

# Cybersecurity at Whatcom Community College

Contributed by Whatcom Community College

Even the less technical among us have noticed how frequently malicious hackers, stolen data, and ransomware have been in the news this year.

February: A cyber intruder hacks the control systems of a water treatment plant and tries to raise the levels of sodium hydroxide (AKA lye or caustic soda) high enough to poison residents of a small Florida city.

May: The Colonial Pipeline, which delivers roughly 45% of fuel consumed on the East Coast, shuts down for several days because of hackers hijacking the company's computers; a ransom of more than \$4 million is paid to get the pipeline up and running quickly.

June: A ransomware attack against JBS, the world's largest meatpacking company, disrupts meat production in North America and Australia.

Throughout the United States, tens of thousands of cybersecurity professionals work full-time to prevent cyber attacks against hospitals, school systems, universities, utility companies, cities, states, federal agencies, and companies large and small. But there aren't enough qualified cybersecurity workers to go around. The nonprofit Center for Cyber Safety and Education estimates that this cybersecurity workforce gap—between the number of actual information security workers in the U.S. and the number need-

ed—will hit 1.8 million by 2022.

Local residents may not realize that a national leader working to solve this problem is practically in their backyard, at Whatcom Community College (WCC). In 2011, WCC was among the first community colleges to be designated a National Center of Academic Excellence in Information Assurance/Cyber Defense 2-Year Education (CAE2Y) by the National Security Agency and the Department of Homeland Security.

Ten years later, grant-funded programs at WCC have helped more than 130 community colleges and universities across 38 states develop their cybersecurity degree programs and successfully apply for Center of Academic Excellence (CAE) designations. WCC's Computer Information Systems and Cybersecurity programs have also dramatically expanded.

A CAE designation attracts more students to the institution's cybersecurity and/or information science degree programs; increases enrollments, which translates to greater revenue; and the students and additional faculty hires participate in the local economy. In addition, some program graduates get jobs locally as system administrators or cyber defense analysts, earning good salaries, and their employers benefit from their valuable skills, allowing them to grow and further contribute to the regional economy. A CAE designation can also strengthen institutions' grant applications, helping fund a variety of community activities and new state-of-the-art program



Photos courtesy of Whatcom Community College

equipment, further enhancing student learning.

A local economic impact study recently drafted by the Seattle Jobs Initiative estimates that WCC's CAE designation contributed to an increase in earnings of \$16.3 million and an increase of 948 jobs between 2012 and 2019 in the Bellingham area, through multiplier effects. The impact in Whatcom County has been particularly powerful because the College has continued to pursue new sources of grant funding and expand its academic offerings, including launching its first Bachelor of Applied Science Program in IT Networking – Cybersecurity in 2017.

"As a national leader in cybersecurity education, WCC's CIS and cybersecurity programs are models of excellence in preparing qualified employees for the cyberdefense workforce," said WCC President Kathi Hiyane-Brown. "Cybersecurity is vital to our national security, and we are committed to sharing resources with other higher education institutions."

The work accomplished by Corrinne Sande, Computer Information Systems and Computer Sciences Director—along with others in workforce development at WCC—has brought more than \$18 million in federal funding to Whatcom County due to the College's strong reputation for grant performance. Sande is also the Director/Principal Investigator of the National Cybersecurity Training & Education Center (NCyTE Center) at WCC.

NCyTE is an Advanced Technological Education (ATE) National Resource Center funded by the National Science Foundation, one of only two such centers in the nation dedicated to cybersecurity education. Because it's impossible for college faculty to become experts on every new cybersecurity threat, skill, and technical tool that arises, NCyTE is building a one-stop repository of resources that can be easily adapted and added to college courses. NCyTE is also developing substantial resources to help high school instructors to introduce cybersecurity into appropriate courses and ease pathways for students to higher education.

On its website, [www.ncyte.net](http://www.ncyte.net), cybersecurity educators can

download materials on secure software development; find a sample curriculum for a class on protecting critical infrastructure; or watch a recorded webinar on how to teach complex topics like cybersecurity risk management and compliance.

NCyTE also provides travel stipends to enable faculty to attend cybersecurity conferences. Online tools help college administrators and advisors translate U.S. military skills, training, and experience into course equivalencies, so that veterans can avoid spending time and money taking classes on technical skills already mastered during their military service.

This spring, NCyTE launched a new Advanced Placement course for high school students, "AP Computer Science Principles: Cybersecurity," developed in cooperation with online teaching platform CodeHS and recently endorsed by College Board. High school students taking the course this fall will get a solid introduction to both computer science and cybersecurity, and some may choose a career path they hardly knew existed.

Who knows? Five years from now, one of those high school students may be protecting our local hospital, water supply, city, or our nation itself from a devastating cyber attack. *SL*

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## Local Artist Melissa Broersma Connects Art with Life

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