

Christina Alston

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LINKS

[Google Scholar](#), [LinkedIn](#), [ORCID](#)

PROFILE

Over the course of my 17 years as a secondary and post-secondary educator, I created, facilitated, and managed standards-aligned graduate courses and professional development programs for K-12 teacher students, graduate students, and faculty. While developing professional mentoring skills, the program focused on biology, environmental science, and engineering content and pedagogy methods. These provided thousands of hours of graduate science and engineering education instruction. I received the 2022 PCEE Meritorious Service Award for my work with K-12 Science and Engineering educators, and more than 30 teachers were named Teacher of the Year at the district and state levels as a result of my efforts.

SKILLS

Microsoft Office	Ability to Work in a Team
Effective Time Management	Critical Thinking
Adaptability	Hard Working

DISQUINSHED & INVITED SPEAKER ENGAGEMENTS

Dec 2022	Affinity, Ally, and Action: Combating Bias	Cornell, University, New York
Apr 2022	Racial and Gender Microaggressions: A Double Edged Sword	Cornell, University, New York
Oct 2020	Understanding and Addressing Microaggressions	American Society of Engineering Education Virtual Workshop Series

EMPLOYMENT HISTORY

Jun 2022	Associate Director for Equitable Research, Evaluation, and Grant Development, William Marsh Rice University	Houston, Texas
	Through federal, state, and local grant writing, conducting academic research, and assessing the effectiveness of the pre-college programs run by the Rice University Office of STEM Engagement. My role is to increase the number of underrepresented people working in STEM fields. Create, write, and submit grants and reports to NSF and NIH sponsored projects.	
Jun 2013 — Jun 2022	Associate Director for Science & Engineering, William Marsh Rice University	Houston, Texas
	I provided structured professional development programs in Houston covering best practices for in-person and virtual courses in science and engineering education. Developed and implemented 10 STEM programs, 15 workshops, multiple short courses, and online seminars in collaboration with the Director, Executive Director, professors, students, external stakeholders, and support staff.	

GRANT WRITING & FUNDED PROJECTS

Jan 2022 — Dec 2024	GP-IN: Inclusive Learning through Earth, Environmental and Planetary Sciences (ILEEPS)	NSF Award# 2120039
	Co-Principal Investigator	
	Participated in team writing and development of grant. Organized and provided trained team in understanding how Culturally Sustaining Pedagogy (CSP) can enhance high school Science, Technology, Engineering and Mathematics teacher's cultural awareness and create inclusive and equitable learning environments. Identify how teachers develop CSP within Geo science concepts and how this impacts the students' sense of belonging.	

Pre-College Program Facilitator

Annually connected 9 K-12 teachers (in person and virtually) and 100s of students to high-level engineering and research opportunities through hands-on experiences, internships, lesson planning, field trips, conferences, and symposiums. Specific programs included: NEWT Research Experiences for Teachers (RET), NanoEnvironmental Engineering for Teachers (CEVE 565), NanoAcademy, Young Scholars, Teacher Leaders Engineering Network, (TaLENT) – Supplement, NEWT Virtual Tutorial Program and Science, Alternatives for K-12 Education (SAKE) which required online facilitation using training use of zoom. Participants were serviced in Houston, Texas, El Paso, Texas, Tempe, Arizona, and New Haven, CT.

National Institute of Health Proposal

Submitted July 2022

Under review**National Science Foundation Research Experience for Undergraduates Proposal**

Submitted September 2022

Awarded**National Science Foundation Research Experience for Teachers Proposal**

Submitted October 2022

Awarded

TEACHING EXPERIENCE (K-12 & HIGHER EDUCATION)

Jan 2022 — Dec 2022

Secondary Science Teaching Methods

University of Houston

Spring 2022 - Middle school (4-8 certification) science inquiry teaching and curriculum development for pre-services teachers

Fall 2022 - The science and methods of high school life science teaching with a focus on content knowledge attainment for pre-service teachers. (8-12 certification).

2016 — 2023

CEVE 565 - NanoEnvironmental Engineering for Teachers

Rice University

This 3-hour graduate engineering design methodologies course was created to strengthen educators' content understanding and empower them to introduce rigorous project-based engineering activities on the theme of water sustainability in their classroom. It was taught to 30 secondary science teachers each year.

