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2022 EDITION



CAE

IN CYBERSECURITY
COMMUNITY

NATIONAL CENTERS OF ACADEMIC EXCELLENCE IN CYBERSECURITY

This guide highlights institutions within the
NCAE-C program.

www.caecommunity.org

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Introduction

For twenty years, the focus of the National Centers of Academic Excellence (CAE) in Cyber program has been on delivering provable excellence in education to meet our nation's cybersecurity workforce needs. In the beginning, the defining element was curriculum and quality of education. While both elements continue to be highly central to the definition of excellence, the emerging emphasis on developing cybersecurity workforce necessitates inclusion of competencies, and the graduate's ability to integrate knowledge and action. It is also critical that this program's community-maintained knowledge unit system is in sync with the NIST Cybersecurity Framework as it defines federal workforce needs, and CSEC 2017 which defines the academic discipline of cybersecurity from an education perspective.

The most recent evolution in requirements changed the focus to one based on the outputs of the cybersecurity educational program. This shift to an examination of program outcomes was not new or novel. It is, in fact, the basis of most accreditation programs. Moving forward, the Centers of Academic Excellence in Cyber designation is a combination of elements related to the institution focused on outputs for determining academic achievement. This combination assures that the institution meets the desired characteristics of a CAE institution, and that the academic delivery to students is producing the qualified workforce needed by the nation. Designation requirements will continue to evolve and grow as the academic community and needs of the nation grow and evolve.

The program is built around a spirit of collaboration, both between the government and participating academic institutions, among the institutions themselves, and between the Program Management Office (PMO) and other government departments, agencies, and institutions. The United States Government must support the development of cybersecurity skills and encourage ever-greater excellence so that America can maintain its competitive edge in cybersecurity. It is essential that the NCAE-C community remains true to the core values and guiding principles the program has embraced since the beginning.

Encourage and support ethical behavior by students, faculty, administrators, and professional staff. (Ethics)

Enable an environment in which students, faculty, administrators, professional staff, and practitioners can share, interact, and collaborate with others in the cybersecurity field with inclusiveness and respect. (Share)

Demonstrate a commitment to address, engage, and respond to current and emerging cybersecurity issues both in the classroom and in the institution itself. (Lead by example)

The institutions profiled in this Yearbook have all met the academic standards and embraced these philosophies and practice. We look forward to continuing our growth and expansion to serve the Nation.

Lynne Clark

Chief

National Centers of Academic Excellence in Cybersecurity Program Office

History of the Program

NSA launched the National Centers of Academic Excellence in Information Assurance (IA) Education program in 1999. The program was envisioned to contribute to the growing demand for cybersecurity expertise in the intelligence community workforce. Over the years, as it became clear cyber defense would become an integral element of national security, the program's objectives expanded to support the nation's need for cybersecurity workforce development.

The program originally called for schools to map their information assurance curriculum to Committee on National Security Systems (CNSS) standards. The first created was CNSS 4011, which outlined the minimum knowledge required of IA professionals to execute their craft and served as the foundation for the CAE in IA Education Program. As the CNSS developed subsequent standards (CNSSIs 4012-6), institutions were given the opportunity to map to them.

Once successfully mapped, institutions received a certificate through the Information Assurance Curriculum Evaluation (IACE) program. Receiving IACE endorsement was the first step to CAE designation. The program began the transition from using CNSS standards to developing and implementing a new Knowledge Unit (KU) structure that more accurately reflected the state of cybersecurity and technology in 2012. Applicants began using the new KUs for designations in 2014 and by 2017, every academic institution in the program had made the transition.

From the beginning, the CAE designation was based on both curriculum and program criteria. The criteria speak to the institution's commitment to joining the CAE-CD program, practicing what they teach, maintaining quality faculty to ensure a lasting academic program, outreach to high schools and others in need of IA expertise, and commitment to developing the profession. Once an institution received their IACE endorsement, they continued in the second stage to document the program criteria. When the program evolved to using KUs, the two-stage process merged into one application.

The first seven institutions to receive the designation were James Madison University, George Mason University, Idaho State University, Iowa State University, Purdue University, University of California, Davis, and University of Idaho. These seven schools were instrumental in developing information assurance curriculum in its infancy. Textbooks had yet to be written on the topic, so these first seven schools formed a bond and shared resources to begin building a community that has grown to 380+ schools across the country.

Over the years, the CAE Program Management Office has undergone many enhancements in order to keep up with the cyber landscape. Some of the more notable changes include the introduction of the DoD Cyber Scholarship Program (2001), the addition of DHS as a partner (2004), the addition of the Research designation (2008), and the Two-Year Education (2010) designation. In the 2017 National Defense Authorization Act (NDAA), Congress changed Information Assurance to Cyber Defense, thus changing the program name to CAE in Cyber Defense.



California State University San Bernardino receiving their CAE-IAE certificate

In collaboration with the CAE Community, the CAE-CD Program Office changed the process for curriculum mapping and titles of the designation in 2018. The Program Office and the designated schools met in a series of workshops to address an update of the program's Knowledge Unit (KU) structure and content, and in the process, reached consensus on changing the academic requirements for designation. This update was driven by the need to distinguish between bachelors and graduate degrees, as well as the relationship of types and numbers of KUs at each level of recognition.

Without substantive change to the KUs themselves, the curriculum mapping requirements evolved. The new process gave all designating institutions the opportunity to individualize their programs and reflect their programs' expertise within their designation. This also makes it easier for students, employers, and educators to identify the focus of each designated program and how those programs map to the National Initiative for Cybersecurity Education (NICE) Workforce Framework categories and work roles. The program office implemented this new paradigm in the 2019 application cycle (October 2018 to May 2019).

In October 2019, the CAE in Cyber Defense program merged with the CAE in Cyber Operations program. The latter program was established in 2012 to support the President's National Initiative for Cybersecurity Education (NICE): Building a Digital Nation, and furthers the goal to broaden the pool of skilled workers capable of supporting a cyber-secure nation. The CAE-CO program is a deeply technical, inter-disciplinary program firmly grounded in computer science, computer engineering, and/or electrical engineering disciplines. It complements the CAE-CD program, providing a particular emphasis on technologies and techniques related to specialized cyber operations to enhance the national security posture of our Nation.

As of June 2022, there are 380+ designated institutions across 48 states, the District of Columbia, and Puerto Rico. There are 116 community colleges offering associate programs and degrees. Many of our designees hold multiple designations; 48 hold both CAE- CD and CAE-R designations, six hold both CAE-CD and CAE in Cyber Operations (CAE- CO), two hold CAE-R and CAE-CO, and ten hold all three designations: CAE-CD, CAE-R, and CAE-CO.



The University of Washington receiving their CAE-Cyber Defense Education certificate

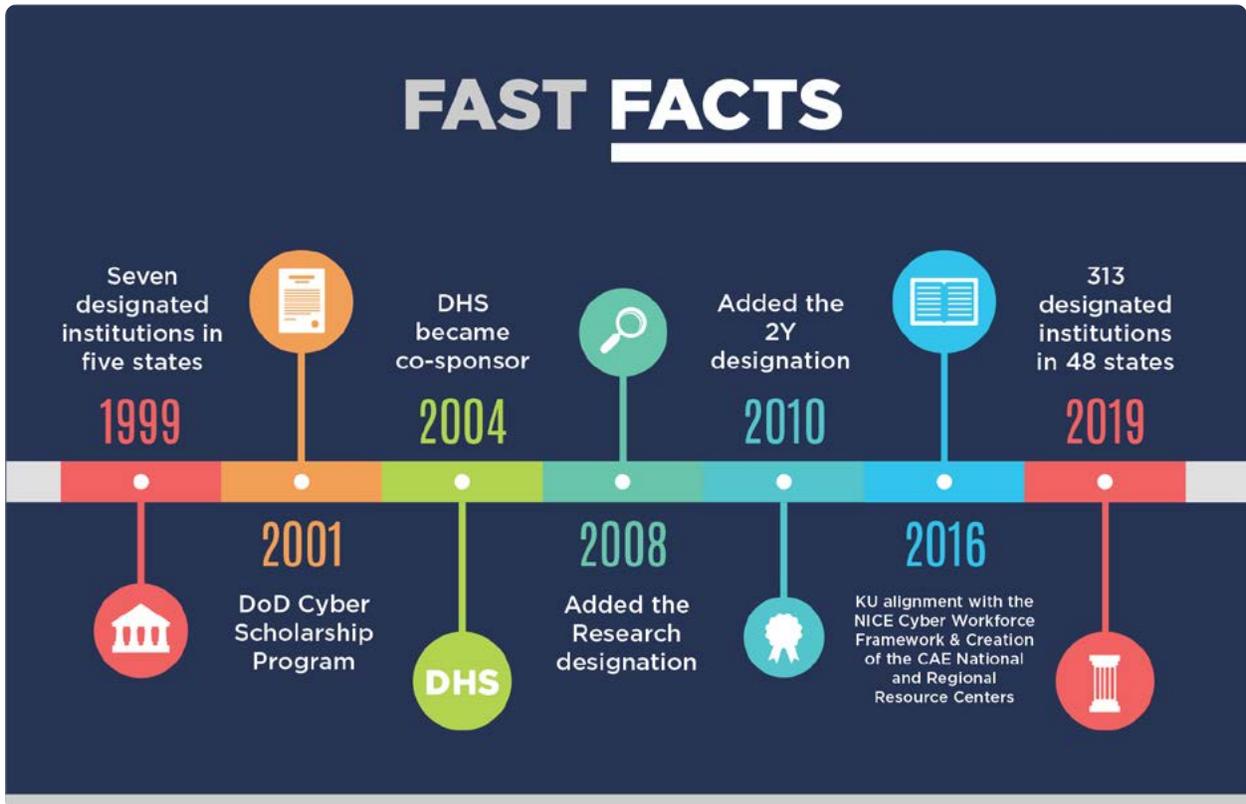
Though the program has evolved through the years, our focus has always been and will continue to be, to promote higher education and research in cyber defense and produce professionals with cyber defense expertise in order expand to the cybersecurity workforce and to reduce vulnerabilities in our national infrastructure.



Moraine Valley Community College receiving their CAE-CD certificate



West Virginia University receiving their CAE-R certificate



The National Centers of Academic Excellence in Cybersecurity Today

Academic institutions may choose from three designations.

- **The Cyber Defense (CAE-CD)** designation is awarded to regionally accredited academic institutions offering cybersecurity degrees and/or certificates at the associate, bachelor's, and graduate levels.
- **The Research (CAE-R)** designation is awarded to DoD schools, PhD producing military academies, or regionally accredited, degree granting four-year institutions rated by the Carnegie Foundation Basic Classification system as either a Doctoral University – Highest Research Activity (R1), Doctoral University – Higher Research Activity (R2), or Doctoral University – Moderate Research Activity (R3).
- **The Cyber Operations (CAE-CO)** program is a deeply technical, inter-disciplinary, higher education program firmly grounded in the computer science, computer engineering, and/or electrical engineering disciplines, with extensive opportunities for hands-on applications via labs and exercises.

The designation process is a combination of elements related to the institution focused on outputs for determining academic achievement. This combination assures that the institution meets the desired characteristics of a CAE institution, and that the academic delivery to students is producing the qualified workforce needed by the nation.

CAE-designated institutions must complete validation of a Program of Study (PoS) which is a series of courses and experiences that a student can reasonably accomplish in the course of attaining a degree or completing a certificate.

National Centers of Academic Excellence (NCAE) Mission

The mission of the National Centers of Academic Excellence in Cybersecurity (NCAE) program is to create and manage a collaborative cybersecurity educational program with community colleges, colleges, and universities that:

- Establishes standards for cybersecurity curriculum and academic excellence
- Includes competency development among students and faculty
- Values community outreach and leadership in professional development
- Integrates cybersecurity practice within the institution and across academic disciplines
- Actively engages in solutions to challenges facing cybersecurity education

CAE Core Values and Guiding Principles

- **Ethics:** The institution must encourage and support ethical behavior by students, faculty, administrators, and professional staff.
- **Share:** The institution enables an environment in which students, faculty, administrators, professional staff, and practitioners can share, interact, and collaborate with others in the cybersecurity field.
- **Lead by Example:** The institution demonstrates a commitment to address, engage, and respond to current and emerging cybersecurity issues both in the classroom and in the institution.

CAE Designations

CAE in Research (CAE-R)

All CAE in Research (CAE-R) applicants must be either a DoD school, a PhD producing military academy, or a regionally accredited, degree-granting four-year institution. They must be rated as either a Doctoral University – Highest Research Activity (R1), a Doctoral University – Higher Research Activity (R2), or a Doctoral University – Moderate Research Activity (R3) as determined by the Carnegie Foundation Basic Classification system (and/or other independent body to measure CD) or provide a written justification outlining their significant CD research.

