria Diaz

ACROSS THE COUNTRY: CURRENT ACS SCHOLARS

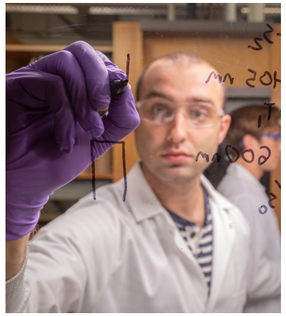


Photo Property of American Chemical Society

At the start of the Fall 2020 semester, ACS Scholars were scattered across 41 states; Washington, DC; and two US territories (Guam and Puerto Rico). Scholars are most represented in California, New York, Texas, Illinois, and Georgia. A majority of students attend 4-year institutions, but also the types of institutions also include:

- 4 special focus universities including 3 schools of engineering
- 5 two-year and Associate-level schools

14 | **Historically Black Colleges and Universities attended by 19 ACS Scholars**

106 | **Research Universities, including 65 with "very high" research activity**

158 | **Institutions with ACS-certified chemistry departments**

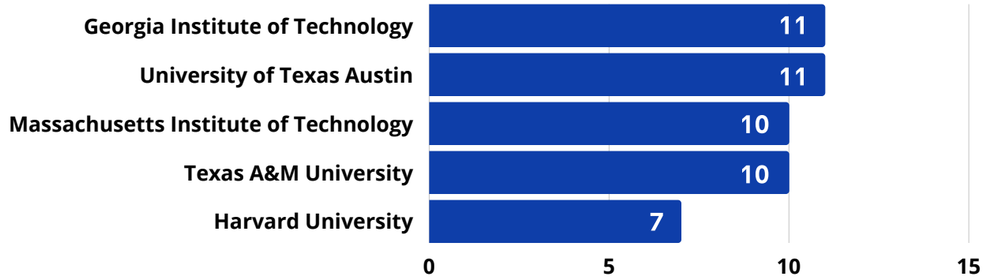
SCHOLAR SPOTLIGHT

Carmita Semaan, MBA, *Chicago, Illinois*

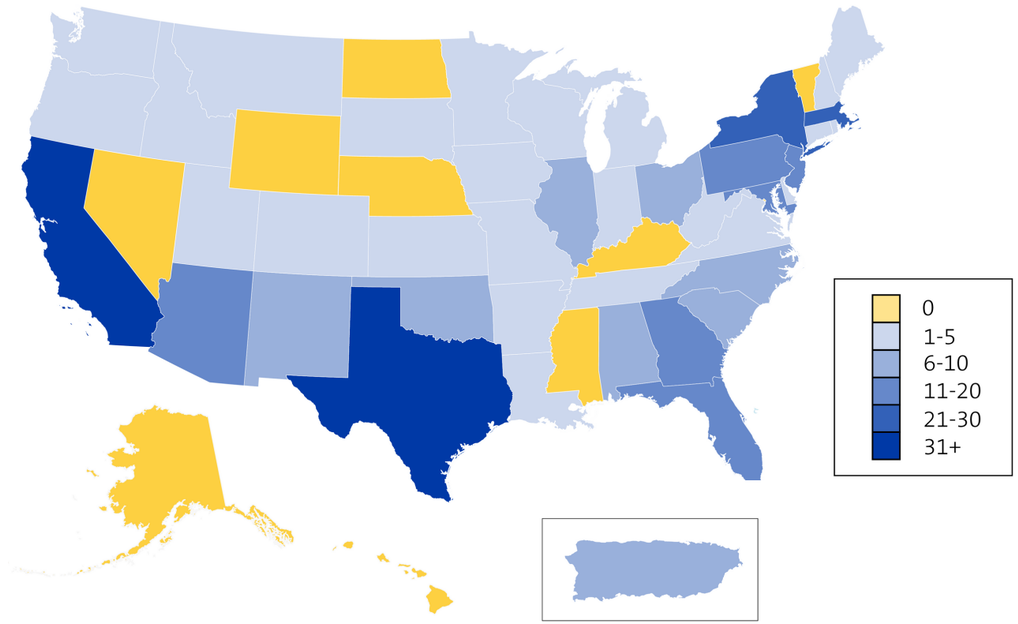
A member of the original 1995 cohort, Carmita graduated with her BSE in chemical engineering in 1999 from the University of Michigan. Shortly after, she began her MBA at Northwestern University's Kellogg School of Management, and spent time studying abroad in London.

In 2014, after eight years working in non-profits, Carmita founded the Surge Institute, a novel leadership institute for emerging leaders of color in the field of education with the aim to dramatically change the face of leadership in education reform by preparing, connecting, and supporting high-capacity African-American and Latinx leaders in the field.

Top 5 Most Represented Schools



Geographic Distribution by Academic Institution: All Current Scholars



ACS Scholars Endowment Founders

Arindam Bose ACS Scholar Arindam Bose	Carlos Huang
Ronald Breslow ACS Scholar Family & colleagues of Ronald Breslow	Morgan Skidders
Bill & Mary Carroll ACS Scholar Bill & Mary Carroll	Caiden Golder
Halley Merrell ACS Scholar Matthew K. Chan	Terrill Jones
Gilead Sciences ACS Scholar Gilead Sciences	Jesus Aguilar
Diane Grob Schmidt ACS Scholar Diane Grob Schmidt	Jayda Jackson
Gretchen R. Hall ACS Scholar Gretchen R. Hall	Leilani Garcia
Carolyn Haynie and William Penn ACS Scholar Sharon Haynie	Kira Hudson
S. Allen Heininger ACS Scholars S. Allen Heininger	Andrew Beahan, Melanie Soto, Alyssa Tipler & Karla Troncoso
Madeleine Jacobs ACS Scholars Madeleine Jacobs & Anonymous Donor	Sophia Mittman & Habeeb Salau
Joan M. Kaminski ACS Scholar Joan M. Kaminski	*New Endowment Founder**
Marjorie O. Leenhouts Scholarship for a Young Woman in College Majoring in Chemical Sciences Jim & Marjorie Leenhouts	Andrea Lopez
Bruce E. & Cynthia A. Maryanoff ACS Scholar Bruce E. & Cynthia A. Maryanoff	Sean Deresh
E.G. Meyer Family ACS Scholar E.G. Meyer	Alexandra Fernandez
Eli Pearce ACS Scholar Family & colleagues of Eli Pearce; the ACS New York Local Section	David Gonzalez
Barbara Rupple ACS Scholar Barbara Rupple	Brea Tinsley
Catherine T. Sigal ACS Scholar Catherine T. Sigal	Genesis Vasquez
Joseph Vacca ACS Scholar Joseph Vacca	Briyhan Martin

* Became Endowment Founder in December 2020. First scholar to be assigned in 2021.

ACS Scholars Corporate Contributors

Founding Partner
$1 million +

PPG Industries

Benefactor
$1 million

Procter & Gamble

Visionary Partners
$500,000

3M
The Camille and Henry Dreyfus Foundation
GlaxoSmithKline

Sustaining Partners
$250,000

ACS Petroleum Research Fund
BASF
Dow Corning
DuPont
Merck & Co. Inc.
Schering-Plough
Société de Chimie Industrielle

Partners
$100,000

Air Products
AstraZeneca
Celgene
CME ACS
Covestro
The Dow Chemical Company
Genentech
Gilead Sciences
Pfizer
WR Grace
Xerox

Gifts from **$2,500 to $99,000** have been received from more than **40 corporations and foundations**.

