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From Struggle to Success: How Mission and Mentorship Shaped Cielo Sharkus

IDS Student Voices

Cielo Sharkus

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Civil and Environmental Engineering



"From the Woods of Worcester, this IDS-Funded Researcher Reached for the Stars – and Managed to Grab a Few"

If a teenaged Cielo Sharkus could see herself today, what would she think?

Today Cielo has won awards and fellowships for her work advancing environmental justice. But growing up in a majority Black and brown working-class community in Worcester, Massachusetts, the teenaged Cielo knew a kind of education quite different from the academic settings she would eventually thrive in.

Cielo attended the vocational Worcester Technical High School, where an interdisciplinary research project on water contamination in the Merrimack River combined biochemistry, civil engineering, and community engagement to reveal to her the intersections between STEM and social justice. This was the defining theme of her future career.

Cielo attended another kind of "school": camping trips with her family in the green New England wilderness. One school taught her the dangers of pollution; the other taught her the beauty and nourishment of the natural world.

"Together, these experiences led me to realize that the local environment in which people live can make them healthy or sick," Cielo recalls. "I realized that environment and health are intricately connected."

This kind of embodied, hands-on, “in the field” education ingrained in Cielo a passion for the real societal and environmental benefits that can be achieved through scientific research, and an ambition to contribute to that endeavor. But it also left her with an uneven foundation in traditional classroom learning that she would need to succeed when she left high school for college – the first in her family to do so – determined to fulfill that ambition.

So, when she began attending the [Worcester Polytechnical Institute](#) (WPI), Cielo struggled a lot. She received a grade of 11% in a calculus class. She remembers other students not wanting to form research teams with her (although, that did not stop her from [serving as president](#) of the WPI chapter of the [National Society of Black Engineers](#)).

But Cielo was stubborn and hung on. And she turned to her mentors for help: she cites the [longstanding support](#) of Dr. Johanna vanderSpek, who headed the biotechnology department at her high school; and the encouragement of [Dr. Destin Heilman](#), her academic advisor at WPI, for helping her make it through. They helped her learn the “unseen curriculum” of navigating academic (and professional) life: how and when to ask for help, meet with professors during their office hours, and reach out for extra tutoring services.

“They gave me the social capital I didn’t have coming into college,” she says. “I am grateful for the mentors who have guided me along the way. And I feel a strong responsibility to pay it forward.”

And pay it forward she has. [Cielo serves](#) as the Diversity, Equity, Inclusion, Accessibility, and Justice Coordinator for the national [Climate Adaptation Science Center Network](#). She even [founded a non-profit](#) focused on providing vulnerable communities with funding and resources to clean up hazardous waste sites.

But, despite her early challenges in the classroom and her subsequent successes in advocacy, Cielo’s heart remains in research. Attracted to the UMass Amherst [College of Engineering’s](#) focus on environmental engineering and community-based research, Cielo began her doctoral program at [UMass Amherst](#) in 2019.

Here, Cielo has sharpened her focus on environmental justice, which she defines as addressing the disproportionate negative impact of environmental disasters on vulnerable communities – namely, low-income and racial and ethnic minority communities. To this end, she has researched the impacts of pollution on water, energy, and food in these communities and partnered with [grassroots, community agriculture organizations](#) to study the soil health of urban farms.

In 2021, with funding from the [Institute of Diversity Sciences](#), she joined [Dr. Christian Guzman](#) – her PhD mentor – in an [innovative research project](#) that used innovative mapping and data analysis methods to identify which Massachusetts communities faced the greatest potential impacts from flooding. The team’s goal was to help policymakers ensure that flood mitigation and response efforts are socially and environmentally just and equitable.

“Through this research journey, I strive to bridge the gap between academic investigation and real-world impact, using my findings to not only raise awareness but also design practical solutions,” Cielo says. “By connecting research with the principles of social justice, I aspire to address environmental injustices, empower communities, and pave the way for a more resilient and equitable future.”

Teenaged Cielo Sharkus possessed within her an awareness that science and engineering urgently needed to address actual environmental and social problems. If she could see herself today, she would see an accomplished young researcher who has successfully translated that awareness into action with her research and advocacy.

And for up-and-coming students who may be struggling the way she did, she points back to the people who supported her, to her mentors.

“Remember that you are not alone on this journey,” she says. “Seek out mentors, allies, and support networks that can uplift and guide you. Surround yourself with people who believe in your potential and are committed to helping you thrive. Together, we can break barriers and create opportunities for success.”



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