The CAE-R criteria includes the demonstration of CD Research initiatives (faculty and student), publications, graduate-level production, and research funding.

CAE in Cyber Defense (CAE-CD)

There are four levels of the CAE-CD designation: Associate, Bachelor, Master, and Doctoral.

Institutions wishing to be designated a *Center of Academic Excellence in Cyber Defense (CD)* or *Cyber Operations (CO)* for a particular program of study apply in two parts.

The following process applies to both Program of Study Validation (PoS) and CAE Designation. In Step 5 (fig. 1), the applicant appears before the Review Committee by webinar for the PoS validation, and in person for the CAE Designation review.

- **Program of Study Validation.** The process begins with the submission of elements pertaining to the academic program of study, including curriculum, faculty profiles and qualifications, and program maturity. An institution may opt to have multiple programs of study validated before pursuing designation, or may achieve designation and return to have additional programs of study validated.
- **CAE Designation.** Once one program of study has been validated, the institution may pursue a designation. To be eligible for designation, academic institutions must hold a current regional accreditation as outlined by the Department of Education (<https://www.ed.gov/accreditation>).

Timelines for submission are published by the CAE-C Program Management Office (PMO), and are spread throughout the year. The program office will make available an automated application tool to collect all required documentation and data. The application tool will collect required metrics and allow upload of required documentation.

Qualified cyber professionals and Subject Matter Experts from CAE Academic Institutions, NSA, DHS, and other government and industry partners will assess applications. By submitting an application, an institution grants consent to having its application reviewed by assessors approved by the CAE Program Office. Institutions not meeting requirements will receive reviewer feedback at the time of notice. Reviewer feedback is available upon request for approved submissions by contacting the Program Office at CAEPMO@nsa.gov. Incomplete applications will be returned without comment. Designation as a National CAE-C does not carry a commitment of funding.

Expectations of Designated Institutions

- ✓ Submit an annual update with all required information. Be available to discuss responses should the CAE Program Office have questions about any submitted information.
- ✓ Attendance at the CAE Community Symposium or CAE Principals Meeting each year. If attendance isn't feasible in a particular year, contact the CAE Program Management Office (caepmo@nsa.gov) for a suitable alternative.
- ✓ Represent institution by participating in CAE program activities and projects and maintaining regular communication with the CAE Program Management Office and the CAE Community.

This includes, but is not limited to:

- ▶ Acting as a Mentor, Advisor, or Reviewer
 - ▶ Participating in a Working Group
 - ▶ Provide timely input on questions and projects managed by the CAE PMO
 - ▶ Contribute curriculum, time, and resources in support of the CAE Community as a whole
 - ▶ Share expertise via a CAE Forum or Tech Talk
 - ▶ Complete and submit annual report as required
- ✓ Maintain institution information in the application tool. Update the appropriate Point of Contact and President information to ensure PMO correspondence is received by the intended recipients.
 - ✓ Virtually attend at least one CAE Tech Talk or CAE Forum per calendar year.
 - ✓ Answer annual call for CAE Program Book updates.
(View current version here: www.caecommunity.org/content/cae-marketing-materials).

CAE-CD Candidate Program

As awareness of the crisis in cybersecurity workforce began to grow, so did interest in the CAE-CD program. In the early years of the program, academic institutions were on their own to interpret designation requirements and successfully apply for designation. While the program office could answer specific questions, there was no concerted means that allowed interested institutions to get help in developing their programs or interpreting the application process. As a result, success in first time applications was about 57%.

In 2015, the National Science Foundation awarded the Catalyzing Computing and Cybersecurity in Community Colleges (C5) grant. As a co-PI on this grant, Whatcom Community College, Bellingham, WA, implemented a mentoring program to help community colleges pursue CAE-CD. In an effort to use CAE Program Office resources most effectively, maintain fiscal responsibility, and encourage the growth of exceptional cybersecurity education programs, the CAE-CD program introduced the CAE-CD Candidate Program in 2016 and expanded assistance to all schools seeking the Cyber Defense designation. The mentoring opportunities offered in the Candidates Program are based on the C5 model and lessons learned.

The CAE-CD Candidate Program ensures applicant institutions have adequate opportunity for program development and application assistance prior to submitting an application. It is designed to reduce the time required to earn the designation, help new participants understand the depth and breadth of the program and designation requirements, and facilitate the sharing of experience and resources between institutions already designated and aspirants via mentorship opportunities. Depending on the maturity of the program, institutions are placed in either Program Development or Application Assistance.

Program Development is recommended for institutions needing further development of programs and/or curriculum, or for those with programs that have not reached maturity. Assistance and advice within this path are provided primarily by regional CAE Resource Centers. Candidate institutions have access to workshops and seminars and are invited to programs and events hosted by the CAE Community.

Institutions assessed to be within one year of meeting curriculum and programmatic criteria are referred to the Application Assistance path for mentorship. Institutions in this phase also have access to workshops and seminars and are invited to programs and events hosted by the CAE Community. Application Assistance is designed to help new applicants interpret and document the depth of program and designation requirements and is the element of the Candidate Program modeled after C5. Following implementation of the Candidate Program, the applicant success rate rose to 87% in the first year.

CAE National Centers (CNCs) and CAE Regional Hubs

The program office established the CAE National Resource Centers (CNRC) and CAE Regional Resource Centers (CRRRC) in 2017 to provide an infrastructure among CAE-designated schools in different geographic regions. This support infrastructure was crucial to continued growth and efficacy of the CAE-CD program. Its success is a testament to the power of collaboration and cooperation, development of an academic community, shared resources, and shared goals.

In 2020, the program office is using lessons learned from three years of the original structure to slightly re-organize the infrastructure so that the organization is more sustainable financially, but continues to provide the best support to the CAE Community. Five Regional Hubs will replace the CRRCs to support institutions with designated programs and candidate institutions in a particular geographic region. They

will continue to host a variety of program and faculty professional development workshops, seminars and courses, and facilitate collaboration in the region. The Hubs are teams of community colleges and universities who collectively provide support to the region, lead the CAE Competition program, and collaborate with the CAE National Centers and the program office to support the CAE Community.

The CAE National Centers will continue to provide specialty assistance and leadership to the CAE Community in the areas of resource management, standards development and management, mentoring and peer review. The program office depends on the CNCs to provide feedback and input for strategic planning, standards currency, and review of applications. This structure ensures separation of advice and mentorship from evaluation and designation.

There are three CAE National Centers providing community support, management of the Candidates program, and management of the peer reviewer and adjudication process in collaboration with the program office.

DoD Cyber Scholarship Program (DoD CySP)

Given our increasing reliance on cybersecurity, information technology (IT), the growing threats to information, and information systems and infrastructures, it is critical that the Department of Defense (DoD) protect itself. To do so, the DoD must be staffed with technically savvy personnel. To help achieve this task, the DoD Cyber Scholarship Program (DoD CySP) was established in 2001. Formerly the DoD Information Assurance Scholarship Program, the DoD CySP is sponsored by the DoD Chief Information Office and administered by the National Security Agency (NSA). Objectives of the program are to promote higher education in all disciplines of cybersecurity, to enhance the Department's ability to recruit and retain cyber and IT specialists, to increase the number of military and civilian personnel in the DoD with this expertise, and ultimately, to enhance the nation's cyber posture.

There are two scholarship opportunities within DoD CySP: Recruitment Students and Retention Students.

- **Recruitment Students/Scholarships (Non-DoD Employees):** As a recruitment tool, the DoD CySP sponsors students who currently are not DoD or other government employees who are enrolled in or applying to universities designated as a National Center of Academic Excellence in Cybersecurity (NCAE-C). Following graduation, students are eligible for full-time employment with various components and agencies across the DoD. Students are required to work for the DoD a minimum of one year for each year of scholarship support they receive.
- **Retention Students/Scholarships (DoD Employees, Civilian and Military):** The DoD CySP supports DoD civilians, military officers, and enlisted personnel who pursue Master's and Doctoral degrees in cyber-related fields of study. Typically, these retention students attend a DoD school designated as a CAE and, depending on the program, may finish their graduate degree at a partnering university. For DoD civilian and military personnel, the service commitment following graduation is determined by their sponsoring component organization. Retention student also have an opportunity to pursue a two-year community college degree or certificate.

There is an additional option for NCAE-C's to apply for modest institutional capacity building. DoD CIO will outline the projects for each application cycle in the annual solicitation. The projects may be tied to two specific DOD-focused initiatives: DoD Partnerships and Outreach to K-12, Minority Institutions, Community Colleges; and technical schools. For more information visit: <https://public.cyber.mil/dcysp>

Grants

The CAE-CD program has not had funding to provide grants in every fiscal year, but periodically receives funding from Congress to accelerate growth of the program and encourage research. In FY2015, Congress allocated \$6 million for research, which was subsequently awarded to CAE-CD designated institutions. In FY2016, Congress allocated \$1 million for grants to CAE-CD designated institutions. Part of this funding was used to establish the first six CRRCs. In FY2017, the program received \$25 million from the President's budget, which facilitated establishment of the CNRCs and remaining three CRRCs in addition to allowing the program office to issue 45 grants for projects at designated institutions. A database with information on all of these grants, their POCs, and a short description of the project is now available on the CAE Community website (caecommunity.org) to those qualifying for a CAE Community account.

Federal Partners

NCAE program success is due in large part to federal departments and agencies that are close partners in cybersecurity workforce education and development. In addition to the program office partnership with DoD CIO on DoD CySP, close partners include:

- **Department of Homeland Security (DHS), Cybersecurity and Infrastructure Security Agency (CISA)**
CISA helps foster the growth of the program as part of their outreach to states and local communities. CISA also manages the National Initiative for Cybersecurity Careers and Studies (NICCS) and offers free online cybersecurity education to federal employees and military through the Federal Virtual Training Environment (VTE). Visit niccs.us-cert.gov for more information.
- **The Federal Bureau of Investigation (FBI)**
The FBI serves as a strategic advisor for the Cyber Operations Program. FBI participates in training and education conferences, symposia, and working groups to address cybersecurity education and training, and co-sponsor, as appropriate, events, working groups and principals' meetings. FBI provides subject matter expertise and participates in the review of college and university applicants for designation. Additionally, the FBI participates in the Summer Intern Program. Through the NSA CAE partnership initiative, the FBI provides technical liaisons to universities associated with the FBI and NSA's Centers of Academic Excellence in Cyber Operations schools. The intended purpose is to enhance relationships and identify potential partnerships on research and innovation.
- **The National Initiative for Cybersecurity Education (NICE)**
As part of the National Institute of Standards and Technology (NIST) in the Department of Commerce, NICE focuses on efforts to close the hiring gap in the cybersecurity workforce. The Annual CAE Community Symposium is supported by a grant from NICE. The NICE Challenge Project, which develops real world cybersecurity tasks that are aligned to the NICE Cybersecurity Workforce Framework presented within virtualized business environments bring students the workforce experience before entering the workforce, is funded by NICE and the NSA College of Cyber. The CAE-CD program office participates with the NICE Interagency Coordinating Council, which offers opportunities for federal departments and agencies to share information and collaborate on areas of common interest. CAE-CD KUs are mapped to the NICE Framework, and designated programs align to the NICE Framework Specialty Areas. Visit nist.gov/nice for more information.

- **United States Cyber Command (USCYBERCOM)**

USCYBERCOM is partnered with the National Security Agency academic engagement programs to build cyber mission and Department of Defense cyber workforce. USCYBERCOM is focused on academic partnership through existing partners to create cyber talent development competencies and skills across the force. Currently, USCYBERCOM is developing outreach to academic partners around designated critical work roles and critical training/education infrastructure to enable cyber skills, knowledge and attributes associated with academic knowledge units and experiential cyber programs.