IN THE LAB: STUDENT RESEARCH

ACS Scholars are encouraged to seize opportunities to participate in research. Of the 94 ACS Scholars that graduated in 2020, 97% participated in at least one research experience. ACS Scholars hosted a year long social media campaign featuring 14 ACS Scholars for a research spotlight. Scholars shared the research they were participating in, and the impact of that research on their respective fields. Five of those features are included below.

Being an ACS Scholar has meant having a great support system that allows me to reassure that dreams do come true. As an ACS Scholar and the support system provided I feel confident that I will make my dreams come true.

– Juan Caravez, Class of 2020

Photo Courtesy of Angel Arrendondo

Angel X. Arrendondo, *Los Angeles, California*

California State University, Los Angeles
Senior majoring in Chemistry

Angel X. Arrendondo is an ACS Scholar working in an atmospheric chemistry lab at California State University, Los Angeles, under the guidance of Dr. Krishna Foster. In this laboratory, the scientists focus on detecting polycyclic aromatic hydrocarbons (PAHs) in the Los Angeles and San Bernardino counties of California using HPLC instruments. These aromatic hydrocarbons consist of multiple fused benzene rings that form due to incomplete combustion reactions.

Reactions forming PAH happen constantly in the troposphere, originating from burning biomass, motor vehicle exhaust, industrial emissions, in-home heating, and other reactions (in liquid or gas phase). Each of these processes lead to incomplete combustion and form PAH. Since some PAHs are known to cause various forms of cancer, it is crucial to study the particular matter in the air that people breathe on a daily basis.

Angel's role in the current project is to collect samples from the greater Los Angeles area for analysis, and quantify PAH within these samples using HPLC.

Juan Caravez Barajas, *Chico, California*

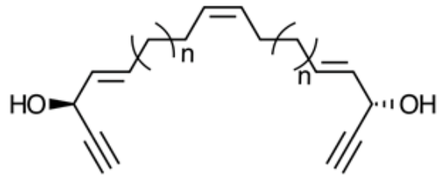
California State University, Chico
Recent graduate in Chemistry

Photo Courtesy of Juan Caravez

Juan Caravez is an ACS Scholar who conducted research on the "Complete synthesis of durynes and homologues" under Dr. David Ball.

Duryne and its homologues are naturally occurring enynols isolated from the marine sponge *Petrosia ficiformis* and have shown cytotoxic activity. The family of isolated acetylenes were screened against HeLa cells in a MTT assay and showed promising inhibition of tumor cell growth. Literature has shown synthetic routes to synthesize the symmetric enantiomers of duryne.

However, expanded synthetic routes are still needed for the asymmetric homologues. Under the guidance of Dr. Ball, we investigated a potential generalized synthetic route to obtain the asymmetric durynes of varying carbon back bones.



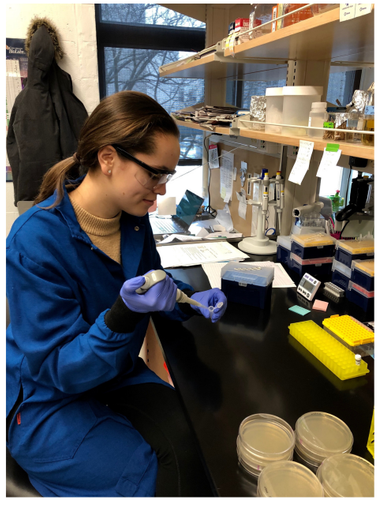


Photo Courtesy of Gabrielle Hernandez

Gabrielle Hernandez, *Boston, Massachusetts*

Northeastern University
Junior majoring in Biochemistry

Gabrielle Hernandez is an ACS Scholar who worked on the project "Characterizing the Phosphototransfer that Regulates Antibiotic Resistance in *Acinetobacter baumannii*" with Dr. Edward Geisinger of Northeastern University, assisted by Nicole Raustad, a graduate student.

The project investigates disease-causing bacteria that are quickly developing resistance to antibiotics used to treat infected patients, leaving doctors with limited treatment options. Cases of infection from antibiotic-resistant bacteria, including *Acinetobacter baumannii,* have increased worldwide. New solutions must be discovered to effectively target the bacteria's virulence and resistance pathways.

One possible drug target is the BfmRS sensory-transduction system. Two component systems such as this have been linked to modulating many genes in bacteria that influence its cell wall, biofilm, and antibiotic resistance. The objective of Gabrielle's project is to evaluate how a mutation of a possible phosphorylation site in this system affect antibiotic resistance regulation in this bacteria. A D58A mutation in bfmR will lead to its inability to be phosphorylated thereby decreasing the gene expression and antibiotic resistance in the bacteria to that of a complete knockout of the system.

Conclusively, the BfmR protein could be a potential target in the future of treating *A. baumannii* infections because of its essential role in controlling the expression of the genes that lead to the bacteria's extreme resistance.

Photo Courtesy of Glory Onajobi

Glory Onajobi, *Atlanta, Georgia*

Emory University
Recent graduate in Chemistry

Glory Onajobi is an ACS Scholar who performed research under the guidance of Dr. Gary Kunkel of Texas A&M University on "Investigating the Phenotypic Effects After Deletion of the Major Promoter Driving Expression of the Transcriptional Protein CHD8 in Danio rerio."

Glory's research focused on examining the phenotypic effects that occur after the deletion of the promoter for the transcriptional regulatory protein, chromodomain helicase DNA binding protein 8 (CHD8). CHD8 is an ATP-dependent chromatin remodeling factor that regulates gene expression and is thought to affect the expression of many other genes that are involved in brain development. Mutations in the CHD8 gene impair the function of the CHD8 protein, and symptoms that result from loss of function mutations have been discovered to align with symptoms found in individuals with Autism Spectrum Disorder (ASD).

The model system Danio rerio (zebrafish) was used to study the phenotypic effects of the promoter deletion. Single guide RNAs (sgRNAs) and Cas9 were injected into the embryos of wildtype zebrafish to generate a germline mutation containing a deletion of the CHD8 promoter. Phenotypic effects of presumed reduced synthesis of the CHD8 protein were visualized through evidence of disruption of brain development.

Through this research, Glory found that 89% of embryos outcrossed from the founder fish lacked a prominent mid-hindbrain boundary in comparison to 3% identified in a wildtype cross.

Being an ACS Scholar meant having the opportunity to pursue my goals knowing I had a community that supported me and was well invested in making sure I succeed.

– Glory Onajobi, Class of 2020

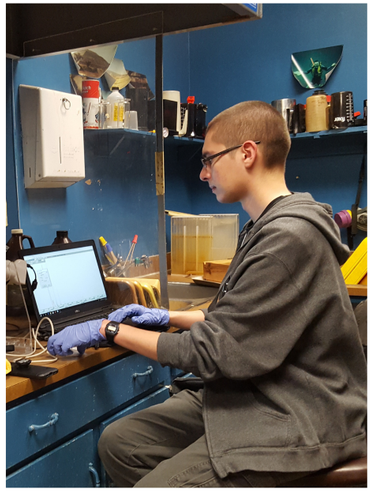


Photo Courtesy of Gabrielle Hernandez

Joseph Pavelites II, *Tuscaloosa, Alabama*

University of Alabama
Recent graduate in Chemistry

Joseph Pavelites II is an ACS Scholar who conducted research under the guidance of Dr. Julia Cartwright, a geochemist at the University of Alabama. He worked on the project "Compositional Investigations of Moundville Artifacts to Determine the Presence of Meteoritic Iron."

