CICEP | INNOVATION AND ECONOMIC PROSPERITY UNIVERSITIES AWARDS PROGRAM

CASE STUDY 2015

IEP CATEGORY • TALENT

Advanced Cybersecurity Experience for Students (ACES)

Creating Cybersecurity Talent for Honors Students by Leveraging Cyber Research Cluster

In 2012, UMD partnered with BHEF and Northrop Grumman to create ACES (Advanced Cybersecurity Experience for Students). ACES includes the world's first university dormitory for cybersecurity students, and is helping supply trained workers to serve the cyber community. The ACES program leverages the private and federal cyber security research cluster in Maryland and the region.

CYBERSECURITY TALENT DEMAND NATIONALLY

Cybersecurity is one of the nation's fastest-growing occupations, as projected by the U.S. Labor Department's Bureau of Labor Statistics. The job market for information-security analysts, including cyber security professionals, is set to grow 36.5 percent by 2022, with 27,400 jobs being added. Salaries for information technology security professionals range from $60,000 to $70,000 for entry-level jobs, according to CompTIA, with a college degree, certification and experience normally necessary.

UMD ROLE IN CYBER SECURITY

The state of Maryland is home to NSA, NIST and other federal laboratories interested in cybersecurity, both in the private and government sectors, and is considered the nation's epicenter in cybersecurity

NSA has built its R & D labs proximate to campus and research park. In 2005, UMD created the Maryland Cybersecurity Center (MC2). MC2 is unique in its comprehensive approach to cybersecurity education, research and technology development, stressing interdisciplinary solutions. UMD is the lead university partner with Mitre on the National Cybersecurity Center of Excellence, a new $5 billion federally funded research and development center (FFRDC) focused on cyber security.

ACES

Given the depth of cybersecurity research at UMD, and pressing national need for a trained cyber work force, the university worked with Northrop Grumman to design an academic program for high achieving honors students to become leaders in cybersecurity.

ACES students are assigned to the same residence hall, developing a sense of community and companionship.

Since 2012 Northrop Grumman's initial $1.1M investment has helped leverage an ACES program that has proven robust, offering 65 percent more credits than originally targeted; multidisciplinary, counting 24 different majors among its student body; diverse, with 30 percent female students or from underrepresented populations; and in demand, serving 50 percent more students than originally anticipated. In fact, to date more than 100 incoming freshmen have indicated their intention to join ACES in fall 2015, the largest demand for a living

learning program. ACES is building on a strong foundation for its third and fourth years—and is poised for significant growth.

Outreach to military veterans will be expanded. Next year, projected instructional needs for juniors and seniors include 16 to 18 credits, with such course options as:

- "Applied Security Analysis and Visualization,"
- "Security Through Cyber Forensics" and
- "Cybersecurity Team Problem-Solving Experience."

The Northrop Grumman president and his senior team have been very involved in the success of the ACES program, including personally visiting the campus on two occasions, and providing curriculum development.

UMD president Wallace Loh with Northrop Grumman CEO Wes Bush at ACES dedication

Industry partners beyond Northrop include Parsons and Cypherpath. Parsons has committed to offering six scholarships to help us recruit a wide spectrum of students to the ACES program. They have provided social events for the students and hosted them at their offices earlier this fall. MC2 and ACES staff worked with Cypherpath to acquire their propriety software at a deep discount.

An ACES student has created his own start up to provide cybersecurity gaming experience to high school students.

INTERNSHIP

In addition to fulfilling required coursework, ACES students have the opportunity to participate in cybersecurity learning outside of the classroom. 36% of ACES students pursued internships during the summer, including Northrop Grumman, NIST, Tactical Network Solutions, SGT,

and ARL, among others. Overall more than 70% of students from the first cohort partook in experiential learning, including working with UMD Center for Women in Computing.

BHEF

BHEF has used the ACES program as a national model through its new publication: ***The National Higher Education and Workforce Initiative Strategy in Action: Building the Cybersecurity Workforce in Maryland.***