- **The National Science Foundation (NSF)**

The NSF encourages and funds projects that will generate new knowledge about effective cybersecurity education, re-skill workers to meet cybersecurity education needs, prepare nontraditional students to reenter the educational system, increase the diversity of the cybersecurity workforce, use applied research experiences to build skills and www.iad.gov/NIETP 27 competencies for real-world scenarios, and build effective collaborations between educational institutions, business, industry, and government. NSF and CAE-CD interests frequently align, and the CAE-CD program has benefited from the NSF investment on numerous occasions. For more information, visit www.nsf.gov. Most closely related to the CAE-CD are:

- » The CyberCorps[®]: Scholarship for Service (SFS) program. The SFS program, co-sponsored by the U.S. Office of Personnel Management (OPM), and Department of Homeland Security (DHS), includes scholarship and capacity-building components that attract high-caliber students from institutions designated by the CAE-CD program and selected by NSF through a competitive process.
- » The National Defense Authorization Act for Fiscal Year 2018 gave NSF, in coordination with the Office of Personnel Management, authorization to develop and implement a C3P program as part of NSF's CyberCorps[®]: Scholarship for Service (SFS) program. Specifically, the act authorizes scholarships for students who are bachelor's degree recipients or veterans of the Armed Forces, or who are pursuing associate degrees or specialized program certifications in the field of cybersecurity. Five CAE-CD designated institutions are participating C3P.
- » NSF also manages the Advanced Technological Education (ATE) program, which is currently funding centers in eight major technology areas. Two ATE programs, the National Center for Systems Security and Information Assurance (CSSIA) and NCyTE are designated CAE-CDs.

Academic Institutions Offering CAE-C Designated Programs

Degree and certificate paths range from concentrations in cybersecurity to bachelors and masters in cybersecurity and cyber defense. Top research focus areas are Hardware Security, Cryptology, Digital Forensics, and Network Hardening. Designated institutions were invited to provide profiles of their programs for this publication. Those who were able to do so according to the publication deadlines are profiled alphabetically in this section. The following is an alphabetical list of designated programs by institution name, with their state. For a listing of institutions by state, or for more information, visit:

www.iad.gov/NIETP/reports/cae_designated_institutions.cfm

Designated Programs by Institution

Air Force Institute of Technology	Ohio	Collin College	Texas
Alamance Community College	North Carolina	Colorado Mesa University	Colorado
American Public University System	West Virginia	Colorado School of Mines	Colorado
Anne Arundel Community College	Maryland	Colorado State University-Pueblo	Colorado
Arapahoe Community College	Colorado	Colorado Technical University	Colorado
Arizona State University	Arizona	Columbia Basin College	Washington
Athens State University	Alabama	Columbus State Community College	Ohio
Auburn University	Alabama	Columbus State University	Georgia
Augusta Technical College	Georgia	Community College of Rhode Island	Rhode Island
Augusta University	Georgia	Cosumnes River College	California
Baker College	Michigan	County College of Morris	New Jersey
Bay Path University	Massachusetts	Cypress College	California
Bellevue University	Nebraska	Dakota State University	South Dakota
Binghamton University	New York	Danville Community College	Virginia
Bismarck State College	North Dakota	Dartmouth College	New Hampshire
Bloomsburg University of Pennsylvania	Pennsylvania	Davenport University	Michigan
Blue Ridge Community & Technical College	West Virginia	Daytona State College	Florida
Blue Ridge Community College	North Carolina	Delta College	Michigan
Bluegrass Community and Technical College	Kentucky	DePaul University	Illinois
Boise State University	Idaho	Des Moines Area Community College	Iowa
Bossier Parish Community College	Louisiana	Drexel University	Pennsylvania
Boston University	Massachusetts	East Carolina University	North Carolina
Bowie State University	Maryland	East Stroudsburg University	Pennsylvania
Brigham Young University	Utah	Eastern Florida State College	Florida
Brookdale Community College	New Jersey	Eastern Michigan University	Michigan
Butler Community College	Kansas	Eastern Washington University	Washington
Calhoun Community College	Alabama	ECPI University	Virginia
California State Polytechnic University, Pomona	California	Edmonds Community College	Washington
California State University San Marcos	California	El Paso Community College	Texas
California State University, Sacramento	California	Embry-Riddle Aeronautical University - Daytona	Arizona
California State University, San Bernardino	California	Embry-Riddle Aeronautical University - Prescott	Florida
Capella University	Minnesota	ENMU - Ruidoso Branch Community College	New Mexico
Capitol Technology University	Maryland	Estrella Mountain Community College	Arizona
Carnegie Mellon University	Pennsylvania	Excelsior College	New York
Cecil College	Maryland	Fairleigh Dickinson University	New Jersey
Cedarville University	Ohio	Fayetteville Technical Community College	North Carolina
Central Michigan University	Michigan	Ferris State University	Michigan
Central New Mexico Community College	New Mexico	Florida A&M University	Florida
Central Piedmont Community College	North Carolina	Florida Atlantic University	Florida
Century College	Minnesota	Florida Institute of Technology	Florida
Champlain College	Vermont	Florida International University	Florida
Chemeketa Community College	Oregon	Florida Memorial University	Florida
Chippewa Valley Technical College	Wisconsin	Florida State College at Jacksonville	Florida
City College of San Francisco	California	Florida State University	Florida
City University of Seattle	Washington	Fordham University	New York
Clark State College	Ohio	Forsyth Technical Community College	North Carolina
Clemson University	South Carolina	Fort Hays State University	Oklahoma
Coastline Community College	California	Franklin University	Ohio
College of Coastal Georgia	Georgia	Fullerton College	California
College of DuPage	Illinois	Gaston College	North Carolina
College of Eastern Idaho	Idaho	George Mason University	Virginia
College of Southern Maryland	Maryland	Georgetown University	District of Columbia
College of Southern Nevada	Nevada	Georgia Institute of Technology	Georgia

Designated Programs by Institution

Georgia Southern University - Armstrong	Georgia	Madison College	Wisconsin
Georgia State University	Georgia	Marquette University	Wisconsin
Germanna Community College	Virginia	Marymount University	Texas
Glendale Community College	California	McLennan Community College	Texas
Grand Canyon University	Arizona	Mercy College	New York
Grand Rapids Community College	Michigan	Metropolitan State University	Minnesota
Great Falls College Montana State University	Montana	Metropolitan Community College	Nebraska
Green River College	Washington	Metropolitan Community College - Kansas City	Missouri
Guilford Technical Community College	North Carolina	Metropolitan State University of Denver	Colorado
Gwinnett Technical College	Georgia	Miami Dade College	Florida
Hagerstown Community College	Maryland	Middle Georgia State University	Georgia
Hampton University	Virginia	Minot State University	North Dakota
Harford Community College	Maryland	Mississippi State University	Mississippi
Henry Ford College	Michigan	Missoula College	Montana
Highline College	Washington	Missouri University of Science and Technology	Missouri
Hill College	Texas	Mohawk Valley Community College	New York
Honolulu Community College	Hawaii	Montreat College	North Carolina
Hood College	Maryland	Moraine Valley Community College	Illinois
Houston Community College	Texas	Morgan State University	Maryland
Howard Community College	Maryland	Mount Aloysius College	Pennsylvania
Hudson County Community College	New Jersey	Mountain Empire Community College	Virginia
Idaho State University	Idaho	Mt. Hood Community College	Washington
Illinois Institute of Technology	Illinois	Murray State University	Kentucky
Illinois State University	Illinois	National University	California
Indian River State College	Florida	Naval Postgraduate School	California
Indiana University	Indiana	New England Institute of Technology	Rhode Island
Indiana University of Pennsylvania	Pennsylvania	New Jersey City University	New Jersey
Iowa State University	Iowa	New Jersey Institute of Technology	New Jersey
Ivy Tech Community College	Indiana	New Mexico Tech	New Mexico
Jackson State Community College	Tennessee	New River Community College	Virginia
Jacksonville State University	Alabama	New York Institute of Technology	New York
James Madison University	Virginia	New York University	New York
John A Logan College	Illinois	Norfolk State University	Virginia
Johnson County Community College	Kansas	North Carolina A&T State University	North Carolina
Kansas State University	Kansas	North Carolina State University	North Carolina
Kean University	New Jersey	North Dakota State University	North Dakota
Kennesaw State University	Georgia	North Idaho College	Idaho
Kent State University	Ohio	Northampton Community College	Pennsylvania
Lake Superior College	Michigan	Northeast Community College	Nebraska
Lakeland Community College	Ohio	Northeastern University	Massachusetts
Lansing Community College	Michigan	Northern Kentucky University	Kentucky
Laredo College	Texas	Northern Michigan University	Michigan
Laurel Ridge Community College	Virginia	Northern Virginia Community College	Virginia
Leeward Community College	Hawaii	Northwest Missouri State University	Missouri
Lehigh Carbon Community College	Pennsylvania	Norwich University	Vermont
LeMoyne-Owen College	Tennessee	Nova Southeastern University	Florida
Lewis University	Illinois	Oakland University	Michigan
Liberty University	Virginia	Ohlone College	California
Lincoln Land Community College	Illinois	Oklahoma Christian University	Oklahoma
Long Beach City College	California	Oklahoma City Community College	Oklahoma
Louisiana Tech University	Louisiana	Oklahoma State University	Oklahoma
Loyola University Chicago	Illinois	Old Dominion University	Virginia
Macomb Community College	Michigan	Our Lady of the Lake University	Texas

Designated Programs by Institution

Owensboro Community and Technical College	Kentucky	St. Philip's College	Texas
Pace University	New York	Stevens Institute of Technology	New Jersey
Pennsylvania Highlands Community College	Pennsylvania	Strayer University	Washington, DC
Pennsylvania State University	Pennsylvania	Suffolk County Community College	New York
Pikes Peak Community College	Colorado	Syracuse University	New York
Pitt Community College	North Carolina	Talladega College	Alabama
Pittsburgh Technical College	Pennsylvania	Tennessee Tech University	Tennessee
Polytechnic University of Puerto Rico	Puerto Rico	Terra State Community College	Ohio
Portland Community College	Oregon	Texas A&M University	Texas
Portland State University	Oregon	Texas A&M University - Corpus Christi	Texas
Prince George's Community College	Maryland	Texas A&M University - San Antonio	Texas
Pueblo Community College	Colorado	Texas State Technical College in Harlingen	Texas
Purdue University	Indiana	The Citadel	South Carolina
Purdue University Global	Indiana	The College of Westchester	New York
Purdue University Northwest	Indiana	The Community College of Baltimore County	Maryland
Radford University	Virginia	The George Washington University	District of Columbia
Red Rocks Community College	Colorado	The Johns Hopkins University	Maryland
Regent University	Virginia	The Ohio State University	Ohio
Regis University	Colorado	The University of Alabama	Alabama
Riverside City College	California	The University of Alabama at Birmingham	Alabama
Roane State Community College	Tennessee	The University of Alabama in Huntsville	Alabama
Robert Morris University	Pennsylvania	The University of Arizona, Tucson	Arizona
Rochester Institute of Technology	New York	The University of Tennessee at Chattanooga	Tennessee
Rock Valley College	Illinois	The University of Texas at Austin	Texas
Rockland Community College	New York	The University of Texas at San Antonio	Texas
Roosevelt University	Illinois	Thomas Nelson Community College	Virginia
Rose State College	Oklahoma	Tidewater Community College	Virginia
Rowan College at Burlington County	New Jersey	Tiffin University	Ohio
Rowan-Cabarrus Community College	North Carolina	Towson University	Maryland
Rutgers, The State University of New Jersey	New Jersey	Trident Technical College	South Carolina
Sacred Heart University	Connecticut	Tuskegee University	Alabama
Saint Francis University	Pennsylvania	United States Air Force Academy	Colorado
Saint Leo University	Florida	United States Naval Academy	Maryland
Saint Vincent College	Pennsylvania	University at Albany, the State Uniniversity of New York	New York
Sam Houston State University	Texas	University at Buffalo, the State University of New York	New York
Sampson Community College	North Carolina	University of Advancing Technology	Arizona
San Antonio College	Texas	University of Arkansas	Arkansas
Sierra College	California	University of Arkansas at Little Rock	Arkansas
Sinclair Community College	Ohio	University of California, Davis	California
Snead State Community College	Alabama	University of California, Irvine	California
South Carolina State University	South Carolina	University of Central Florida	Florida
South Texas College	Texas	University of Central Missouri	Missouri
Southeast Missouri State University	Missouri	University of Cincinnati	Ohio
Southern Maine Community College	Maine	University of Colorado, Colorado Springs	Colorado
Southern Methodist University	Texas	University of Connecticut	Connecticut
Southern Utah University	Utah	University of Dallas	Texas
Southwest Virginia Community College	Virginia	University of Dayton	Ohio
Spokane Falls Community College	Washington	University of Delaware	Delaware
St. Cloud State University	Minnesota	University of Denver	Colorado
St. John's University	New York	University of Detroit, Mercy	Michigan
St. Louis Community College	Missouri	University of Findlay	Ohio
St. Mary's University	Texas	University of Florida	Florida
St. Petersburg College	Florida	University of Georgia	Georgia