Iron meteorites existed as a rare form of workable iron for societies without the technology to purify iron ore. Because of this, many artifacts before this time period were made up of this unique material. The objective was to develop a reliable, non-destructive method for identifying the elemental composition of artifacts to determine the possibility of meteoric iron in samples. A hand-held XRF instrument was used to analyze Mississippian tribal items for iron-nickel rations that are indicative of meteoric composition.

The information gained from this study will allow us to determine the suitability of the portable XRF in investigating sample composition. The analyzed artifacts could potentially also be used to track dissemination of items made from the same base material.

Being an ACS Scholar has given me so many opportunities to interact with my fellow scholars and other chemists. Having the ability to travel to conferences, individuals to talk to about my career goals, and opportunities to help other students are what made the scholarship more than tuition assistance.

– Joseph Pavelites II, Class of 2020

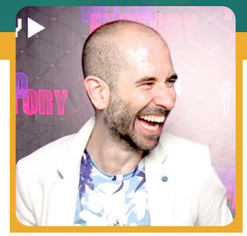
SCHOLAR SPOTLIGHTS

Rhondee A. Baldi, MD, MSc, *Washington, DC*

Rhondee is an internist and the current medical director of Inovalon, Inc. in Washington, DC. She is passionate about practice changes to improve the patient experience in primary care, and has been thus engaged in health care operations, completing analytic and evaluative work to support program and policy formulation. She has led the implementation of care teams and patient-centered medical home activities in her practice.

As a managing consultant at The Lewin Group, Rhondee led the development of quality measures and formulated technical assistance tools and materials directed at community health centers seeking to integrate primary care services. Her prior research focused on mental illness and medical co-morbidity. In addition to her clinical practice, Dr. Baldi served as attending preceptor for three years at Georgetown University and the Venice Family Clinic at UCLA.

Dr. Baldi graduated as an ACS Scholar in 1997 from Spelman College as a Biochemistry major. She earned her MD from Harvard Medical School and holds two masters degrees.



Charles "Carlos" Armesto, *New York, New York*

A member of the original 1995 Scholars cohort, Mr. Armesto graduated with a degree in Chemical Engineering from the Massachusetts Institute of Technology. While at MIT, he participated in the theater community, leading him to earn his MFA in directing from Carnegie Mellon University.

Upon settling in New York City, Mr. Armesto immersed himself in theater, directing musicals and productions. In 2009, he became head of Theatre C, a company that brings together music, dance, plays, and immersive events. Alongside his interest in the arts, Mr. Armesto has tutored high school and college students in STEM subjects for over a decade, highlighting his life-long passion for math and science as well as a commitment to teaching as a way to engage young minds.

2020 ACS SCHOLARS COHORT

Daniel Abebe, ***University of Maryland, College Park,*** Chemistry
Alejandra Acevedo Montano, ***Portland State University,*** Chemistry
Mikeclinton Agejo, ***Clemson University,*** Chemistry
Oluwagbotemi Akinsoji, ***University of Central Florida,*** Chemistry
Juan Alcantara, ***Skidmore College,*** Biochemistry
Sienna Alicea, ***North Central College,*** Chemistry
Obaa Amponsah, ***Howard University,*** Chemistry
Christalyn Ausler, ***Cornell University,*** Chemical Biology & Biology
Adara Bacon, ***Georgia Southern University,*** Biochemistry
Natalie Banzadio, ***Towson University,*** Chemistry
Emily Barragan, ***University of California, Irvine,*** Chemical Engineering
Abeshai Bernard, ***Prairie View A&M University,*** Undeclared
Ayana Blair, ***Illinois Wesleyan University,*** Biochemistry
Joseph Blount, ***Raritan Valley Community College,*** Chemical Engineering
Sebastian Boysen, ***University of Arkansas, Fayetteville,*** Chemistry
Melanie Buathier, ***Arizona State University,*** Forensic Science
Shanel Calle Urgiles, ***Stevens Institute of Technology,*** Chemical Biology
Alina Carranza, ***West Virginia University,*** Forensic Science
Natalia Carrasco-Munoz, ***University of Notre Dame,*** Environmental Engineering

> ***I am honored to be part of the American Chemical Society Scholars Program. As a first generation college student, this generous donation has brought me one step closer to my goal of earning a B.S. in Biochemistry and eventually a Ph.D. Thanks to the American Chemical Society, my path to a career in a chemical field is within sight. I see myself contributing to the scientific community in meaningful ways in the future.***
> **- Gabriella Cerna**

> ***Being an ACS Scholar is a reflection of hard work and intellectual tenacity that has continued to inspire me to challenge myself. I want to thank the Selection Committee from the American Chemical Society who reviewed my application and found inspiration within my story. To be receiving a national award in the chemistry field, is an honor and validating as a scientist. I am excited to be a part of a network that has amazing, hardworking and inspiring scholars.***
> **– Alejandra Acevedo Montano**

Gabriella Cerna, ***Arizona State University,*** Biochemistry
Carter Cohen, ***Georgetown University,*** Biochemistry
Natalie De La Luz, ***Polytechnic University of Puerto Rico,*** Chemical Engineering
Jose Del Rio, ***Georgia Gwinnett College,*** Chemistry
Gerald DeRogers, Jr., ***Oklahoma State University,*** Chemical Engineering
Aissata Diallo, ***University of Tennessee, Knoxville,*** Chemical Engineering
Victoria Diaz, ***California State University, Long Beach,*** Chemical Engineering
Jonathan Elisabeth, ***Pomona College,*** Chemistry
Luke Elissiry, ***University of California, Los Angeles,*** Chemistry
Christian Ellis, ***University of the District of Columbia,*** Chemistry
Jarisa Escalante, ***State University of New York, Potsdam,*** Biochemistry
Andruw Fierro, ***Arizona State University,*** Biochemistry
Felix Forcho, ***University of Maryland, College Park,*** Chemical Engineering
Emil Gillett, ***Trinity University,*** Chemistry
Jessica Gomez, ***University of Texas, El Paso,*** Chemistry
Alejandro Gomez Gonzalez, ***Saint Peter's University,*** Biochemistry
Jordan Gonzalez, ***Lewis & Clark College,*** Chemistry
Diego Granados Delgado, ***University of Texas, Austin,*** Chemistry

Throughout my academic career thus far, I have questioned my sense of belonging in STEM due to seeing so few who look like me - both African American and female - in academia. Being selected as an ACS Scholar gives me the courage and confidence to say I have a place within my field and can make unique contributions to the future of STEM. I am immeasurably grateful to the professionals, scientists, and academics that see my potential and are investing into my success as a chemist. I am eager to one day inspire future girls who do not yet see themselves reflected in the hard sciences and remind them they, too, belong. Being an ACS Scholar is only the beginning of that journey.
–Kayla Landers

Glenn Grimmett, ***Northeastern University,*** Chemical Engineering
Nicolas Gutierrez, ***New Jersey Institute of Technology,*** Chemical Engineering
Alexia Gutierrez Ledesma, ***Pitzer College,*** Chemistry
Nicholas Hadler, ***University of South Florida,*** Chemistry
Sky Harper, ***Drexel University,*** Chemistry
Katelin Harris, ***Marist College,*** Chemistry
Miauaxochitl Haskie, ***Brown University,*** Environmental Science
Hannah Hassoun, ***Case Western Reserve University,*** Chemistry
Hailey Hendricks, ***University of Rhode Island,*** Chemistry
Jabari Hinton, ***Alabama A&M University,*** Food Science
Nnenna Ijomanta, ***Harvard University,*** Chemical Engineering
Monet Irvin, ***Xavier University of Louisiana,*** Chemistry
Melissa Jones, ***Harvard University,*** Bioengineering
Tiffany Kalu, ***Harvard University,*** Environmental Engineering
Kayla Landers, ***California State University, Long Beach,*** Chemistry
Aaliyah Lemons, ***University of Texas, Austin,*** Chemical Engineering