2014 — 2023

Conoco Phillips Rice University Applied Mathematics Program

Rice University

Instructed and developed lessons for a one-of-a-kind and innovative, 100 hour professional development opportunity for 24 8th grade Science and Mathematics teachers, as well as 24 Algebra I and Biology teachers, with the goal of increasing the emphasis on mathematical and science content and pedagogical knowledge. Course facilitated annually.

2013 — 2017

Bioc 520/521 - Teaching Biology via Active Learning

Rice University

Annually, I taught a 3-hour graduate course to 30 secondary Biology teachers that included tours to research labs, talks by Rice researchers, and new breakthroughs in active-learning pedagogy and how students learn Biology.

Aug 2012 — Jul 2013

Professional Support & Development - Teacher Development Specialist

Houston Independent School District

Oversaw student-centered program management, examined student learning outcomes, and reviewed performance statistics. Formative assessments were used to identify both strengths and flaws of novice teachers and to establish corrective actions. Research-based learning opportunities improved instructional, subject, and developmental knowledge to novice teachers.

Aug 2003 — Jul 2012

Biology Teacher and Team Lead

Cypress Fairbanks Independent School District

Adapted evidence-based learning strategies to meet the needs of 150 students, identified learning gaps, and trained 6 biology team members in educational techniques to close those success gaps. Led 5 Biology classes

aligned to Texas Assessment of Knowledge and Skills/End of Course (TAKS/EOC) assessment preparation. The average pass rate for students was 99%.

EDUCATION

May 2023	Ph.D Education - Curriculum & Instruction, University of Houston <ul style="list-style-type: none">• <i>Dissertation: Breaking the Silence: Black Female Science Teachers' Experiences with Racial Battle Fatigue</i>• <i>Science Education</i>	Houston, Texas
May 2009	MS. Education - Curriculum & Instruction, University of Houston <ul style="list-style-type: none">• <i>Science Education</i>	Houston, Texas
Dec 2005	BS. Biology, Texas A&M University - Corpus Christi <ul style="list-style-type: none">• <i>Biomedical Science</i>• <i>Biological Honor Society</i>	Corpus Christi, Texas

AWARDS & HONORS

2019 — 2023	University of Houston Graduate Fellow	College of Education
2022	Pre-College Engineering Education Meritorious Service Award	American Society Engineering Education
2021 — 2022	Helen and Melvin Wimpelberg Operating Scholarship	University of Houston
2021 — Present	Board Member	Journal of Teacher Education
2011	Team Leader Curriculum Guidance Award	CyFair ISD

PROFESSIONAL AFFILIATIONS

Oct 2022	Board Member JTE Subcommittee - DEI Team	Journal of Teacher Education
Mar 2020 — Present	Student Member	American Association of Blacks in Higher Education
Apr 2017 — Present	Professional Member Pre-College Engineering Education - Executive Committee Delegate for DEI Diversity Virtual Workshop Team	American Society Engineering Education

PROFESSIONAL DEVELOPMENT COURSES

2022	Essentials of Effective Proposal Preparation, American Society for Engineering Education
2018	Entering Mentoring, Rice University