Designated Programs by Institution

University of Hawai'i - Manoa	Hawai'i	Volunteer State Community College	Tennessee
University of Hawai'i - Maui College	Hawai'i	Wake Technical Community College	North Carolina
University of Hawai'i - West O'ahu	Hawai'i	Walden University	Minnesota
University of Houston	Texas	Wallace State Community College	Alabama
University of Idaho	Idaho	Walsh College	Michigan
University of Illinois at Springfield	Illinois	Washtenaw Community College	Michigan
University of Illinois, Urbana-Champaign	Illinois	Waukesha County Technical College	Wisconsin
University of Kansas	Kansas	Weber State University	Utah
University of Louisville, Kentucky	Kentucky	Webster University	Missouri
University of Maine at Augusta	Maine	West Chester University of Pennsylvania	Pennsylvania
University of Maryland, College Park	Maryland	West Virginia University	West Virginia
University of Maryland Global Campus	Maryland	Westchester Community College	New York
University of Maryland, Baltimore County	Maryland	Western Governors University	Utah
University of Massachusetts Dartmouth	Massachusetts	Western Washington University	Washington
University of Massachusetts Lowell	Massachusetts	Whatcom Community College	Washington
University of Memphis	Tennessee	Wichita State University	Kansas
University of Missouri - Columbia	Missouri	Wilmington University	Delaware
University of Missouri - St. Louis	Missouri	Worcester Polytechnic Institute	Massachusetts
University of Nebraska, Omaha	Nebraska	Wright State University	Ohio
University of Nevada, Las Vegas	Nevada	Xavier University	Illinois
University of Nevada, Reno	Nevada		
University of New Hampshire	New Hampshire		
University of New Haven	Connecticut		
University of New Mexico	New Mexico		
University of New Orleans	Louisiana		
University of North Carolina, Charlotte	North Carolina		
University of North Carolina, Wilmington	North Carolina		
University of North Florida	Florida		
University of North Georgia	Georgia		
University of North Texas	Texas		
University of Pittsburgh	Pennsylvania		
University of Rhode Island	Rhode Island		
University of San Diego	California		
University of South Alabama	Alabama		
University of South Carolina	South Carolina		
University of South Florida	Florida		
University of Southern Maine	Maine		
University of Texas at Dallas	Texas		
University of Texas at El Paso	Texas		
University of the Cumberlands	Kentucky		
University of Tulsa	Oklahoma		
University of Virginia	Virginia		
University of Washington	Washington		
University of West Florida	Florida		
University of Wisconsin - Stout	Wisconsin		
University of Wisconsin-Whitewater	Wisconsin		
Utica University	New York		
Valencia College	Florida		
Valley Forge Military College	Pennsylvania		
Vincennes University	Indiana		
Virginia Commonwealth University	Virginia		
Virginia Polytechnic Institute & State University	Virginia		
Virginia Western Community College	Virginia		



AFIT Campus

Air Force Institute of Technology has a long and well-recognized history of providing cutting-edge, cyber-focused graduate education and research. Its education programs address both defensive and offensive operations, as well as acquisition and sustainment issues. AFIT awards an average of 32 cyber-related MS degrees and three PhD degrees annually; approximately half are MS of Cyber Operations and the remaining are Computer Science, Computer Engineering, and Electrical Engineering.

AFIT's Center for Cyberspace Research was established in March 2002 and conducts cyber operations research at the Master's and PhD levels. Research objectives are closely aligned with evolving and anticipated Air Force and Defense Department needs, with current lines of effort in human factors in cyber operations, multi-domain operations, software defined networking, physical layer security,

cyber physical and embedded systems, and cyber resilience in weapon systems.

AFIT collaborates actively with other DoD and Federal government organizations, civilian universities, and industry. AFIT is a co-founder of the Cincinnati-Dayton Cyber Corridor (Cin-Day Cyber), whose long-term goals include advancing cybersecurity education (to include growing the number of CAE schools), promoting research collaboration among higher education schools, establishing government and industry (employer) partnerships, and developing the regional workforce.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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AFIT students listen as Barry Mullins, AFIT computer engineering professor, clarifies how a technique works during their Cyber Attack class at WPAFB, OH

(U.S. Air Force Photo by Al Bright/Released)



Aerial photo of the Alamance Community College Graham, NC campus

Alamance Community College (ACC) is a mid-sized, two-year educational institution located along I-40/I-85 in North Carolina. Founded in 1958, it is one of the longest operating community colleges in the state. ACC's location and demographics have motivated it to focus on how cybersecurity intertwines with its regional employers in the sectors of healthcare services and materials handling.

Because the SOC Tier 1 Analyst position can be a great steppingstone into a broader cybersecurity career, ACC's cyber degree emphasizes the cyber operations skillsets employed within a SOC: analyzing IDS alerts, inspecting suspicious emails, examining network logs, and performing packet analysis. Our instructors teach students the skills to become triage specialists who monitor, manage, and configure security tools, review incidents to assess their urgency, and escalate certain incidents when necessary.

In an industrialized setting, companies are continuing to expand connectivity across their people, assets, and systems, synchronizing data and improving operations. All this connectivity naturally is enabling greater performance and efficiency. However, it is also widening the attack surface for would-be cybercriminals.

ACC's IT Department introduces students to concepts such as zone-based security, Virtual LAN network segmentation, firewall technologies, and endpoint security. Students also learn how to create an incident response playbook, seeing how such a document helps a technician or other worker to focus on essential and specific actions, greatly reducing the chance of being overwhelmed by a stressful situation. In all of the courses, ACC is intentional in emphasizing and cultivating critical thinking and creativity.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Systems Security Instructor
Debra McCusker mentoring a student



Founded in 1991 as American Military University to serve the needs of a highly-mobile military, we are committed to serving our students and the broader community. Today, as **American Public University System (APUS)**, we serve more than 80,000 adult learners worldwide and offer more than 200 degree and certificate programs -- in cybersecurity and other specialized fields such as intelligence studies, the latter up to the doctoral level -- that prepare our students for leadership and service in a diverse, changing world.

APUS was the first 100% online institution to be recognized by the Online Learning Consortium for Best Practices in Online Education. In 2018 alone, our faculty published more than 700 contributions to their disciplines and received more than 250 awards for their scholarship and instruction. More than 60% hold a terminal degree, and currently hold leadership

positions with major companies and government agencies. In addition, since 2012, 43 APUS students have been finalists in the Presidential Management Fellows program and, in 2018, we celebrated a record class of more than 11,000 graduates—the true measure of our success.

We strive to expand access to a quality higher education by keeping our programs affordable and leading-edge. APUS's online bachelor's programs have been recognized for quality and affordability by U.S. News & World Report and Washington Monthly, respectively. APUS is also building an advanced learning platform by investing in game-based learning and simulation to strengthen student engagement and learning outcomes.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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With learning as its central mission, **Anne Arundel Community College (AACC)** responds to the needs of our diverse community by offering high quality, affordable, accessible, and innovative lifelong learning opportunities.

AACC was one of the first community colleges designated as a Center of Academic Excellence in Cyber Defense by the NSA. It was also the first institution in the nation to be designated a National Center of Digital Forensics Academic Excellence (CDFAE) by the Defense Cyber Crime Center. CDFAE is the academic component of a partnership with government to create standards and best practices for digital forensics practitioners, educators, and researchers. More recently, AACC was one of the first two community colleges accredited by ABET in Cybersecurity which provides assurance that a program meets the quality standards of the profession

for which that program prepares graduates.

AACC offers Associate of Applied Science (A.A.S.) degrees and certificates in Information Assurance and Cybersecurity. These programs allow students to implement real-world tools and scenarios to prepare for a career in Cybersecurity, Networking, and Digital Forensics. Students have access to the latest hardware and software necessary to provide comprehensive hands-on training. This experience enables individuals to gain the required knowledge and skills to be successful in cybersecurity related fields. Training includes, but is not limited to, the following technical areas of study, advanced network defense, network intrusion detection/penetration testing, Windows and Linux server admin, digital and network forensics, and networking.

The state of Maryland refers to the A.A.S. as a career degree, because it's intended to provide you with skills to enter the workforce. AACC graduates work for NSA, DOD, and other leading public and private sector cybersecurity organizations. AACC also has developed articulation agreements allowing students to transfer to select colleges.

DESIGNATIONS

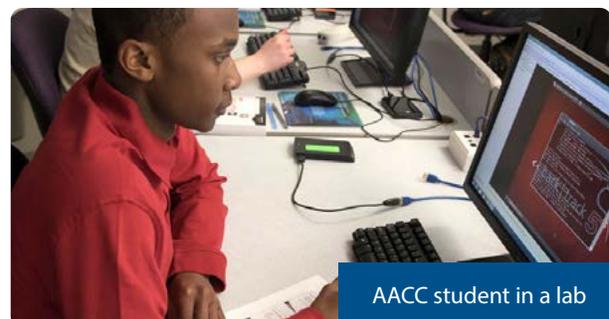
- CAE-Cyber Defense

CONTACT INFORMATION

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www.aacc.edu/programs-and-courses/credit-and-degree-seekers/cybersecurity-and-digital-forensics





Littleton Campus



Parker Campus



Castle Rock Campus

Arapahoe Community College (ACC) is one of thirteen colleges in the Colorado Community College System (CCCS) with a service area covering the south metropolitan area of Denver, CO and primarily Arapahoe and Douglas Counties. The total population in ACC's service area is over 1 million and is located in one of the fastest growing regions in the US. The south metro area of Denver is home to many global business headquarters and offices. ACC enrolls 10,000 students annually in three locations located in Littleton (main campus), Parker, and Castle Rock. ACC opened the new \$40 million dollar Sturm Collaboration Campus in partnership with Colorado State University, the Douglas County School District, the town of Castle Rock, and local industry partners.

In March 2019, ACC received a private gift of up to \$10 million from the Sturm Family Foundation, the

largest in the history of the 13-institution Colorado Community College System. Approximately half of the Sturm's gift was immediately invested in several areas, including program and staffing startup and state-of-the-art equipment and software that went to directly benefit the technology pathway programs in cybersecurity and secure software development.

ACC offers more than 90 certificate, degree, and transfer programs with seven core pathways including, Arts, Communication, and Design; Business; Global, Human, and Social Studies; Health; Math and Sciences; Public Services; and Technology.

ACC received designation as a CAE in Cyber Defense at the associate level for its Associate in Applied Science in Computer Network Technology/Network Security concentration in 2019.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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arapahoe.edu/academics-programs/resources/academic-experiences/cyber-center



Sturm Collaboration Campus Cyber Center



Augusta Technical College is the first two-year Technical College System of Georgia (TCSG) institution to hold the Center of Academic Excellence in Cyber Defense (CAE-CD) designation. The College has a long-standing tradition and successful history of producing quality IT graduates. Along with cybersecurity, we also offer degrees in computer programming, networking specialist, and computer support, as well as specialized Technical Certificates of Credit and numerous industry related certifications.

The Computer Programming Specialist program has been producing well-trained and competent programmers for over 30 years. During the same time period, the Computer Support Specialist program has been producing graduates fully prepared to fulfill multiple occupational roles in support of current computing infrastructure trends

to include data center operations, virtual machine computing, and cloud service technologies.

The Networking Specialist program, which was the first in the Technical College System of Georgia (TCSG), was started over 20 years ago. This program has adopted new and emerging networking technologies to meet the needs of local and state industry. Augusta Technical College was designated a Cisco Networking Academy over 20 years ago, as well as a Microsoft IT Academy for 14 years. The networking classes have always had a strong emphasis on security practices. The program has been taught in a performance-based environment with the occupational goal of preparing students to be workforce-ready and able to pass industry certifications during and upon completion of their programs.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Georgia Cyber Center, Hull McNight Building



Georgia Cyber Center at Augusta University

Augusta University (AU) is located in the center of many academic, governmental, and corporate partnerships critical to the nation's cybersecurity and technology enterprises, including the U.S. Army Cyber Command, National Security Agency Georgia, U.S. Army Cyber Center of Excellence, the Savannah River National Laboratory, and the Georgia Bureau of Investigation Cyber Crime Division. Our faculty bring valuable, practical skills into the classroom. Our students are innovators, doers, and thinkers.

Augusta University Program Highlights:

- School of Computer and Cyber Sciences
- High-engagement, state-of-the-art technology education and research
- Unmatched cybersecurity ecosystem!

AU offers several cyber-related degrees: five bachelor

of science undergraduate degrees (Computer Science, Cyber Operations, Cybersecurity, Cybersecurity Engineering, Information Technology), three master's degrees (Computer Science, Information Systems Management, Intelligence and Security Studies), and a PhD in Computer and Cyber Sciences.