Alyssa Liming, ***West Virginia University,*** Forensic Chemistry
Mitzzy Lopez Canez, ***Northern Arizona University,*** Chemistry
Lizeth Lopez Vazquez, ***University of California, Irvine,*** Chemistry
Shakira Martinez Vasquez, ***Polytechnic University of Puerto Rico,*** Chemical Engineering
Christopher McDonald, ***Texas State University,*** Biochemistry
Giovan McKnight, ***Harvard College,*** Chemistry
Brandon McReynolds, ***New Mexico Institute of Mining & Technology,*** Chemical Engineering
Paula Mendoza Moreno, ***Colorado State University,*** Chemical Engineering
Molly Monge, ***Rensselaer Polytechnic University,*** Biochemistry
Nicholas Morales, ***Hunter College,*** Chemistry
Oriana Nelson, ***Princeton University,*** Environmental Engineering
Deaquan Nichols, ***James Madison University,*** Biophysical Chemistry
Citlali Nieves Lira, ***Oregon State University,*** Chemistry
Adriana Okonkwo, ***Texas A&M University,*** Biochemistry
Elena Olvera, ***Westmont College,*** Chemistry
Javier Orozco, ***University of Florida,*** Biochemistry

Becoming an ACS Scholar has really given me something to look forward to for my college career. Throughout this coronavirus pandemic, I got pretty anxious about the future. I was afraid that I might not be able to have a college experience in the fall, and began to fret about my family's financial situation. Receiving the email that I was selected as an ACS Scholar definitely gave me some hope. I am excited to create long lasting relationships within this scholar program with other scholars and mentors. Most of all, I am eager to further my love for learning about the chemical sciences.
– Tiffany Kalu

2020 ACS SCHOLARS COHORT

Valery Ortiz, ***University of California, Santa Cruz,*** Biochemistry

Adrian Ortiz, ***Texas A&M University,*** Chemical Engineering

Alexandria Palazzo, ***Florida State University,*** Chemistry

Harith Palmer, ***University of Michigan,*** Chemical Engineering

Gustavo Pulido Molina, ***University of South Florida,*** Chemical Engineering

Hasna Rachid, ***Cleveland State University,*** Chemical Engineering

Maximus Ramirez, ***University of Delaware,*** Chemical Engineering

> *It means the absolute world to me to be an ACS Scholar. It validates the time and interest that I've invested over the years into the subject and I hope that this will lead into new exciting opportunities!*
>
> **- Juan Alcantara**

Tobias Rangel Guillen, ***University of Washington,*** Chemistry

Anthony Rodriguez, ***University of California, San Diego,*** Chemistry

Omar Salinas, ***University of Chicago,*** Chemistry

Joseph Sampson, ***Monmouth College,*** Chemistry

Kimmia Saunders-Butler, ***Georgia Institute of Technology,*** Chemical Engineering

Victor Schiller, ***New Mexico Institute of Mining and Technology,*** Chemistry

Greydon Shangreaux, ***South Dakota School of Mines and Technology,*** Chemistry

Jade Simmons, ***University of Maryland, College Park,*** Engineering

Madelyn Skloss, ***Texas A&M University,*** Chemical Engineering

Rayal Smith, ***University of Maryland, Baltimore County,*** Chemistry

Abigail Soliven, ***Purdue University,*** Chemistry

> *Having the support of the American Chemical Society and its large network of professionals and scientists provides me with the confidence to pursue my goals of becoming a professional scientist and helping others through chemistry research.*
>
> **- Luke Elissry**

Pamela Joy Tabaquin, ***City College of New York,*** Biochemistry

Sebastian Uribe Leon, ***University of South Florida,*** Biochemistry

Jazmyn Vivaldo, ***Benedictine University,*** Chemistry

Kyler Westphal, ***Brigham Young University,*** Biochemistry

Keiyana White, ***Gordon State College,*** Chemistry

Leo Williams, ***California Institute of Technology,*** Bioengineering

Janeva Williams, ***North Carolina State University,*** Chemistry

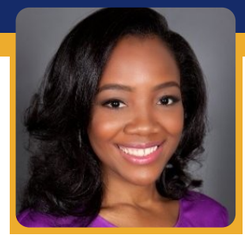
Brittany Williams, ***Louisiana State University,*** Chemical Engineering

Manuel Yepes, ***Harvard University,*** Chemistry

Dulce Zamora, ***University of Houston,*** Chemical Engineering

> *To be an ACS Scholar is an immense honor that I have earned through my persistent hard work and effort as an individual in the chemical sciences. It means that my potential is defined by me, and is decidedly infinite, as I am unwilling to let anything hold me back- be it rigor, circumstance, or my own comfort zone. I am dedicated to chemistry, and being a Scholar means that I have what it takes to feed my passion and to grow from it.*
>
> **- Janeva Williams**

SCHOLAR SPOTLIGHTS



Marisa Moore, MBA, RDN, *Atlanta, Georgia*

As an ACS Scholar, Marisa majored in Chemistry, graduating from Georgia Institute of Technology in 1999. She went on to earn her MBA from Georgia State University and become a registered dietitian nutritionist.

This unique educational background positioned her perfectly to become a federal contractor for the U.S. Centers for Disease Control (CDC) where she developed, marketed, implemented, and evaluated nutrition and wellness programs. After more than 6 years at the CDC, Marisa shifted into roles that let her reach an even broader audience, becoming spokesperson for the Academy of Nutrition and Dietetics, writing for Food & Nutrition Magazine, and starting her own business, Marisa Moore Nutrition, LLC.

As part of her business, she offers both communications and consulting services in the food and nutrition space. She develops recipes; conducts media training for TV, radio, and print; writes for corporate and consumer audiences, and acts as spokesperson. Over the course of her career, she has been featured in over 1,000 interviews in national print, TV, and radio. Even while juggling of these responsibilities and contracts, Marisa also taught for almost 10 years as an adjunct faculty member at Georgia State University.

Candra Smith-Chambers, *West Columbia, South Carolina*

In 1998, Candra graduated from Tougaloo College with a degree in Chemistry. Shortly after graduation, she attended veterinary school at Tuskeegee University, where she received her DVM in 2002.

She spent a few years working in private practice and mobile preventative practice before joining Van Crest Animal Hospital in 2003, where she is affectionately called "Dr. C." At Van Crest, she is both a veterinarian and co-owner of the hospital, specializing in internal medicine, dermatology, and geriatric medicine. The other owner of the hospital is her husband, Nick Chambers of Mississippi.

ACS SCHOLARS IN C&EN

Previous milestone anniversaries of the ACS Scholars Program included *Chemical and Engineering News (C&EN)* profiles on Scholar Alumni, highlighting their career paths, reflections on their time as a Scholar, and accomplishments since they graduated from the program. The 25th anniversary of ACS Scholars focused on more engagement and celebration of current ACS Scholars as well.

The first engagement activity was the *Research Spotlight* series on ACS Scholar social media channels. Current Scholars shared the research activity they were engaged in during the academic year or summer. You can find these spotlights throughout this annual report.