 PEER-REVIEW
 PUBLICATIONS

1. Alston, C., Mirghassemi, F., & Gist, C. D. (2022). A Course in Academic Writing as a Vehicle for Personal Growth and Transformation. *Multicultural Perspectives*, 24(3), 138-146. <https://10.1080/15210960.2022.2127396>
2. Crawford, C., & Sundrani, A. (2022). Gun violence and urban education. In C. White, & University of Houston (Eds.), *Culturally Responsive and Sustaining Education: Framing Diversity, Equity, and Social Justice Education in a Local to Global Context*. Information Age Publishing. ISBN 979-8-88730-007-8
3. Crawford, C., Obenland, C., & Nichol, C. (2021). An Analysis of the Effect of Long-Term Professional Development on Teacher Engineering Self-Efficacy and Its Impact on Classroom Instruction. *Journal of STEM Outreach*, 4(1), 1- 10. <https://doi.org/10.15695/jstem/v4i1.01>
4. Crawford, C. (2020). How to Stop Internalizing Microaggressions. *Women in Higher Education*, 29(10), 6–14. <https://doi.org/10.1002/whe.20900>
5. Antoine, A., Crawford, C., and Nichol, C., (2019) Local High School Students Learn How Computer Science Can Improve Health, *Rice At Large*, Fall, 40. <https://ral.rice.edu/stories/2019/fall/local-high-school-students-learn-howcomputer-science-can-improve-health>
6. Enemchukwu, C., Crawford, C., Mei, H, Verduzco, R. & C. Nichol, (2019) Designing Polymers to Clean Water -Activity, *TeachEngineering.org*, University of Colorado Boulder. <https://www.teachengineering.org/activities/view/rice2-2347-polymers-clean-water-design-activity>
7. Crawford, C. (2019) Bringing Cutting Edge Research into the Classroom, *Rice At Large* Fall, 40, Online. <https://ral.rice.edu/stories/2019/fall/bringing-cutting-edge-research-classroom>
8. Crawford, C. A., and Nichol, C., (2018) Nanotechnology Scavenger Hunt! - Activity, *TeachEngineering.org*, University of Colorado Boulder. <https://www.teachengineering.org/activities/view/rice2-2121-nanotechnology-qr-code-savengerhunt>
9. Crawford, C. A. (2018). *Principles of Biotechnology*. Salem Press. ISBN 978-1-68217-678-8
10. Crawford, C. A. (2017). *Principles of Biology*. Salem Press. ISBN 978-1-68217-324-4
11. Crawford, C., Nevils-Noe, G. & Szymczyk, A. (2014). R-STEM reaches out. *Rice at Large*, Issue 26, p. 4.
12. Crawford, C., Beason-Abmayr, B., Eich, E., Scott, J., & Nichol, C. (2014). Going Viral. *The Science Teacher (National Science Teachers Association)*, 81(6), 51–. https://doi.org/10.2505/4/tst14_081_06_51

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1. Nichol C, Crawford, C., Christopher Barr, and Isaias Cerda. (2021, July.) "Long-Term Outcomes of RET Programs on Female and Minority Student High School Graduation Rates and Undergraduate STEM Major Rates (Fundamental)". 2021 ASEE Virtual Annual Conference Content Access, Virtual Conference, ASEE Conferences, 2021. <https://peer.asee.org/37463>
 2. Chatman, T., & Crawford, C. (2021). In *Increasing URM Representation through Targeted Recruitment Initiatives and Awareness Workshops Virtual*; American Association of Blacks in Higher Education.
 3. Crawford, C. A., & Nichol, C., & Wimpelberg, R., & Larson, J. S., & Cook-Davis, A. (2020, June), WIP: Teacher Leader Engineering Network (TaLEnt): A Collective Impact Model for K-12 Engineering Teacher Leaders Paper presented at 2020 ASEE Virtual Annual Conference Content Access, Virtual Online. 10.18260/1-2--35573
 4. Crawford, C. A., & Nichol, C. (2019, June), Water Sustainability: Science and Engineering Activities for the High School Classroom (Resource Exchange) Paper presented at 2019 ASEE Annual Conference & Exposition, Tampa, Florida. 10.18260/1-2--33546
 5. Nichol, C. A., & Crawford, C. A., & Loyo-Rosales, J., & Chow, A., & Obenland, C. (2018, June), Nano-environmental Engineering for Teachers (Work in Progress) Paper presented at 2018 ASEE Annual Conference & Exposition, Salt Lake City, Utah. 10.18260/1-2--29642

CONFERENCE
PROCEEDINGS

6. Nichol, C. A., & Obenland, C., & Chow, A., & Crawford, C. A., & Avendano, C. (2017, June), Board # 27: Promoting STEM Education in Community College Students via Research Paper presented at 2017 ASEE Annual Conference & Exposition, Columbus, Ohio. 10.18260/1-2--27819
7. Nichol, C. A., & Chow, A., & Obenland, C., & Crawford, C. A., & Avendano, C. (2017, June), Board # 115: Nanotechnology Research Experience for Teachers Enhancing STEM Education Paper presented at 2017 ASEE Annual Conference & Exposition, Columbus, Ohio. 10.18260/1-2--27699