AU has been a CAE-designated institution in Cyber Defense since 2016. As of 2021, 18 AU students have been selected for the DoD Cyber Scholarship Program. In 2021, AU was selected for the CyberCorps® Scholarship for Service program. AU has been the host for the Southeast Regional Collegiate Penetration Testing Competition (CPTC) since 2019. AU students can participate in the Student Chapter of the Association for Computing Machinery (ACM). Our ACM Chapter students participate in annual competitions such as the Collegiate Cyber Defense Competition, the International Collegiate Programming Competition, and the CPTC. AU participates in the GenCyber program and has hosted summer camps since 2015.

The opportunities are boundless for you to pursue lifechanging education at Augusta University!

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Cyber life at AU!



Baker College Campus

The mission of **Baker College** is to provide quality higher education and training which enable graduates to be successful throughout challenging and rewarding careers.

Baker College's Bachelor of Science program in Information Technology and Cybersecurity provides a solid foundation in security across a number of different systems and platforms. The program's courses are updated frequently on a rotation basis to keep up with the rapidly changing field. The class sizes are small, which enables more one-on-one time with instructors. All instructors have doctoral or master's degrees in their teaching fields and are cybersecurity professionals working out in the industries.

In Baker College's Bachelor of Science program in Information Technology and Cybersecurity,

students learn how to analyze and respond to computer infrastructure problems, identify internal and external threats and other vital skills needed to keep up in the ever-changing world of information security. Our 2021 Internship Supervisors revealed that 98% of the supervisors at the internship sites indicated our students demonstrated professional knowledge and skills needed in their fields of study. Among those internship sites that had available positions, 87% extended job offers to the Baker College interns. 97% of the internship sites indicated they would hire a Baker College student/graduate in the future.

Students in Baker College's Bachelor of Science program in Information Technology and Cybersecurity have an opportunity to join our very successful Cyber Defense Club. The Cyber Defense Club has won many competitions since 2008:

DESIGNATIONS

- CAE-Cyber Defense

- Baker College has won 10 State Championships
- Baker College has won 2 Regional (Midwestern) Championships
- Baker College had won 2 National Championships, back to back

CONTACT INFORMATION

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2022 Michigan CCDC 1st Place Baker College Team



Students at Bay Path University

Bay Path University is a mission driven institution; our learners come first! The American Women's College within Bay Path University offers an affordable, flexible, and accelerated online option for earning your B.S. in Cybersecurity: Digital Forensics and Incident Response.

Established in 1897, Bay Path University is a private, non-profit, institution for women at the undergraduate level and welcomes men and women at the master's and doctoral level. The B.S. in Cybersecurity leverages cutting-edge technology and real-world scenarios and focuses on areas such as white-collar criminal investigations, forensic acquisition, chain-of-custody, evidence handling, network intrusions, mobile forensics, malware/phishing identification, insider threat, and how-to-apply security measures to ensure Confidentiality, Integrity and Availability (CIA) of data to ultimately

learn how to protect the digital assets of an organization.

Students will obtain experience utilizing virtual labs, various forensic software, and experiential learning opportunities built into their classes and in extra-curricular activities like Capture-the-Flag cyber competitions. Classes are offered in a six-week accelerated model and students with an associate's degree are typically able to earn their bachelor's degree in about a year and a half.

Students are supported through their coursework by a team of faculty and dedicated, professional advisers. Fundamental to our values is our commitment to Diversity, Equity, Inclusion, and Belonging. At Bay Path University, every learner's dreams of a better career, a richer life, and a brighter future, will be realized.

DESIGNATIONS

- CAE-Cyber Defense

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Determined to make a difference in this world; learning anytime, anywhere.



The Courtnage Intelligence Systems Lab

Bellevue University is a non-profit university that provides career-oriented, cost-effective, open access education.

With nearly 60,000 graduates and more than 80 degree programs, including bachelor's and master's degrees in cybersecurity; a graduate cybersecurity certificate; and five undergraduate and graduate degree programs with a cybersecurity emphasis, Bellevue stands at the forefront of applied cybersecurity education.

Through its Center for Cybersecurity Education, the University offers a range of interdisciplinary degrees that bring together information assurance, business, systems and network administration, security management, and more.

A team of qualified, passionate faculty with extensive experience in environments ranging from U.S. military to Fortune 500 organizations to technology start-ups, helps ensure students are prepared to tackle real life challenges across the information technology spectrum.

The state-of-the-art Courtnage Intelligence Systems Lab on Bellevue University's Nebraska campus leverages common technical ground among the fields of cybersecurity, systems and network administration, and data science.

Since 2019, the lab has served as a leading venue to train security operations and provide students with opportunities to learn and practice skills in a virtualized environment using a suite of open-source and commercial tools. Some of the facility highlights include:

- Video walls configurable for multiple displays
- Main classroom with 20 zero client computers connected to VDI
- Dual 22" monitors at each student workstation
- High-definition pan/tilt/zoom cameras that allow online students from anywhere in the world to join in-residence classes
- Virtualized labs running in multiple isolated and internet accessible environments

In addition to its CAE-CD designation, Bellevue University is accredited by The Higher Learning Commission.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Binghamton University Campus

Binghamton University is one of the four doctoral-granting research universities in the State University of New York system. Since it was established in 1946, Binghamton University has established a reputation for superb education and research.

Binghamton University is rated as a “Doctoral University: Very High Research Activity (R1)” by the Carnegie Classification of Institutions of Higher Education and has been consistently ranked among the top 50 public universities in the nation by the U.S. News & World Report.

The Center for Information Assurance and Cybersecurity (CIAC) at Binghamton University aims to bring together existing strengths of cybersecurity researchers and create a synergy greater than their individual research efforts. The vision of the

center is to advance research and education in information assurance and cybersecurity across the spectrum, from securing critical and enterprise digital infrastructure to protecting individuals’ personal data. CIAC currently has 25 members, who perform cybersecurity research related to hardware architecture, networks, cloud computing, the Internet of Things, malware detection, forensics, steganography, steganalysis, machine learning, information hiding, social network analysis, and security policy compliance and governance. Through CIAC, Binghamton University received its CAE-R designation in 2020.

Binghamton University has a fast-growing educational curriculum in cybersecurity. The university currently offers 19 core cybersecurity courses. Cybersecurity is also covered as an important component in many required and elective courses. Currently, the university offers three cybersecurity-focused programs: a cybersecurity track (Computer Science), an information assurance area of specialization (Electrical and Computer Engineering), and an advanced certificate in cybersecurity program.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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A group of Binghamton students participated in Deloitte Cyber threat competition in 2020



Bismarck State College (BSC) is an innovative community college overlooking the banks of the Missouri River in Bismarck, North Dakota. BSC is the third largest institute of higher education in the North Dakota University System, offering high quality education, workforce training, and enrichment programs to local and global communities.

BSC is proud to be a CAE-CD with its Associate in Applied Science in Cybersecurity and Computer Networks degree. BSC cybersecurity faculty strives to give hands-on experiences and teach highly marketable technical skills to students, providing the knowledge to meet the ever-changing technologies used in business and industry. Graduates are prepared to install operating systems, configure networks, manage servers, and perform other system administration tasks while maintaining

fundamental security practices.

In 2018, BSC became the first polytechnic institution in North Dakota. During the same year, BSC partnered with Palo Alto Networks, a global cybersecurity leader, enabling BSC to scale online and classroom cybersecurity offerings, including the addition of a Bachelor of Applied Science in Cybersecurity and Information Technology degree. Graduates are prepared to secure network communications, configure virtualization, manage cloud-based resources, and perform other security-related tasks while implementing information technology.

BSC is a higher education leader for the K-20W cyber education initiative in North Dakota, a collaborative effort with public and private sector partners committed to providing resources and training to teachers, administrators, and students from kindergarten to the workforce. Through BSC's state-of-the-art programs and partnerships, it is committed to providing high level cybersecurity training and awareness.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Bloomsburg University Campus

Bloomsburg University (BU) offers the only digital forensics and cybersecurity bachelor's degree in the Pennsylvania State System of Higher Education and is Pennsylvania's Center for Digital Forensics. It is one of the top Digital Forensics and Cybersecurity Programs in the country. Classrooms and labs have professional digital forensics software and hardware installed. Courses cover all aspects of digital forensics and security.

The unique virtual environment for the BU's digital forensic curriculum provides access for the students to conduct a wide variety of labs by having dedicated servers to host virtual machines for the students. Every course includes hands-on labs.

BU considers participation in Cyber Defense and Forensics competitions an important part of student development. The University supports clubs

dedicated to cyber defense and digital forensics and hosts its own security conference, BloomCon, each year. BloomCon features an excellent mix of industry speakers and competitions for students and attendees. The conference includes competitions such as wireless network hacking, a lock pick village, and drone wars.

BU has excellent and well-known faculty members dedicated to teaching courses in this field of study. They come with practical experience and deep knowledge in digital forensics, criminal investigations, network security and forensics, system security, and penetration testing. BU Digital Forensics graduates have an extremely high placement rate. They work in law enforcement, government agencies, and the corporate world. Bloomsburg University accepts credits from over 1000 institutions.

DESIGNATIONS

- CAE-Cyber Defense

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A Bloomsburg Digital Forensic Lab



Blue Ridge Community and Technical College provides our diverse student population with life-changing education, training, and services that drive economic development within the communities we serve.

The Center for Applied Cybersecurity at Blue Ridge Community and Technical College (Blue Ridge CTC)

Modern technology has made business use of computer technology essential. As cyber-crime evolves, the need to protect sensitive information is more critical than ever.

The Blue Ridge Community and Technical College (BRCTC) Cyber Security program addresses the needs of government agencies, organizations, and businesses throughout West Virginia and the Washington D.C. metropolitan region. The Cyber

Security program offers an Associate of Applied Science Degree, incorporating vendor certification training, for students preparing for entry-level employment or advancement in various occupations and courses in Cyber Security.

The curriculum explores risk, threat, and security assessments and teaches students to safeguard businesses, develop a security policy, and respond to incidents. Students will complete hands-on activities that introduce basic principles and security concepts related to the active mitigation of known common threats. The program also covers security methods, controls and procedures, ethics, laws, and computer forensics. In addition, the program describes the use of cryptography as a tool, software development processes, and protection. Students understand the information assurance progression and how to apply this knowledge to support their organization.

DESIGNATIONS

- CAE-Cyber Defense

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Bossier Parish Campus

Bossier Parish Community College (BPCC) is a leader in providing hands-on information technology (IT) education that results in students successfully entering the IT workforce upon graduation. BPCC's responsiveness to industry partners' needs has allowed BPCC to stay at the cutting edge of curriculum updates, new technologies, and the latest tools being used in the IT field. BPCC offers multiple degree options allowing a student to graduate in one semester, one year, or two years depending on their career track. Job opportunities include working as a network technician, security analyst, programmer/software developer, systems administrator, IT help desk technician, and computer repair technician.

BPCC is proud to hold multiple statewide and national cyber designations. BPCC was recently designated as Louisiana's Cyber Education Center of Excellence in partnership with Cybint Solutions.

Through this designation, BPCC will serve as the hub for cybersecurity training in North Louisiana which will provide a comprehensive platform with simulated labs in a cyber-range environment for our students and industry partners. BPCC is also designated as a Center of Academic Excellence in Cyber Defense as well as being a Center of Workforce Excellence in Cyber Technology from the Louisiana Community & Technical College System Board of Supervisors and the Board of Regents.

BPCC was honored in 2019 to host the national 3CS (Community College Cyber Summit). Through this event, we were able to showcase our region, our school, and our programs. This further served to demonstrate our desire is to continue to lead the way in cybersecurity training in the State of Louisiana and provide training for the cyber workforce of tomorrow.

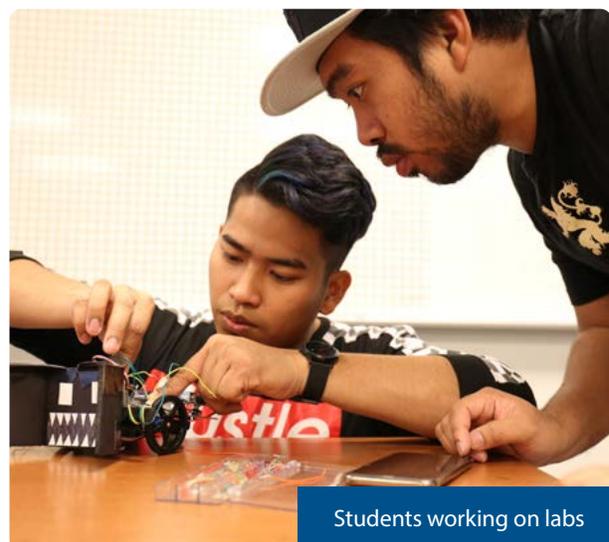
DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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www.bpcc.edu



Students working on labs



The mission of the **Boston University (BU)** Center for Reliable Information Systems & Cyber Security (RISCS) is to promote and coordinate research and education in trustworthy, safe, and secure systems and networks by emphasizing a multidisciplinary approach that includes fields as diverse, reliable and secure computations, data science, engineering, economics, ethics, and law. Through RISCS, BU has been recognized as a Center of Academic Excellence (CAE) in Cyber Defense since 2004 and in Cyber Defense Research since 2008. The University was redesignated as a CAE in Cyber Defense in 2021.

