




Entering Science from a Historically Black University

Sierra A. Nance  with editor Ciara Reyes-Ton

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Can you describe your journey into science? What inspired you to become a scientist? Any mentors or motivators along the way?

My journey into science began my junior year of high school when I took my first chemistry course. It was the first science class I did extremely well in. Because I had a desire to pursue a career as a pharmacist and really enjoyed chemistry, I chose it as my major in college. However, it wasn't until I participated in biological research at Winston Salem State University that I decided to pursue a career as a scientist.

As a Chancellor Scholar, I enrolled in a course with Dr. Morris Clarke that explored the wonders of medicine. In this class we were challenged to create an IRB protocol outlining an experimental clinical trial. At the end of this course, he asked me why I wanted to be a pharmacist and I replied, "I want to create new and better medicines for Diabetes." During our conversation, this is where I first learned about the term PhD and decided that I wanted to become a scientist. After our conversation, he offered me a position in his research lab, and this marked the beginning of my journey as a scientist.

You co-founded HBCU-DAP, an organization that helps support and prepare students from Historically Black Colleges and Universities (HBCUs) for doctoral programs. Can you share a little about what inspired you to start this organization, tell us about the mission of this program and the work that it does?

During my interviews for graduate school, I had the opportunity to meet people from different backgrounds and institutions. Often, I was the only one that attended an HBCU. When we would talk about our experiences, I noticed that I was not afforded the same resources and opportunities for research as students who went to PWIs

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(Predominantly White Institutions). I have also had my knowledge and abilities questioned because I went to a smaller, less well-known HBCU.

Even after I got into my PhD program, my transition into that space was challenging not only because I was the only Black student in my department, but the culture was also different among other Black students who did not attend an HBCU. While I had other things in common with my fellow graduate students, some of my experiences with my transition didn't resonate with them. As an HBCU student we are taught that we will encounter these things, but hearing it is different from experiencing it.

My own personal challenges are what inspired the creation of HBCU-DAP. Our goal is to be a community for HBCU students pursuing graduate degrees. We provide free access to resources to navigate the graduate school application process, opportunities for research and mentorship, and support during the transition into a research-intensive graduate program. We have a virtual workshop series on our website that helps students build strong application materials for graduate school, prepare for interviews, and choose the BEST FIT program for them. We also have been invited to give presentations on graduate school topics by Purdue University and University of Michigan. Additionally, we provide resources for mental health support and host Conversations for Wellness, a live virtual research talk and discussion on graduate student mental health.

As a scientist and person of faith, how would you describe your relationship with faith and science? Where does faith fit into your scientific worldview?

My relationship with faith and science was unbalanced prior to graduate school. After I graduated from college, right before I started graduate school, I participated in NIH-PREP, a post-baccalaureate program to prepare students for graduate school. This was the first time I was fully immersed in research, and I encountered many scientists who did not believe in God. It was very disconcerting to me because I had never questioned whether or not I needed to choose science over my faith, or vice versa, but I felt that I had to. At one point, I even considered not pursuing research and science any longer.

I had a conversation with my previous undergraduate mentor and research advisor, who happened to be a Christian. I came to the conclusion that science and medicine are sometimes God's answers to our prayers. I've been doing research for about 10 years now and the more involved I am in research and science, the stronger my faith

grows. I understand the limitations of science, and can identify the parts that coincide with my faith.

What role do you think scientists in congregations can have in bringing science to the church, sparking dialogue or conversations? Have you found ways to do this in your own church or faith community?

I think that scientists that are already part of congregations should have opportunities to share their scientific knowledge and scientific facts; this alone can spark dialogue. It is also important for scientists to be objective in these conversations so as to not impose their own scientific theories on congregations.

The recent COVID-19 pandemic has brought to light the need for more science literacy to combat misinformation. If you don't know how vaccines work generally, you won't make the connection that biologically, the new vaccine works the same way as the flu vaccine you got last year. While this is a very delicate conversation to have in a church, it is important for scientists to have the opportunity to be at the center of these conversations and remind the church that God doesn't just work outside of us, but through us.

I have not had the opportunity to do this within my own church or faith community, but am open and willing to do so within the confinements of my scientific knowledge.

As an African American in the sciences, what would you hope scientists would understand better about your path? What would you hope the Church would understand better about it too?

I hope that other scientists would understand that I carry that identity with me, always. I am a Black person **first** and **always**, before I'm a scientist. That is my first identity and that doesn't get erased because I am a scientist. My Black identity influences how I approach science, especially since I work on Diabetes - a disease which disproportionately affects Black people

Some of the reservations and mistrust of science that Black people have are always at the back of my mind when I approach my experiments and formulate my opinions on published research. I would go even further to say that those reservations and history of

abuse in the scientific community against Black people shape my career path.

As for the Church, I hope they would understand that science is not anti-faith. They can coexist in harmony. Oftentimes as a scientist and a Christian I have to remind myself of that because my faith in both are tested frequently, and I have to do the work to maintain the balance between the two.

How specifically has your identity and background shaped your career path? How can institutions do better in supporting and enabling students like her?

My desire to pursue science originates from my experiences and knowledge of how many diseases disproportionately affect Black people. Specifically, I observed family members struggle with Type 2 Diabetes most of my childhood.

Not only was there a constant pressure from family to do what I could to make sure I don't have to deal with the same health issues, but it also ignited a passion within me. Why does this disease affect us more? Is there a biological explanation? Eventually, this spilled over into other areas of my life such as early STEM education, ultimately giving birth to HBCU-DAP.

Black people are underserved in education as well; less than 2% of PhD holders are Black and that number is smaller when you look specifically at Biomedical/Life sciences. Institutions can do a better job in supporting students like myself by acknowledging that there is a lack of support and providing funding and/or doing the work to close these gaps.

For example, I work with human tissue samples to better understand obesity-associated Type 2 Diabetes. However, most of our samples come from predominantly Caucasian individuals. Instead of ending the conversation with, "we don't have the patient population to do these studies in Black people", help come up with solutions to recruit more Black people - even if that means collaborating with a different community.

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References

<https://www.hbcudap.com>

https://en.wikipedia.org/wiki/Historically_black_colleges_and_universities