In 2019, ACS staff issued a call for current Scholars to write Alumni Profiles for *C&EN*, capturing the activities of select alumni, while also providing those Scholars a byline in a globally-distributed magazine.

A number of Scholars expressed interest, but the final group was narrowed down to just six. These students worked with C&EN editor Linda Wang to prepare for and conduct interviews, write up their piece, and solicit feedback. These pieces were then released in C&EN every other month over the course of 2020.

Congratulations to the selected writers for 2020:

- **Joseph Lance Casila**, 2018 cohort
- **Hilary Fokwa**, 2016 cohort
- **Rebecca Leuschen**, 2017 cohort
- **Jade McDaniel**, 2016 cohort
- **Niara Nichols**, 2018 cohort
- **Andrew Palacios**, 2016 cohort

ACS SCHOLARS PROFILE

Corina McClure

Current ACS Scholar Niara Nichols chats with this FDA chemist about being a woman of color in chemistry

NIARA NICHOLS, special to C&EN

"Before I was an ACS Scholar, I wasn't familiar with the American Chemical Society," says Corina McClure, who was an ACS Scholar from 2012 to 2014, when she was an undergraduate at the University of North Carolina Wilmington. "Being an ACS Scholar really got me interested and active as an ACS member. And I'm still an ACS member to this day."

McClure, who now works as an analytical chemist at the US Food and Drug Administration, is on the board of her ACS local section, the Chemical Society of Washington. She says her involvement with ACS, previously as an ACS Scholar and now as an ACS member, has opened doors to new opportunities for her. For example, McClure learned about the Oak Ridge Institute for Science and Education Fellowship during an ACS event. This experience allowed her to get her foot in the door in the government and start making connections there. "Networking is very important, not to be underestimated," McClure says.

Before her job at the FDA, McClure did a lot of work in environmental chemistry. She worked for an environmental organization that cleaned up Wilson Bay while she was enrolled at Coastal Carolina Community College. When she went on to earn her bachelor's degree in chemistry from the University of North Carolina Wilmington, she took her passion for the environment with her, conducting research on ocean plastics.

McClure also has a passion for working with kids. While working toward her master's degree in chemistry from George Mason University, McClure worked with a program that visited elementary school classrooms and did hands-on scientific activities with the students, sparking their interest in science. She later returned to the classroom, working as a chemistry teacher. While she enjoyed working with students, her heart was in the lab.

McClure eventually made her way back to the lab. She landed a job as an analytical chemist for the FDA in the Center for Food Safety and Applied Nutrition, where she currently works. When asked how she feels being a woman of color in chemistry, a field in which women and minorities are underrepresented, McClure says she sees a unique opportunity to connect with others. As a Mexican American, she is able to share her culture with coworkers. For National Hispanic Heritage Month, she brought her coworkers to the best taco place in town.

While this was a fun opportunity to broaden her coworkers' horizons, there is a downside to being the only minority in the room, she says. McClure sometimes feels the added pressure of having to work harder to show her peers that she and other Mexican American chemists can "run with the big guys." She also points out that it can be difficult to connect with colleagues, and she sometimes feels like an outsider.

McClure suggests finding common ground as a means of getting around this discomfort. For example, at networking events, she may not be able to relate to some of her colleagues over shared cultural experiences, but there is the common ground of being a chemist. She may approach a colleague and ask what their favorite chemistry class was and go from there.

McClure recommends that current ACS Scholars get more involved in ACS and use it as an opportunity to network. "A lot of times, it's not what you know so much as who you know," McClure says. "Keep your eyes and ears open, and if you see any opportunities, jump on them. You need to go to different events and talk with people because you never know who you're going to run into and what you can learn from them."

Niara Nichols is an ACS Scholar and undergraduate chemistry major at the University at Albany. This series brings together current or recent ACS Scholars with early- or midcareer alumni for a conversation. To learn about the ACS Scholars Program or to make a donation, visit **www.acs.org/scholars**.

CREDIT: ENIO MIRANDA-BERMUDEZ (MCCLURE); COURTESY OF NIARA NICHOLS

PROFILES

ACS Scholar alumnus: Bart Bartlett

Current ACS Scholar Rebecca Leuschen chats with this University of Michigan professor about motivation

REBECCA LEUSCHEN

Bart Bartlett, a professor of chemistry at the University of Michigan, was an ACS Scholar from 1998 to 2000, during his junior and senior years of college at Washington University in St. Louis. In this interview, Bartlett talks about what inspired him to go into chemistry and the importance of having an alumni network. This interview was edited for length and clarity.

What motivated you to go into chemistry?
I got into chemistry largely because I had a good experience with chemistry in high school. I had a really good high school chemistry teacher, and I liked the subject. The summer after my junior year, I started doing research at the Washington University School of Medicine with the Department of Genetics. There's a program called the Young Scientist Program. It was instrumental in getting me to see how a lab functioned. Unlike in a high school lab class where you got answers to the problem by the end of the class, there are no answers in the back of the book. That's what got me excited about doing research.

So now that you have your degree, what is your motivation to continue to do research?
I'm genuinely excited about the problems that I work on, but for me, the biggest motivation is that I've got a group of six graduate students, a postdoctoral fellow, and about six undergraduates in my lab. It's being able to see the next generation of scientists coming along and making discoveries. It's also seeing them make mistakes in the lab—trying things that don't work as they originally thought they would but then doing the creative work of figuring things out.

Did you ever have a turning point in your graduate studies where you really felt like you struggled with your motivations?
Totally. I worked on a tough problem in magnetism when I was in graduate school. I tried lots and lots of things in the lab, and it wasn't for lack of hard work, but we just didn't have the right hypothesis. It took until almost my last year of grad school to have sort of an aha moment. What sustained me, and still made it a worthwhile, fun endeavor, was that I had lots of lab mates who had good ideas. I was willing to try lots of things. I wasn't just putting the blinders on and not willing to do experiments; I was talking through things and listening to other people.

Bart Bartlett (left) and graduate student Andrew Breuhaus-Alvarez look over data together.

How was the American Chemical Society a catalyst in your educational journey, and what advice do you have for current ACS Scholars?
I think there's the obvious part that it helped in financing education, which is no small feat. It's only getting harder now as the cost of education keeps going up. That was extremely helpful and ensured that I didn't have to take out loans for books and room and board the last couple years of college. The advice that I'd give to current scholars is that there's now a large alumni network. And as you go out and you're presenting your work at ACS meetings, get involved. Participate in ACS Scholars activities just to get advice and ask questions about how to put graduate school applications together or apply for fellowships.

What is your favorite activity outside of the office?
It's kind of exciting right now in my family. My wife and I welcomed a son, Simon, in December, so that's a totally new part of life. I also have two dogs that keep me busy and make sure I get lots of exercise. I also play softball because, you know, I'm a chemist, and my baseball career was going nowhere.

Rebecca Leuschen is an ACS Scholar and undergraduate biochemistry major at the University of Nebraska–Lincoln. This series brings together current or recent ACS Scholars with early- or midcareer alumni for a conversation. To learn about the ACS Scholars Program or to make a donation, visit www.acs.org/scholars.

CREDIT: BRADLEY TERRY (BARTLETT); REBECCA LEUSCHEN (LEUSCHEN)

ACS NEWS

Richelle Delia

Current ACS Scholar Andrew Palacios chats with this chemical engineer about her atypical career path

ANDREW PALACIOS, SPECIAL TO C&EN


Richelle Delia

When Richelle Delia was growing up in the 1990s, she remembers her father encouraging her to become a chemical engineer. He said it would offer her an array of career options in multiple industries. Her father, a petroleum engineer, had been previously laid off in the 1980s oil glut, and he wanted more stability for his daughter.