RISCS draws on the expertise of 22 faculty and over 100 graduate students from the College of Arts & Sciences, the College of Engineering, Questrom School of Business, and Metropolitan College, and provides opportunities for faculty and students from diverse fields to collaborate on interdisciplinary

research problems, create new knowledge, and develop innovative multidisciplinary curricula. Current research areas include cryptography, modular approaches to cloud security, data privacy, differential privacy, data science approaches to security, secure multi-party analytics, network and software security, software safety, trustworthy computing, and database security, among others.

BU has a comprehensive educational portfolio that ranges from robust undergraduate course offerings to master’s programs with cybersecurity specializations in computer science, computer information systems, and engineering, as well as PhD programs in fundamental and applied research. Flexible learning options—online, hybrid, and evening—are available through Boston University’s Metropolitan College (BU MET), which also offers a Master of Science in Computer Science with concentration in Security, designated the “Center of Academic Excellence (CAE) Program of Study.” BU MET’s fully online programs in information technology, including the cybersecurity concentration, have been ranked among the top ten online programs since 2014 by US News & World Report.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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BU Student Event



Bowie State University (BSU), a member of the University System of Maryland, strives to be a comprehensive regional university with a continued commitment to its historical heritage and with the critical goal of achieving excellence in computer science and information technology education. BSU has been designated as a National Center of Academic Excellence in Cyber Defense (CAE-CD) for the Computer Science undergraduate program through academic year 2027. The mission of our program is to serve the educational needs of the Baltimore-Washington area, in general, and of the southern Maryland region by offering its citizens opportunities to seek and complete high quality education in the fields related to the science and application of computer and information technology.

As Maryland's first historically black public university, BSU empowers a diverse population of students

to reach their potential by providing innovative academic programs and transformational experiences as they prepare for careers, lifelong learning, and civic responsibility. BSU supports Maryland's workforce and economy by engaging in strategic partnerships, research, and public service to benefit our local, state, national, and global communities.

In recent years, the BSU Bulldog Cyber Club that organized by the Department of Computer Science became a very active student organization at BSU. This club is designed for students who are passionate about security and forensics studies and applications. Activities include preparation for the cyber competitions at all levels, tutorial workshops, hackathon preps and participations, and other types of cyber events.

The CAE Center for Cybersecurity and Emerging Technologies at BSU serves as the primary BSU interface with the U.S. National Security Agency (NSA) and Department of Homeland Security (DHS) regarding the requirements and obligations that support the University's designation as a CAE-CD.

DESIGNATIONS

- CAE-Cyber Defense

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Brigham Young University (BYU) became the first CAE in Utah in 2012. Initially, the program was tied to a cybersecurity emphasis within the Information Technology undergraduate program. Due to a continued surge in interest among faculty and students, a new cybersecurity major started in 2018.

Additionally, many Masters in Information Technology and Cybersecurity students focus on cybersecurity in their classes and required thesis. BYU students are uniquely qualified to serve important cybersecurity needs. BYU focuses on building men and women of character who act ethically in the service of others. BYU has over 31,000 motivated undergraduate students (28–32: middle 50% ACT score, 3.86–4.00: middle 50% high school GPA) from all 50 states and over 100 countries. Over 65% speak a second language (131 languages are spoken on campus) and nearly 50% have lived outside the U.S.

The cybersecurity major's CAE-CD designation was renewed in 2017 in Systems Security Administration, Digital Forensics, and

Network Security Administration. Students have won numerous regional (2016, 2017, 2021) and international Collegiate Cyber Defense Competition (CCDC) competitions and came in 2nd and 3rd at Nationals (2016 and 2017).

Graduates now work at Microsoft, Adobe, the United States Air Force, Sandia National Labs, Idaho National Labs, and other leading institutions. Students in the Cybersecurity Research Lab participate in research and help in the annual Youth Cybersecurity Summer Camp. Strong support from the College of Engineering and BYU leadership promises a bright and growing future for cybersecurity at BYU in the coming years.

DESIGNATIONS

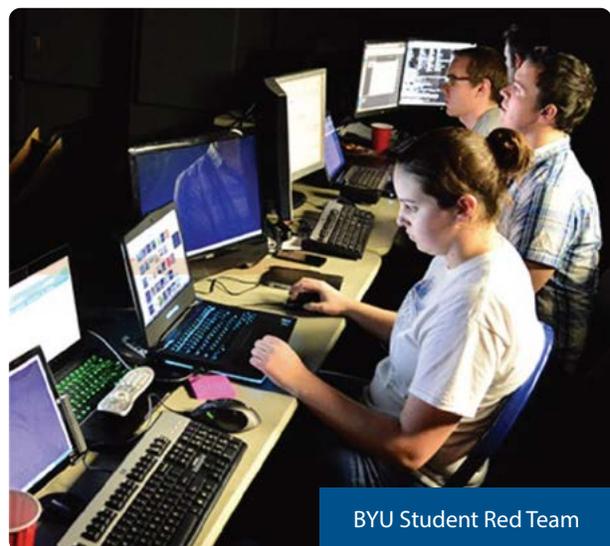
- CAE-Cyber Defense

CONTACT INFORMATION

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Brookdale Community College, located in Lincroft, New Jersey, is an excellent resource for residents of Monmouth County, offering two-year associate degrees and certificates, plus non-credit classes in many areas of personal and professional interest. Brookdale was first designated as a Center of Academic Excellence in Cyber Defense in 2019 and has maintained the designation while growing in the cyber education field both statewide and nationally. Cyber defense is a major focus in the New Jersey/New York Metro area due to proximity of industries focused on banking and finance, defense contracting, and healthcare. The college offers classes in traditional and online formats to serve our diverse student population.

In 2019, Brookdale was one of seven community colleges awarded Scholarship for Service grants as part of a pilot program for community colleges

to train students in cyber defense. A Department of Education grant for the improvement of postsecondary education enabled the college to build a virtual lab environment in the college's data center, giving students free 24/7 access to a robust, sandboxed learning environment. An NSF-funded project focused on engaging students with interactive learning has built a library of free cybersecurity interactives that aid students in mastering difficult concepts. We have developed multiple partnerships, including Palo Alto Networks, Red Hat, Microsoft, Network Development Group, CompTIA, and Cisco.

Graduates may continue their education at one of our partner universities or enter the local workforce. The CAE-CD designation adds credibility to our program, has been a boon to marketing, recruitment, and additional grant opportunities.

DESIGNATIONS

- CAE-Cyber Defense

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Butler Community College Student Union

Butler Community College's Cyber Security program is designated a Center of Academic Excellence in Cyber Defense by the National Security Agency and the Department of Homeland Security.

Established in 1927 and located in Kansas, Butler recently celebrated its 90th year in higher education. With a proud tradition in academics, athletics and service to the communities it serves, Butler touches the lives of more than 13,000 students annually. At Butler, we take our cybersecurity curriculum very seriously and we view cybersecurity threats as learning opportunities. Butler offers pathways that prepare students for entry into the workforce or for transfer to a four-year university program.

In the classroom, students learn from experienced professionals what it truly takes to maintain IT security. Whether students choose a one-year

certificate or two-year degree, all completers hold certifications in TestOut PC Pro, Network Pro, Security Pro, Client Pro, and Server Pro and are prepared to sit for certification in CompTIA A+, Network+, Security+, and Microsoft MSCA.

Students learn first-hand how to secure networks and infrastructures against cyber attacks in a rigorous curriculum that produces graduates with the necessary expertise to reduce vulnerabilities within information infrastructures. Students can create secure network environments using risk and threat analysis, network monitoring, and host hardening as well as many other network defense mechanisms. Butler's cybersecurity graduates are well-positioned for success in an industry expected to grow by 28% in the next decade.

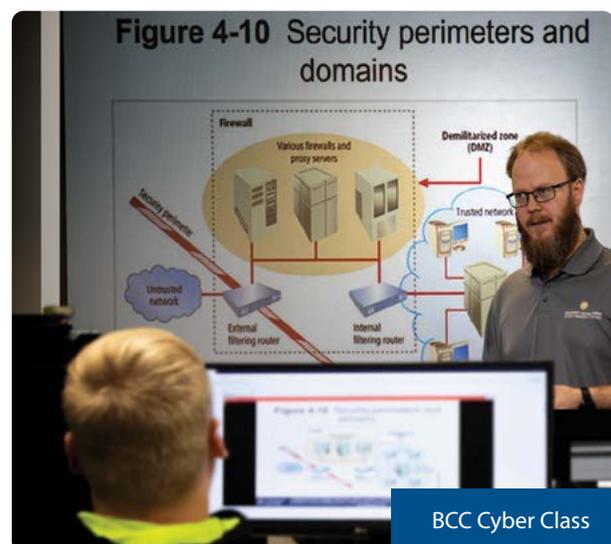
DESIGNATIONS

- CAE-Cyber Defense

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BCC Cyber Class



CALHOUN COMMUNITY COLLEGE



Mathematics, Science, & CIS Building, Huntsville Research Park Campus

The largest of Alabama's two-year community colleges, **Calhoun Community College** is an open-admission, community-based, state-supported, coeducational, comprehensive community college dedicated to providing affordable, high-quality and accessible education to individuals in its four-county service area.

Established in 1947, Calhoun offers a full array of university transfer and career training programs. Academic programs are aligned with those of Alabama's state universities through the STARS program and provide students with a seamless path toward a baccalaureate degree. Technical degrees are designed to serve the area's manufacturing base and include participation in the Alabama FAME (Federation for Advanced Manufacturing Education) Advanced Manufacturing Technician program.

The Huntsville campus is situated in Cummings Research Park (the nation's second largest research park), in view of the US Space and Rocket Center and near Redstone Arsenal, home to NASA's Marshall Space Flight Center and the Army Aviation and Missile Research Development and Engineering Center (AMRDEC). With a mission that includes support for local economic development, Calhoun was an early leader in building ties to Huntsville's cybersecurity community, and its Computer Information Systems (CIS) department introduced its initial cybersecurity coursework in 2010. It has since developed a cybersecurity degree program and received CAE-2Y recognition in 2018.

Calhoun's CIS department also offers degrees in programming and networking, with coursework leading to industry-recognized certifications. Calhoun's Center for Cybersecurity Education (CCE) provides information assurance and cyber defense education along with community outreach to promote best practices within and outside our campus to prepare the next generation of cybersecurity professionals.

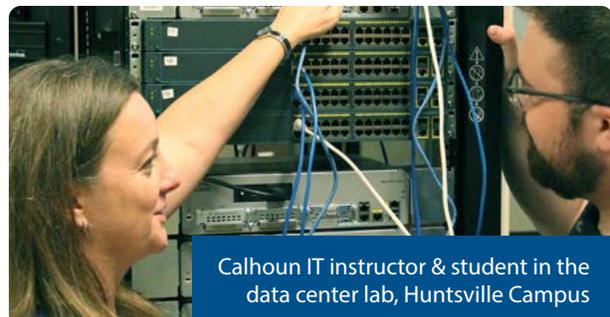
DESIGNATIONS

- CAE-Cyber Defense

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Calhoun IT instructor & student in the data center lab, Huntsville Campus



Cal Poly Pomona (CPP) offers a nationally recognized cyber education experience that allows students to learn skills outside of their disciplines and prepares them to enter in-demand careers. Student-run data and security operations centers, the only ones in the region, provide industry standard equipment for students to learn skills beyond the classroom. Students participate in programs and campus organizations to strengthen their cybersecurity skills and attend workshops and networking opportunities that lead to high-profile internships and jobs. Undergraduate and graduate students pursue research in cyber and big data, contributing to innovative ideas in the field.

Through robust programs and expert faculty leaders, CPP is recognized as a Center of Academic Excellence in Information Assurance Education by the National Security Agency and Department of

Homeland Security since 2005. Bronco scholars acquire industry-level knowledge and skills and are hired directly after graduation by federal and government agencies, thanks in part to a five-year grant, CyberCorps: Scholarship for Service, awarded by the National Science Foundation.