CONFERENCE
PRESENTATIONS
(WORKSHOPS)

1. Pollock, M., McIntyre, B, Alston, C. "Diversity, Equity, and Inclusion: 100." ASEE Annual Conference & Exposition. Minneapolis, MN. June 2022.
2. Bowen, C., Damas, S., Sajadi, S. Torres, G. Alston, C., Wang, L.. "WIED Panel: Graduate Student and Postdoctoral Fellow Perspectives on Advancing Women and Gender Equity in Engineering." ASEE Annual Conference & Exposition. Minneapolis, MN. June 2022.
3. Crawford, C. A. Understanding and Addressing Microaggressions. ASEE: Commission on Diversity Equity, and Inclusion Virtual Workshop. <https://diversity.asee.org/decommittee/2020/10/03/understanding-addressingmicroaggressions/>. October 2020
4. Nichol, C., Crawford, C., and Polan, J. Incorporating Polymer Chemistry in Undergraduate & High School Curricula, American Chemical Society National Meeting. Orlando, Florida. April 2019.
5. Antoine, A., Crawford, C. and Ramirez, R., "STEM for the Culture," 12th Annual Texas STEM Conference, Henry B. Gonzalez Convention Center. San Antonio, TX. January 2019.
6. Antoine, A., and Crawford, C., "AMP! Up Your STEM Classroom," 11th Annual Texas STEM Conference, Moody Garden Convention Center. Galveston, TX. February 2018.
7. Crawford, C., "Guess What: Reviewing for Biology EOC," Conference for the Advancement of Science Teaching (CAST). San Antonio, TX. November 2017.
8. Crawford, C., and Szymczyk, "NanoSteps to Nanotechnology," Conference for the Advancement of Science Teaching (CAST). San Antonio, TX. November 2017.
9. Nichol, C., Chow, A., Obenland, C., A., Crawford, C., and Avendano, C., "Nanotechnology Research Experience for Teachers Enhancing STEM Education," Board #115. ASEE Annual Conference & Exposition. Columbus, OH. June 2017.
10. Antoine, A., and Crawford, C., "Heat Check: An Algebra I & and Biology Inquiry Experience," Texas STEM Conference, InterContinental Hotel. Addison, TX. January 2017.
11. Crawford, C., "Going Viral," Conference for the Advancement of Science Teaching (CAST). San Antonio, TX. November 2016.
12. Crawford, C., "Guess What: Reviewing for Biology EOC," Conference for the Advancement of Science Teaching (CAST). San Antonio, TX. November 2016.
13. Antoine, A., and Crawford, C., A New Lease on Life? Houston STEM Education Christina Anlynette Alston 5 Day, George R. Brown Convention Center. Houston, TX. April 2016.
14. Antoine, A., Crawford, C., and Szymczyk, A., Hanging in the Balance, Conference for the Advancement of Science Teaching (CAST), Fort Worth Convention Center. Fort Worth, TX. November 2015.
15. Crawford, C., Reviewing Biology: Can You Guess What?? Conference for the Advancement of Science Teaching (CAST), Fort Worth Convention Center. Fort Worth, TX. November 2015.
16. Crawford, C., Lawton, E., and Pillow, V., "Teaching Biology Via Active Learning: Biology Symposium," Rice University. Houston, TX. March 2015.
17. Crawford, C., "Cell Structure and Function," RESST 1-Day Biology Workshop, Rice University. Houston, TX. February/March 2015.
18. Antoine, A., and Crawford, C., "New Lease on Life," Region 4 Science Conference. Houston, TX. February 2015.
19. Crawford, C., "Reviewing Biology with Games," Region 4 Science Conference. Houston, TX. February 2015.
20. Crawford, C., "Biomolecule Misconceptions," Texas Regional Collaborative Biology Round Robin. Austin, TX. September 2014.
21. Crawford, C., "Evacuate Houston! How Classification Can Save Your Life," Houston Independent School District. Houston, TX. September 2014.