When Delia started college at the University of Notre Dame in 2004, she followed her father's advice and majored in chemical engineering. She actively participated as a student leader in a number of professional societies, including the American Institute of Chemical Engineers, the National Society of Black Engineers, and the Society of Women Engineers.

She was also involved in ACS, having been selected for the ACS Scholars program during her freshman year. The experience exposed her to information about graduate school and industrial opportunities. Delia completed internships with PepsiCo, General Electric, LyondellBasell, and Deloitte.

After graduating from the University of Notre Dame, Delia pursued a PhD in chemical engineering at the University of Texas at Austin. Her graduate work focused on recreating the internal architecture of neural tissue within biopolymer hydrogel scaffolds. In other words, she used a templating method to model peripheral and central nervous system structures to help nerve cells repair after an injury or in a diseased state.

Although she enjoyed her research and its potential to eventually help a niche population, she wanted to create a real-time and systemic impact. This inspired her to complete a Fulbright fellowship at the University of the West Indies at Cave Hill in Barbados. There, she investigated the effect of glial cell response to inflammatory cytokines in an effort to mimic wound healing in an inflamed environment.

Her Fulbright experience was a direct extension of her materials-related graduate work. Her project tackled wound healing in a diabetic environment—a problem that affects nearly 20% of the adult population. Delia describes her Fulbright experience as a "more applied fruition" of her work.

After earning her PhD, she received a job offer from Owens Corning Science & Technology as an advanced engineer in R&D. She conducted life cycle assessments on insulation products, offered lectures that contributed to the zero-energy movement, and studied how carbon emissions can be reduced through policy and business. She worked in the company's Strategic Marketing and Government Affairs departments with lobbyists on state-level residential building energy codes for proactive business development.

After realizing the gaps that exist in the quality housing supply, Delia and her real estate developer husband, John, cofounded Housing Joint Venture, a real estate investing education and development company that seeks to restore vibrancy in overlooked neighborhoods without supporting gentrification. To address the housing affordability crisis, Delia and her team are focusing on converting abandoned properties into performing assets for investors and families.

Of all the scholarships that Delia received during her academic career, she says that being part of the ACS Scholars program has been one of the most significant. "They kept in touch and they really want you to succeed," she says. She loved that ACS invested in her ability to become a contributing member of society, especially as a chemical engineer, and connected her with other scholars at scientific conferences and meetings, some of whom are her best friends today.

Even though Delia is very busy with work, she still makes time to hang out with her husband and their puppies. She enjoys driving around neighborhoods to look at historical architecture.

One piece of advice she would give to current and future ACS Scholars would be "to take advantage of every opportunity that applies to you." She emphasizes that "being a minority or a diverse candidate is actually an advantage because it allows you to participate in unique opportunities like the ACS Scholars program." She also encourages students to apply to opportunities even if they don't feel that they are ready for them. "The only limitations you have are those that you place on yourself," she says.

Andrew Palacios, a recent ACS Scholar, just graduated from Columbia University. He will be joining Anheuser-Busch as a chemical engineer in June. This series brings together current or recent ACS Scholars with early- or midcareer alumni for a conversation. To learn about the ACS Scholars Program or to make a donation, visit **www.acs.org/scholars.**

CREDIT: COURTESY OF RICHELLE DELIA; COURTESY OF ANDREW PALACIOS

ACS SCHOLARS PROFILE

ACS Scholar alumna: Chyree Batton

Current ACS Scholar Jade McDaniel chats with this industrial chemist about her passion for chemistry

JADE MCDANIEL, SPECIAL TO C&EN


Chyree Batton during her graduation from Louisiana State University

From a young age, Chyree Batton knew that she wanted to make a difference in the world. She grew up wanting to cure cancer after her aunt was diagnosed with breast cancer. "Seeing someone struggle with that disease and ultimately die from it, I thought, 'You know what? I'm going to cure cancer. I'm just going to cure cancer so there's nobody else that has to go through this,' " Batton says. After taking and excelling in a chemistry class in high school, she realized she had found her medium to accomplish this goal.

Today, Batton is a PhD chemist working at SC Johnson in Racine, Wisconsin. She credits many influences for her success today and one of those influences was the ACS Scholars program.

Batton attended Spelman College in Atlanta, Georgia, where she was an ACS Scholar. It was there that she met Leyte Winfield, who became her adviser and helped her make the decision to pursue graduate school. "Winfield really anchored me there and helped focus my energy so that when I did graduate, I had a purpose, I knew what I was doing, and I could give back," she says. Batton earned a BS in chemistry from Spelman College in 2009.

Batton went on to earn a PhD in organic chemistry from Louisiana State University, and then accepted a position at SC Johnson working in product formulation. In her current position as an associate manager of chemistry, she has a lot of responsibilities both inside and outside the lab. "I would be considered by SCJ standards a formulator, since I am a chemist. But I'm also a project manager. I'm also a product steward for my brand," she explains. "I'm the main global contact in repellents so anybody in the company, across the world, if they have a question about a particular active ingredient we use, the raw materials, the packaging . . . they come to me. And so I have to know everything about everything." Her job responsibilities include a combination of lab work, project management, and mentorship of the laboratory technicians that report directly to her.

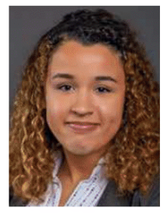
So what about her dream of curing cancer? Batton says, "I realized as I was matriculating through college . . . that really, what I wanted to do was to positively impact somebody's quality of life. And you can do that through medicine. My aunt eventually died, but there were a lot of things that she did to keep her spirits up. This included lighting candles, playing music, getting her hair done, whatever. So I realized I could work in a consumer goods company and actually develop products that I could see on the shelf that were actually impacting the quality of lives of people every day."

In the future, Batton says she would like to venture outside of the consumer goods industry. She says her position at SCJ has taught her how many things she's interested in and would still love to learn about. For example, Batton says she would love to work in the aerospace industry. "We're getting to the point where we might actually travel to another planet and actually get there in my lifetime . . . I really want to be part of it," she says. "There's just all these different applications that an organic chemist could do to help." And her message to current chemistry students, ACS Scholars, and working professionals alike is very similar to the way she is leading her career. "Be willing to stretch the imagination of what you can do with your chemistry degree," she says. "Explore all possibilities. Be creative with what you want to do."

Batton credits the ACS Scholars program for much of her success. She says the program was crucial to her undergraduate career and allowed her to focus on her education instead of just the money. She adds that during her time at Spelman College, there were several other ACS Scholars in the chemistry program with her. The connection they developed through the program helped them build a network of students that could study together and elevate each other.

"It's made an impact," she says. "The fact that I've met other ACS Scholars who are doing really amazing things lets me know that the program is working."

Jade McDaniel, a recent ACS Scholar, graduated from the University of Toledo last year. She will be starting a PhD program at Vanderbilt University in the fall. This series brings together current or recent ACS Scholars with early- or midcareer alumni for a conversation. To learn about the ACS Scholars Program or to make a donation, visit www.acs.org/scholars.



