The promise of science

A group of young women gathered around a table in Fairfield University's DiMenna-Nyselius Library talking about how changing ocean currents are signaling climate change.

"By studying how the ocean moves, you can keep track of climate change," said Veona Lanham, rifling through computer models and satellite data.

"There are higher temperatures these days because of the way the currents are moving," added her classmate Shante Miller.

"I get it," noted Bianca Colon-Hernandez, recalling the School of Engineering's rotating water tank that mimics the ocean. "Hot water comes up from the Equator, from the Tropics to the North Pole."

What was even more interesting than the students' cutting edge research was knowing that they are only in high school, one week into a unique summer camp.

They were among 23 students from high schools in Bridgeport attending Fairfield University's BASE Camp, a two-week, residential camp in scientific research for girls. BASE (Broadening Access to Science Education) Camp is designed to engage high school students in hands-on, research-based experiences in the natural sciences, technology, engineering and mathematics (STEM).

Amanda Harper-Leatherman, Ph.D., associate professor of chemistry and camp director, said the overall goal is to excite and inform female students about the promise of science. "The program specifically targets young women, based on the overall disproportional underrepresentation of women in science, math, and engineering careers in general," Dr. Harper-Leatherman continued. "It's part of an effort to increase interest in the pursuit of STEM and health careers after college."

The camp also speaks to Fairfield University's growing institutional commitment to promoting women in science. Serving as female scientist role models were faculty and undergraduates from Fairfield's College of Arts & Sciences and School of Engineering.

Shelley A. Phelan, Ph.D., professor of biology and the Elizabeth DeCamp McInerney Chair of Health Sciences at Fairfield, started the program "because students from underfunded, inner city schools are at a major disadvantage in pursuing careers in science, given their often-limited science resources in high school, and the level of experience and aptitude typically required of science majors in the very first year of college. By the end of the first college years, many interested students leave the major - not because they can't do it, but because they were behind right from the start."

The six-year-old camp, including meals and lodging, is free to students, thanks to a grant Dr. Phelan received from the National Institute on Minority Health and Health Disparity Populations, part of the National Institutes of Health.

This year was the first that engineering was taught. Engineering has fewer female than male undergraduate students nationwide, so it's important to encourage high school girls into this field, said faculty.

"Some campers had never heard of engineering," said Shanon Reckinger, Ph.D., assistant professor of mechanical engineering and the Clare Boothe Luce Professor at Fairfield who researches ocean modeling. Three of the girls were studying her work this summer, with undergraduates Katherine Pitz and Blanca Aca assisting.

"Do you guys want to talk about gravity waves, and the sun and the moon at all?" inquired Pitz, a mechanical engineering major.

The answer was a unanimous yes.

For Bianca Colon-Hernandez, learning about engineering seemed a logical move because she's curious about architectural design. And then there's the fun part of meeting other kids with the same interests. "I don't talk about science much at my high school with other girls," noted the soon-to-be junior at Bullard-Havens Technical High School. "But here I've been talking about it with everyone."

For Veona Lanham, 15, getting to know Dr. Reckinger and the BASE Camp experience has made her realize that she would like to major in mechanical engineering. "I want to come here," said the Bullard-Havens student.

Fellow campers looked forward to other camp activities: college admissions counseling and science and health careers exploration. "I'm kind of getting the green light to go to college from staying here," said Shante Miller, a soon-to-be senior at Bassick High School who hopes to become a medical examiner.

To Dr. Phelan, a molecular cell biologist who has been awarded grants to study peroxiredoxins in breast cancer, BASE Camp is an essential annual event. Her hope is that it will inspire other young women "to pursue science and health career paths that will address public health issues."

"We have seen so many bright young women motivated by the program, and many already declared science majors in universities - including our own," she said. "We hope we can continue to inspire young women from our neighboring Bridgeport community for years to come."

Images: A group of students from Bridgeport, Connecticut schools did scientific research by the Long Island Sound in Fairfield, as part of Fairfield University BASE Camp. Pictured with them are Shanon Reckinger, Ph.D., far left, and Fairfield engineering students Katherine Pitz, third from left, and Blanca Aca, fourth from left.

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