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Future Army Leaders Gain Skills, Confidence in Summer Internships

By Dr. Brian B. Feeney



West Point cadet Brianna Brasko examines bacterial cells she grew in a Petri dish inside DEVCOM CBC's biomanufacturing facility during her internship this summer.

Aberdeen Proving Ground, MD -- This summer, like many summers before, cadets from the U.S. Military Academy at West Point came to the Combat Capabilities Development Command Chemical Biological Center (DEVCOM CBC) as interns to work on real-world chemical biological defense projects under the mentorship of Center scientists.

The five cadets who arrived this summer were all from the Academy's Chemistry and Life Sciences Department, and four out of the five aspire to go to medical school to become Army doctors. They all shared a keen appreciation for the opportunity to work with Center scientists in the laboratory.

"I will go back to West Point ten times more confident," said Gwendolyn Houser, a rising sophomore from Allentown, Pennsylvania, who plans to eventually become an Army trauma surgeon. "Being here and seeing all of my mentor's projects opened my eyes in a way nothing else could have."

Working with her mentor, Dr. Jared DeCoste, a Center research chemist, she was able to participate in advanced research on irradiating laboratory engineered materials with UV and visible light to make them better at neutralizing chemical agents. Ultimately, this technology could lead to self-decontaminating suits and coatings for the warfighter.

Another intern, Brianna Brasko, a rising sophomore from Orlando, Florida, performed research in the Center's one-of-a-kind biomanufacturing facility. She worked with Courtney Love, a Center biologist and Dr. Anna Crumbly, a Center chemical engineer, who helped Brasko learn how to grow bacteriophages inside bacteria cells. This is part of a larger Center research effort on how to grow the materials of the future. The facility researchers can scale-up biomaterials so they can be used for real-world applications.

"In my time here, I got to learn in-depth about the bacteria I was working with and investigated how to get it to produce more phages – for example, by optimizing the buffer solution we performed our experiments in," said Brasko. "When I go back to West Point, I will continue working with Ms. Love and Dr. Crumbly remotely and scale the production of this bacteria up to liter-size batches in a laboratory there. I will also be bringing back the protocols and procedures I learned here."



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West Point cadet Jakob Quanbeck uses an NMR instrument to study how water decomposes derivatives of fentanyl-class compounds during his DEVCOM CBC internship this summer.

Three of the interns worked with Dr. Sue Bae and Dr. Mark Winemiller, Center research chemists, studying how exposure to water decomposes derivatives of fentanyl-class compounds using advanced laboratory instruments such as nuclear magnetic resonance (NMR) spectroscopy and gas chromatography mass spectrometry. Cadets Jakob Quanbeck, Daniel Woolsey and Shine Lim learned both experimental and analytical techniques that they will take back to West Point to use in their ongoing collaboration with the Center.

“The scientists here know so much about this equipment and have so much experience,” said Quanbeck, a rising junior from Scranton, Pennsylvania. “Now that I know how to use it, I will bring my experience back to West Point and use it there.” Quanbeck will continue that research with two professors in the West Point Chemistry and Life Sciences Department who have had been collaborating with the Center on this research for several years now.

While these cadets’ internships were staggered over the course of the summer, DEVCOM CBC Director Eric Moore was able to meet with all of the cadets, including three of them at one time, along with their mentors. He learned about what they were doing and the value of the experience for them. He also used the opportunity to offer them some career and life advice. “You never know where your Army career will take you, so decide to enjoy the ride,” Moore said. “Collaborate and learn by the wisdom of others.”

The Center got as much out of these experiences as the interns. “Working with faculty members and cadets at West Point allows us to exchange perspectives and experiences that neither party can provide on its own,” said DeCoste. “We get to provide the cadets with a true research and development opportunity while they let us know how the proposed technologies would be beneficial from their perspective as members of the military.”



West Point cadets Gwendolyn Houser, Briana Brasko and Jakob Quanbeck along with their mentors Dr. Jared DeCoste, Dr. Anna Crumbley and Dr. Mark Winemiller meet with DEVCOM CBC Director Dr. Eric Moore to discuss their summer internship experiences.

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