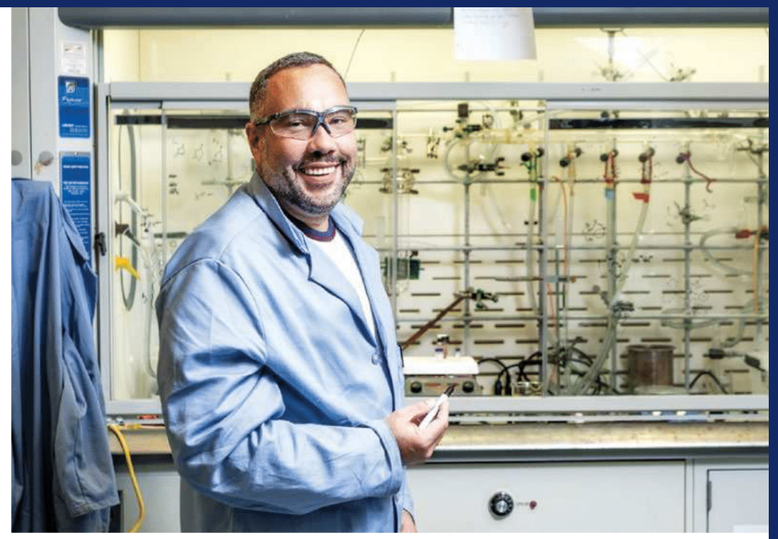
CREDIT: COURTESY OF CHYREE BATTON (BATTON); COURTESY OF JADE MCDANIEL (MCDANIEL)

PROFILES

ACS Scholar alumnus: Daniel Mindiola

Recent ACS Scholar Joseph Lance Casila talks to this synthetic chemist about the catalysts that have shaped his life and career

JOSEPH LANCE CASILA, SPECIAL TO C&EN



Daniel Mindiola in his lab at the University of Pennsylvania

Catalysts are powerful tools in synthesis, helping reactions overcome their activation energy barrier. Life's hardships are like those barriers, and academic, family, and spiritual support are the catalysts that help people move toward their goals.

American Chemical Society Scholar alumnus Daniel Mindiola attributes his success to the figurative catalysts he's had throughout his career. Today, Mindiola is the Brush Family Professor of Chemistry at the University of Pennsylvania.

Mindiola's first catalyst was his mother. When he was 15 years old and about to start his third year of high school, Mindiola and his mother moved from Venezuela to the US to escape their home country's economic problems. Mindiola remembers "selling everything to try to make enough money to travel to the US and have something to sustain ourselves here."

The transition to Michigan, where Mindiola and his mother had moved to, was difficult, and he fell behind in his classes. But fortunately, a second catalyst entered his life. His high school chemistry teacher, Jack Nutter, saw Mindiola struggling and reached out by tutoring him in the early mornings. That mentorship paid off, and Mindiola started excelling in his classes.

After graduating high school, more catalysts came into Mindiola's life as he moved toward his future career as a professor. As an undergrad at Michigan State University, Mindiola met chemistry professor Kim Dunbar, who exposed him to laboratory research and inspired him to major in chemistry. In graduate school at the Massachusetts Institute of Technology, Mindiola worked in the lab of Christopher Cummins. He then completed a postdoc at the University of Chicago under the mentorship of Gregory Hillhouse. "Each of them played a significant and critical role in channeling me into the person I am now," Mindiola says.

After his postdoc, Mindiola joined the chemistry faculty at Indiana University Bloomington. Eleven years later, he moved to the University of Pennsylvania. His research is both fundamental and applied, spanning areas like synthesizing molecules that challenge the current paradigms of bonding and structure reactivity and converting greenhouse gases into useful reagents.

Now, Mindiola is giving back by serving as a catalyst for his students. "One of the things that excites me the most is when a student makes a discovery," he says. "It's really amazing to see the joy that they have." He says the ACS Scholars Program helped groom him to be a mentor by getting him involved with mentoring students during grad school.

Mindiola says a mentor's role is to make sure students do not go down a path that would lead them into a project that they are not excited about or that will not go anywhere. He adds that students should "have that support where they're welcome to do whatever they feel like in the lab as long as it's safe."

Catalysts speed up the rate of reaction; they don't necessarily imply a spontaneous one. While Mindiola owes his success to his catalysts, his love for chemistry was also a big factor in helping things fall into place. "I think a lot of it had to do with resilience, sticking to it, and loving what you do," Mindiola says.

He encourages students from underrepresented groups to get involved in research early and to stick with it. "If they love what they're doing and if they love chemistry, they have a good chance of succeeding," he says.

Joseph Lance Casila, a recent ACS Scholar, graduated from the University of Guam in 2019. He is currently a research assistant there. This series brings together current or recent ACS Scholars with early- or midcareer alumni for a conversation. To learn about the ACS Scholars Program or to make a donation, visit www.acs.org/scholars.

CREDIT: COURTESY OF DANIEL MINDIOLA; COURTESY OF JOSEPH LANCE CASILA

ACS SCHOLARS PROFILE

ACS Scholar alumna: Eliza Herrero

Recent ACS Scholar Hilary Fokwa talks to this analytical chemist about the value of mentorship

HILARY D. FOKWA, SPECIAL TO C&EN

Eliza Herrero credits the ACS Scholars Program with her decision to pursue a chemistry degree.

Eliza Herrero emailed her high school chemistry teacher last year and told him, "I want to let you know that I'm doing chemistry because of you." Herrero, who is now a third-year graduate student in chemistry at the University of Minnesota Twin Cities, says it's important for teachers and other mentors to know how big of an impact they have had on their students. In fact, Herrero has had many mentors throughout her life who have influenced her career path.

Herrero grew up in Scarsdale, New York. She credits her Cuban grandmother, whom she calls Abuela, for her dedicated work ethic. "She had a really hard life," Herrero says of her grandmother. "She moved here from Cuba, and she faced a lot of adversity." Her grandmother used to say to Herrero, "If you have the no, then you have to keep going until you come back with the yes."

While Herrero was researching colleges, she learned about the American Chemical Society's ACS Scholars Program. "Finances were a big decision in my college career, so knowing that I could pursue the degree and have financial support from ACS was a huge factor in me deciding to continue to pursue chemistry," Herrero says.

In 2010, Herrero started college at the University of Notre Dame. "I remember one of the requirements for my first semester was to connect with a faculty member, let them know I was an ACS Scholar, and ask them to mentor me," she says. "As a freshman in college, this was a terrifying experience. I didn't come from a family of scientists. No one had really been interested in STEM, so it definitely pushed me outside of my comfort zone. But having that mentor [biochemistry professor Patricia Clark] throughout my time at Notre Dame, and learning how to ask for mentorship and ask for advice, that was one of the best things I got from being an ACS Scholar."

Another mentor who made a significant impact on Herrero's career path was Marya Lieberman, her undergraduate adviser at the University of Notre Dame. "I worked in her lab for 2 years, and in her lab I started developing devices to detect counterfeit pharmaceuticals in developing countries," Herrero says. "It was during that research experience that I learned that you can really take chemistry and have direct impacts on improving the everyday lives of people." Herrero says her experience working in Lieberman's lab helped her marry her love of chemistry with her desire to do good in the world.

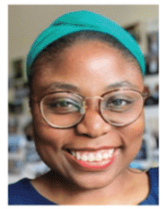
Herrero opened up about the issues she has encountered as a Hispanic chemist. "When you're reading papers, or when you're in classes, or when you're talking to other professionals, you can feel sometimes on the outside," she says. "I'm of Hispanic descent, and it's not that common to come across Hispanics in the field."