Cal Poly Pomona student cyber teams compete against universities across the nation and consistently place in the top ranks regionally and across the United States. CPP students and faculty partner with local public schools and community colleges to inspire and mentor students in STEM fields. Multiple programs are offered to enhance student learning and strengthen professional development, preparing students to continue their passions in higher education and open future career possibilities.

The California Center for Cyber Risk is the focal point for Information Assurance and Cyber Defense Activities at Cal Poly Pomona. Through innovative educational programs, the center works to develop students for future careers in cyber security. As an interdisciplinary program with Computer Science, the center offers:

- Cutting edge, undergraduate cyber defense curriculum
- Collaboration with the Mitchell C. Hill Center for Digital Innovation to give students live cyber security experience with cloud computing
- Opportunities to train with an exceptional Cyber Defense team
- Partnerships with industry to explore research projects, student projects and internships

DESIGNATIONS

- CAE-Cyber Defense

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CALIFORNIA STATE UNIVERSITY, SACRAMENTO



Student Orientation at Sacramento State University

The Department of Computer Science of College of Engineering and Computer Science (ECS) at **California State University, Sacramento (Sacramento State)** established a Center for Information Assurance and Security (CIAS) in 2005. The mission of the center is to advance knowledge of information assurance and security practices through:

- Education, training, and awareness programs in information assurance and security issues and practices
- Applied research in information assurance and security
- Developing interdisciplinary programs in information assurance and security
- Outreach programs to assist our community, including community colleges, K-12 schools, industry, and government in information assurance and security issues

- Forming collaborations with other education, research, industry, and government institutions

CIAS has been designated as a National Center of Academic Excellence (CAE) in Information Assurance Education (CAE-IA) since 2007. This designation is jointly sponsored by the National Security Agency (NSA) and Department of Homeland Security (DHS). The designation must be renewed every five years, to ensure the designated institution meets stringent criteria with respect to curriculum, faculty, research, and institution-wide commitment to information assurance practices and education.

CIAS has recently been awarded its re-designation as a CAE in Cyber Defense (CAE-CD) for the academic years 2017-2022. The CAE designation was one of the key factors for the National Science Foundation (NSF) to award Sacramento State over \$4 million in funding as part of the CyberCorps® Scholarship for Service (SFS) program to support students in computer science or computer engineering to become cybersecurity specialists for the academic years 2010-2014, and again 2015-2021.

DESIGNATIONS

- CAE-Cyber Defense

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Prof. Behnam Arad and Jun Dai with Student in SFS Lab



The **Cybersecurity Center (CSC)** at **California State University, San Bernardino (CSUSB)** is a pioneer in cybersecurity education. Designated as a Center of Academic Excellence in Cyber Defense since 2008, the CSC is recognized for our specialty areas in Cyber Investigations and Network Security Administration.

Since 2020, the CSC is recognized as the CAE in Cybersecurity (CAE-C) Community National Center. Focused on the development of a robust cybersecurity workforce, the CAE-C Community National Center will provide support to CAE institutions and projects across the nation. CSUSB is the lead institution for the nationally renowned INSuRE program, sponsored by the NSA, and is a co-lead with Whatcom Community College (WCC) on the launch of the Community College Cybersecurity Pilot (C3P) program, sponsored by and modeled after the National Science Foundation (NSF) CyberCorps®.

DESIGNATIONS

- CAE-Cyber Defense

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Scholarship for Service program. As a co-PI with the National Cybersecurity Training and Education Center (NCyTE) based at WCC, the CSC supports the mission of NCyTE to advance cybersecurity education in the U.S. by investing in technological innovation, resources, professional development, and tools to support faculty, community colleges, and the workforce pipeline of tomorrow. CSUSB is the home of the NICE Challenge Project, bringing students the workforce experience before the workforce.

Continuing the center's ongoing work to enhance cyber studies and programs, the CSC is the recipient of an NSA grant to fund an economic development program creating a direct path from high school, community college, and four-year institutions into the cyber apprenticeship pipeline. Targeting the need to increase the cybersecurity workforce and build up cyber talent, the project will also work to grow the number of employers in the Inland Empire to create and increase job opportunities by enticing companies to the region and matching them up with the cyber workforce.

As a Hispanic-Serving Institution (HSI), CSUSB qualifies for federal funding to expand and enhance educational opportunities for our students, including those of Hispanic descent.

- CSUSB received its distinction as an HSI in 1994 and has received that distinction every year since
- CSUSB has been Title V eligible since 1994
- CSUSB has received the USDE distinction as a High Hispanic Enrolling institution since 2006
- CSUSB has qualified as an MSI institution since 2009



CALIFORNIA STATE UNIVERSITY, SAN MARCOS



CSUSM Campus

California State University San Marcos's (CSUSM)

Master of Science in Cybersecurity is a fully online program that prepares students for advancement in the cyber industry by providing real-world experience in management skills, ethics and governance, and leading-edge technologies in security management, risk analysis, network protocols, incident response, encryption algorithms, ethical hacking, intrusion detection and much more. CSUSM was designated as a Center of Academic Excellence in Cyber Defense in 2019.

Responding to demand from the industry, CSUSM's MS in Cybersecurity develops graduates who are knowledgeable in both cybersecurity and organizational skills. As a Professional Science Master's (PSM) degree, this program uniquely combines an advanced study of technical science skills, MBA-level business courses, and professional

experience through 38 semester hours of coursework and a culminating project intended to provide practical industry experience.

Nationally, there is an increased focus on graduate degree programs that combine both technical and management skills. Reflected in the emergence of the PSM, this degree program adeptly addresses the documented need for management-trained professionals "for technology-based companies, governmental agencies, and non-profit organizations" (NPSMA.org).

As an interdisciplinary program, CSUSM's MS in Cybersecurity incorporates multiple fields of study, emphasizes the development of critical thinking skills, and uses current case studies to expose students to the emerging and evolving needs of the industry. The program also introduces students to the cybersecurity corporate world by developing the communication skills and the technical and problem-solving expertise needed to address cybersecurity issues in industry settings and to position graduates to become the next generation of industry leaders.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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CSUSM Cyber Program



Capitol Technology University Campus

Capitol Technology University is a leading STEM institution for the Washington, D.C. metropolitan area that offers undergraduate and graduate degrees in cyber and information security. Located in Laurel, Maryland, the Capitol Tech campus is positioned in the heart of the technology corridor where one of the largest concentrations of tech companies, defense contractors, and government agencies in the United States thrives. Here, the student experience is focused on hands-on training in state-of-the-art technology labs, collaboration within a diverse student network, and a foundational curriculum taught by award-winning faculty. The campus Center for Cybersecurity Research and Analysis features training in simulated cyberattacks, digital forensics, and research publishing. Students can participate in national competitions by joining the University's esteemed cyber battle team, Signal-9. Capitol Tech faculty are world-wide industry experts who are dedicated to

teaching marketable skills for job preparedness in this high-demand, fast-paced field. Programs are available online and on-campus, providing students and working professionals with the tools they need to earn a degree on their schedule. As one of the first universities to be designated as a National Center of Academic Excellence in Cyber Defense by the National Security Agency and the Department of Defense, and recipient of the SC Media Award for Best Cybersecurity Higher Education Program, Capitol Tech is advancing the field of cyber and information security by addressing the nation's greatest defense challenges. Capitol Tech's award-winning programs create graduates who are at the forefront of the future workforce in our technology-driven world and prove to be the most employable amongst the biggest tech companies. Students are encouraged to "find a way, or make one," at Capitol Technology University.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Capitol Technology University Vice President of Academic Affairs, William H. Butler, D.Sc. in Campus Cyber Lab



Carnegie Mellon University (CMU), through the Information Networking Institute (INI) and Carnegie Mellon CyLab, has attained three distinct federal designations as a National Center of Academic Excellence for its merits in Cyber Defense (CAE-CD), Cyber Operations (CAE-CO) and Cyber Research (CAE-R). Through these designations, the INI's M.S. in Information Security (MSIS) program has been validated by the National Security Agency and a committee of academic peers.

Carnegie Mellon is a longstanding leader in cybersecurity education and research. In 2003, CMU launched CyLab, a university-wide institute that brings together over 300 researchers in security and privacy. That same year, the INI established one of the nation's first security degrees: the MSIS program (formerly the M.S. in Information Security Technology and Management) has since produced

over 450 graduates who are well equipped to tackle challenges faced by government agencies and defend our nation's cyberspace. Through its CAE designations, Carnegie Mellon participates in scholarship programs designed to strengthen the pipeline of cybersecurity professionals who protect critical infrastructures and national defense. Since 2001, CMU has graduated over 230 students through the National Science Foundation (NSF) CyberCorps® Scholarship for Service (SFS) and 11 students through the Department of Defense Cyber Scholarship Program (DoD CySP).

As a CAE, CMU offers several opportunities for specialized learning through the INI. The Cyber Forensics and Incident Response (CyFIR) track consists of a set of courses that equip security students with a level of competency needed to perform complex digital forensic investigations, culminating in a certification from the Software Engineering Institute's CERT Division. The Cyber Operations (Cyber Ops) certificate focuses on both mandatory and optional Knowledge Units (KUs) representing important areas of study in cyber operations. Following guidelines from the National Security Agency, the newly launched Cyber Defense Concentration is intended to provide MSIS students with a structured pathway to developing a focused set of skills that are highly relevant to careers in cybersecurity.

CMU also participates in the multi-university INSuRE (Information Security Research Education) program, which engages students in active research projects under the guidance of government organizations and research labs.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations
- CAE-Research

CONTACT INFORMATION

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Cedarville University Campus

The National Security Agency (NSA) named **Cedarville University** a National Center of Academic Excellence in Cyber Operations in 2018. In 2019, Cedarville’s cybersecurity program was awarded the prestigious Accreditation Board for Engineering and Technology (ABET) cybersecurity accreditation. In 2021, the NSA named Cedarville a National Center of Academic Excellence for Cyber Defense. Cedarville University is one of just two undergraduate cyber programs that hold both NSA designations and the ABET cybersecurity accreditation.

Cedarville offers a Bachelor of Science in Cyber Operations, a Bachelor of Science in Computer Science with a Cyber Operations specialization, and a Master of Business Administration with a Cybersecurity Management concentration. Cedarville University houses the Center for the Advancement of Cybersecurity. Led by Seth Hamman, Ph.D.,

the Center seeks to advance cybersecurity in our nation by developing tomorrow’s cyber leaders in the classroom, shaping cyber education in the academy, and promoting cyber awareness in society. Cedarville’s cyber-trained faculty members; strong cyber academic programs; close proximity to Wright-Patterson Air Force Base, a major hub of cybersecurity activity; and our positive reputation among cybersecurity communities in academia, industry, and government position us well to provide leadership in this growing field.

Cedarville’s cyber operations is interdisciplinary, with both technical and nontechnical courses. In the majority of their courses, students learn highly specialized skills required to perform cyber operations related to collection, exploitation, and response as well as security fundamentals, cryptography, and secure software development. Students also study public policy, business, ethics, and law as they relate to cybersecurity.

Cedarville is a private faith-based teaching college with a special focus on the traditional undergraduate experience. All undergraduates earn a Bible minor as part of their general education coursework, attend campus chapel five days a week, and affirm the Cedarville Covenant, which states, “We will love God and others, live with integrity, and pursue excellence in all we do.”

The Wall Street Journal ranked Cedarville fourth in the nation for Student Engagement in 2021, recognizing the University’s supportive environment.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations

CONTACT INFORMATION

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Central Michigan University's Grawn Hall - College of Business Administration

Central Michigan University (CMU) has been recognized as a National Center of Academic Excellence in Cybersecurity by the National Security Agency; the highest designation awarded by the nation's top information gathering security agency.

CMU earned the Center of Academic Excellence in Cyber Defense designation, one of the three types of designations institutions can pursue, making CMU's Cybersecurity Certificate Program a CAE-certified program. The CMU College of Business Administration offers the program at both the graduate and undergraduate level and is now the largest four-year institution in Michigan to hold the prestigious designation. The designation also provides additional resources for the CMU Cybersecurity Program, encourages collaboration with other CAE programs on research and grants, and affords the ability to pursue NSF grants and

scholarships, which program leadership are already working towards.

Prepare for a career in cybersecurity with a state-of-the-art virtual lab, knowledgeable faculty and mentors, hands-on workshops, and company-sponsored events. You can earn a certificate by adding just five classes to your existing course schedule. CMU's cybersecurity program covers topics including, cybercrime, how to gauge risks and implement security plans, cloud computing and online privacy, and other critical aspects of online security.