One of the ways she was able to cope with her feelings of being an outsider was through her semester studying abroad in South America, where she conducted research on techniques to measure trace levels of metals in water samples. "That was a really cool experience no longer being in the minority but being in the lab and speaking Spanish and realizing that while the majority of papers I'm reading are published in the United States, there is really great research being done internationally."

After earning a BS in chemistry from the University of Notre Dame, Herrero volunteered with an orphanage in Nicaragua for 18 months. When she returned to the US, she got a job as a science teacher at Success Academy Charter Schools in the Bronx, New York. She then worked as a quality-control chemist with LNK International before starting grad school at the University of Minnesota. "I decided that I really wanted to pursue a PhD because I was very interested in research and analytical chemistry," she says. Herrero's research uses ion-selective electrodes to determine electrolyte levels in blood samples. Her advice to other ACS Scholars is to take advantage of mentorship opportunities and ask people for advice. "Broaden your horizons, and learn as much as you can," she says.

Aside from doing chemistry research, Herrero loves chemistry puns and jokes. In her free time, she enjoys training for half-marathons, hiking, and backpacking. It's important to have work-life balance, she says. "Make sure you take care of yourself and take some time off."

Hilary D. Fokwa, a recent ACS Scholar, graduated this year from the University of Richmond. She is currently a graduate student in chemistry at the University of North Carolina at Chapel Hill. This series brings together current or recent ACS Scholars with early- or midcareer alumni for a conversation. To learn about the ACS Scholars Program or to make a donation, visit www.acs.org/scholars.



CREDIT: ELIZA HERRERO; COURTESY OF HILARY FOKWA

A TRIBUTE TO ZAIDA C. MORALES-MARTINEZ

Photo from American Chemical Society Collection

A beloved fixture of the ACS Scholars Program, Zaida Morales-Martinez served as Mentoring Consultant to the ACS Scholars program for 21 years before retiring in the fall of 2020. Beyond being a mentor, Zaida also contributed to the founding of the program, serving on the original task force that was instrumental in creating the ACS Scholars Program at the American Chemical Society.

As Mentoring Consultant to the ACS Scholars program, Zaida wrote a personal letter to welcome each of the new Scholars, assisted in pairing them with mentors, and checked in on them via email once per year for each year they participated in the program. She kept up with thousands of Scholars throughout her time with the program, thus earning her the affectionate title of "Mama Z."

In Zaida's words, "The ACS Scholars Program is one of my children. I'm proud that we continue to serve three communities and have kept a high level of students. I'm proud of the statistics and that something we envisioned came to fruition."

Zaida is highly regarded as an authority on mentoring, authoring several articles on its importance and methods, including one published in *Science* by the American Association of the Advancement of Science. She has also been invited to serve on advisory panels on mentoring like the National Council of La Raza national conference where she spoke on "Empowering Women in STEM: The Strength of Mentoring."

Her dedication to students has earned her recognition, including the Distinguished Service Medallion from Florida International University, where she taught for over 25 years; the Presidential Award for Excellence in Science, Mathematics & Engineering Mentoring in 2018; and two ACS awards: Encouraging Disadvantaged Students into Careers in the Chemical Sciences and the ACS Award for Volunteer Service. In 2011, the Zaida C. Morales Martinez Prize for Outstanding Mentoring of ACS Scholars was established to highlight the importance of mentoring and the impact of Zaida's service.

"I try to give [students] hope for the future and push them to do better. I encourage them to see their advisors and get their GPA's up. You have to use the gifts you have been given. I think that I have the gift of being able to talk to these kids. On the other hand, these kids keep me going. Their successes are my reward."

- Zaida Morales-Martinez

"Dear Mama Z..."

Your mentorship of current and former ACS Scholars is extraordinary! Thank you for all of the phone calls, emails, and smiles that have enriched the ACS Scholars community. You will be missed, but not forgotten.

- LaShanda Korley, Cohort of 1995

Countless miles and thousands of smiles - how Zaida C. Morales-Martinez made the world a better place. It's been an honor to know you and work with you for my 21 years as part of the ACS Scholars program. Your wisdom never fades.

- Robert Hughes, Former ACS Staff Member

Thank you for all of your support and encouragement to myself and all ACS Scholars over the years! I appreciated you taking the time to write me occasionally to check in or let me know that you were proud of my accomplishments. The ACS Scholars community is such a valuable one and your work has been a key part of that.

- Jessica Kisunzu, Cohort of 2007

Your dedicated service to the ACS Scholars program has had an immeasurable impact on so many students who affectionately know you as "Mama-Z." From your role in helping to establish and grow the program to your commitment to mentoring students directly, you have been an inspiration and role model to those of us who came along later.

- Robert Hoyte, ACS Scholars Subcommittee Member

Thank you for your friendship over the years! I appreciate your just checking in to see how I'm going and connecting me with lots of great students.

- Bart Bartlett, Cohort of 1998

Zaida and ACS Scholars

Photo by Linda Wang/CC&EN

2020 SELECTION COMMITTEE

We want to extend a special thank you to members of the 2020 ACS Scholars selection committee. Each year, our reviewers dedicate two weeks for training and to review 600+ student applications. This year, with the chaos of the COVID-19 pandemic, the selection committee's efforts were especially appreciated. Most of the committee members are college professors, many of whom had to juggle very abrupt shifts to virtual teaching mere weeks before the application review began. Their resiliency and commitment ensured the program's continuation despite the pandemic.

We also want to acknowledge Iona Black of James Madison University, who passed away this year a few short months after selection of the 2020 cohort. She was a dear friend and long-time supporter of ACS Scholars. Iona will be missed.

2020 Selection Committee

Dee Dee Allen
Harry Bermudez
Iona Black
Kathleen Carrigan
Milly Delgado
George Fisher
Michael Greenlief
Trinity Hale
Robert hoyte
Waisu Lawal
Carol Libby
Dan Libby
Jim Long
Daniel Mindiola
Zaida Morales-Martinez
Sarah Mullins
William Myers
Amy Paris
Thomas Potts
Jerry Sarquis
Bradley Scates
Heather Sklenica
Emanuel Waddell
Linette Watkins
Celia Williams

ACS SCHOLARS PROGRAM STAFF

Racquel Jemison, *Student Experiences Portfolio Manager*
Racquel leads ACS Scholars and Project SEED, serving 700+ students per year, regularly collaborating with other staff to guide the strategic direction of these programs. Racquel's efforts are fueled by her passion to increase access to STEM fields, particularly for marginalized groups.
B.S., Chemistry; Ph.D., Organic Polymer Chemistry

Mahalia Randle, *Program Manager*
Mahalia manages the ACS Scholars program and directs the Project SEED scholarship program, providing funding for many students to help them advance their chemistry education. Before joining ACS, Mahalia served as an assistant program officer for the College Success Foundation in Washington, D.C., where she administered $3 million in scholarships to 300+ students.
B.A., English; M.Ed., Educational Leadership

Kelechi Uzo-Okoro, *Program Specialist*
Kelechi manages social media accounts that connect hundreds of students to ACS and each other. She also handles program and payment logistics, and communications for ACS Scholars and Project SEED scholarships.
B.A., Business Administration

Justin Zimmerman, *Program Specialist*
Justin managed program logistics for Project SEED, contributed to the planning and launch of the new Project SEED database, and was instrumental in developing the curriculum and learning management system for the 2020 Virtual Summer Camp. Prior to ACS, Justin was a chemistry teacher in North Carolina at Kennedy High School.
B.S., Chemistry and Secondary Education

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