Cybersecurity students will:

- Access cyber defense tools at CMU's Cyber Center, a hub for both students and faculty
- Meet leading cybersecurity experts from business and government at workshops and discussion panels
- Thwart hackers in capture-the-flag competitions, simulated events that happen several times a year
- Join CMU's Cybersecurity Club for networking, community outreach and other events

DESIGNATIONS

- CAE-Cyber Defense

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CMU students participating in collaborative cybersecurity events



Earn your Computer Information Systems degree at Chemeketa

Chemeketa Community College is a regional leader in cybersecurity education located in beautiful Salem, Oregon. It is the mission of Chemeketa Community College to help increase the security of our communities and country by preparing students to readily take on the challenges of being a cybersecurity professional. While working through their education, Chemeketa students have the opportunity not only to earn a degree, but to earn multiple IT certifications through their coursework and to build real-world work experience through Chemeketa's cooperative work experience program.

During the typical Chemeketa cybersecurity student's first year of education, they become familiarized with the foundational skills and concepts necessary to become a successful cybersecurity practitioner. In this initial year, students undertake classes in digital literacy, personal cybersecurity,

programming, operating systems, computer hardware, and networking. During this time, students can earn their EC-Council Certified Secure Computer User certification, CompTIA A+ certification, and entry-level networking certifications.

As students move into their second year of education, they will begin to narrow their focus on cybersecurity and begin thinking about their future careers as they take classes relating to data security, computer forensics, and ethical hacking and work towards EC-Council cybersecurity certifications such as Certified Ethical Hacker and Certified Hacking Forensics Investigator.

During this time, the foundational knowledge from their first year is continued to be built upon as students refine their understanding of IT concepts in the context of cybersecurity while studying server management, database management, and computer architecture. Finally, a cybersecurity student's final term includes a class specifically designed to reinforce all of the concepts taught during their program and to prepare them for the CompTIA Security+ certification exam.

Chemeketa's community involvement has created connections with local employers that provide students with myriad internship opportunities. Through the Chemeketa Cooperative Work Experience program, every Chemeketa cybersecurity student can earn credit while simultaneously taking their first steps into industry. These internships allow the Chemeketa student a flexible way to begin the transition from academic to professional life as they work on finishing their degree.

DESIGNATIONS

- CAE-Cyber Defense

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CITY COLLEGE OF SAN FRANCISCO



CCSF Campus

City College of San Francisco (CCSF) has one of the strongest cybersecurity programs in California’s community college system. Since the mid-2000s, the program has grown and flourished, led by industry-recognized faculty who take bold, unorthodox approaches to curriculum development and delivery. As a result, new students and degreed skill-builders fill the classes.

The program offers a Computer Networking and Information Technology Applied Science degree in Network Security and two certificates, Cybersecurity and Advanced Cybersecurity. CCSF’s cybersecurity curricula are designed to prepare students for industry certifications, such as CompTIA Security+, Certified Ethical Hacker (CEH), and Certified Information Systems Security Professional (CISSP).

In recent years, CCSF’s cybersecurity competition

teams have become formidable contenders in an arena some could consider out of their league; a two-year program competing against four-year universities such as Stanford and the University of California. CCSF, often one of just 1-3 community colleges in a field of 15-20 schools consistently places in the top three of the annual Western Regional Collegiate Cyber Defense Competition.

City College of San Francisco provides the related instruction for the state’s first joint U.S. Department of Labor and California Department of Industrial Relations registered cybersecurity apprenticeship. Along with designation as a Center for Academic Excellence in Cyber Defense and our esteemed faculty, CCSF aims to continue preparing our students to meet the growing need for cyber talent.

DESIGNATIONS

- CAE-Cyber Defense

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CCSF 2019 Cyber Competition Team



Clark State, Springfield

Since its beginning in 2008, the Cybersecurity/Information Assurance program at **Clark State Community College (CSCC)** has aimed to be a leader in cyber defense.

To further enhance this commitment, the Cybersecurity/Information Assurance program created the Center for Cyber Defense. The mission of this center is to provide high quality programs and courses that meet or exceed national academic standards and prepare Clark State graduates for the local cybersecurity workforce, including Wright Patterson Air Force base and many Department of Defense contractors.

Additionally, the Center works with local businesses and members of the community to increase awareness of the significant threats currently faced by owners and operators of information systems and

the public. The Cybersecurity/Information Assurance (IA) Associate of Applied Science degree program prepares students to support the information security needs of businesses. Students can spend up to two semesters working in the information technology field while earning college credit.

In addition to designation as a CAE-CD for the Cybersecurity/IA degree, CSCC has received three National Science Foundation Advanced Technological Education grants which have focused on developing and supporting the cybersecurity program and its faculty. The most recent grant focuses on developing hands-on learning labs specifically focused towards facilitating high school teachers who are interested in teaching foundational cybersecurity topics.

The program is managed by two full-time faculty members, Danis J. Heighton and Greg Teets who hold multiple certifications and have extensive experience as IT professionals from positions prior to their education tenures.

DESIGNATIONS

- CAE-Cyber Defense

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Cybersecurity students and faculty



The Duke Energy Electrical Grid Research Innovation and Development center (eGRID) at Clemson can simulate the electrical grid of any country in the world to test how cities would manage cyberattacks to power infrastructure

Clemson University continues to develop research infrastructure, educational programs, and faculty expertise in alignment with national security interests in cybersecurity.

With a focus on power systems security and on securing cyber-physical systems, Clemson takes a broad, multidisciplinary approach to cybersecurity research with at least 15 faculty from eight departments and Clemson Computing and Information Technology (CCIT) contributing. Clemson offers unique research equipment and facilities for research related to autonomous vehicles and systems connectivity, electrical grid simulation, cloud computing, social media listening, high-speed computing, and big data analytics. Clemson works closely with federal agencies and the private sector to pursue research projects with real-world impact. In the past five years, Clemson has secured \$27

million in grant awards for cybersecurity projects and Clemson faculty garnered more than 400 citations in 2017 alone for cybersecurity-related research.

Additionally, Clemson offers a broad range of cybersecurity courses at both the undergraduate and graduate levels, covering topics such as computer security principles, censorship, malware design, and penetration testing. Clemson aims to graduate more students to fill critical workforce needs in the cybersecurity sector and now offers a minor in cybersecurity for undergraduates with multiple paths for students in business, science, and engineering.

The mission of the new Clemson University Cybersecurity Center is to propel Clemson University as a leader in the field of cybersecurity in all aspects, including research, education, industry partnership, and community engagement.

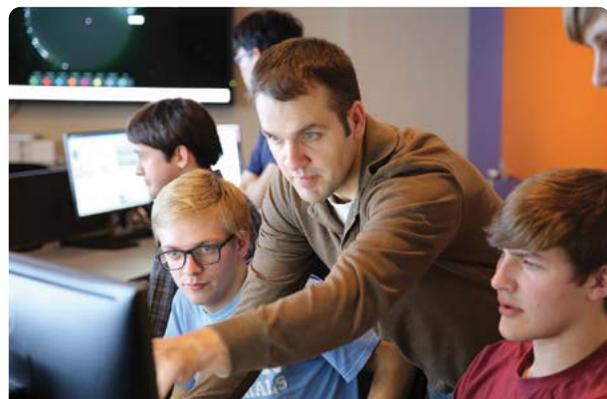
DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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The Clemson Cybersecurity Operations Center trains students to monitor activity on Clemson's network, perform forensic investigations on past events, and create predictive analyses



COASTLINE COMMUNITY COLLEGE



Coastline Community College Campus

Coastline Community College has the honor of being the first California Community College to earn the designation as a Center of Academic Excellence in Cyber Defense. Located in Orange County, California, Coastline is designated as Hispanic, Asian-American, Native American, and Pacific Islander Serving Institutions and also serves traditional students, active-duty military, and veterans from across the country via onsite/online cybersecurity programs.

The goal of the CAE Cyber Defense program at Coastline is to reduce vulnerabilities in our national information infrastructure by promoting higher education and research in cyber defense and producing professionals with cyber defense expertise. Cybersecurity state approved degrees and certificates were developed in collaboration with business and industry partners to provide

students with the knowledge and skills that align with the CAE Knowledge Units and the NICE Framework. Degrees that are offered at Coastline include: Associate Degrees in Computer Networking, Cybersecurity, and Microsoft MCSE. Certificates of Achievement and Certificates of Accomplishment are also offered in Cybersecurity, Cybersecurity Apprenticeship, Cisco CCNA, and CompTia.

Coastline is proud to offer students a Registered Cybersecurity Apprenticeship program. This program offers students a series of eight online courses in networking and cybersecurity to prepare them for placement as registered paid apprentices. The program pays for tuition, textbooks, and industry certification exams.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Since offering its first classes at area high schools in 1985, **Collin College** has expanded to 12 campuses and centers serving more than more than 56,000 credit and continuing education students each year across Collin County, Texas and beyond.

The college offers more than 100 degrees and certificates in a wide range of disciplines, including a Bachelor of Applied Technology (BAT) in Cybersecurity and an Associate of Applied Science in Information Systems Cybersecurity. Coursework in the Cybersecurity programs prepares students for a variety of industry certifications that are highly sought by employers, such as AWS, Cisco, CompTIA, EC-Council, and Microsoft.

Along with Cybersecurity, Collin College offers degrees in Cloud Computing, Computer Networking, Computer Systems, and Web Development. Collin

College's Frisco Campus is the home of the new IT Center, which houses all the college's IT programs including the BAT in Cybersecurity degree. The 92,000-square-foot state-of-the-art center incorporates specialized labs and equipment for forensics, defense operations, video production, and virtual/augmented reality.

The Frisco Campus is also home to the National Convergence Technology Center (CTC). The CTC, established in 2008, helps colleges meet the fast-growing demand from business and industry seeking IT specialists. The CTC partners with colleges and universities across the nation to train faculty in emerging technologies and assist in the implementation of high-demand convergence technology degree and certificate programs.

Collin College is guided by its mission to be a student and community-centered institution committed to developing skills, strengthening character, and challenging the intellect. The college operates with a vision of delivering a brighter future for its students and communities.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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College of Coastal Georgia Campus

The **College of Coastal Georgia** is an undergraduate college within the University System of Georgia. It was originally Brunswick College (1961), Brunswick Junior College (1964) and Coastal Georgia Community College (1996) before transitioning into a four-year college on May 7, 2011.

Located on the Southeast Atlantic coast in Brunswick, midway between Savannah and Jacksonville, the College provides an affordable and interactive education nestled in the natural beauty and abundant sunshine of Georgia's Golden Isles.

At the College of Coastal Georgia, students discover opportunities throughout their undergraduate career through community engagement, service learning, and hands-on application of classroom material. There is a spirit of volunteerism at the College and a commitment to making positive changes.

Students participate in honors programs, internships, fellowships, and scholarships that foster natural curiosity. On-campus employment opportunities and scholarships serve not only to promote college affordability, but also to encourage academic, athletic, and active program participation.

The Cyber Defense concentration at Coastal is unique because it allows students to combine their interest in criminal justice with their talents and interest in cybersecurity. Students benefit by participating in a required internship within the information technology field which provides real world experience.

Also, as part of the learning process, students enter cybersecurity competitions, also known as CTF (capture the flag). This gamified approach helps students learn at their own pace while competing against other students. Coastal Georgia students also benefit from research initiatives - attending cybersecurity conferences and participating in community service projects.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Cybersecurity Students



College of DuPage Seaton Computing Center

College of DuPage (COD), Glen Ellyn, IL, serves approximately 27,000 highly diverse, traditional, and non-traditional students each semester on the largest single community college campus outside the state of California.

COD has a highly developed infrastructure, deep academic expertise, and significant academic and industry relationships. As we become increasingly engaged with and reliant on technology in our homes, schools, and workplaces, our vulnerability to malicious cyberattacks and information theft increases.

The Center for Cyber Defense Education at College of DuPage is dedicated to the development, promotion, and support of education, collaboration, and innovation in security technologies and management, information security assurance, and

digital forensics across multiple academic and professional disciplines.

The Cybersecurity and Defense A.A.S. degree at COD provides students with a comprehensive foundation in the principles of cybersecurity and covers a variety of topics, including computers and criminal justice, homeland security, networks, routing and switching, servers and virtualization.

The program consists of a minimum of 64 credits in General Education, degree program, and elective requirements. Upon completion of the program, students will be qualified for entry-level employment in a variety of positions in information systems.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

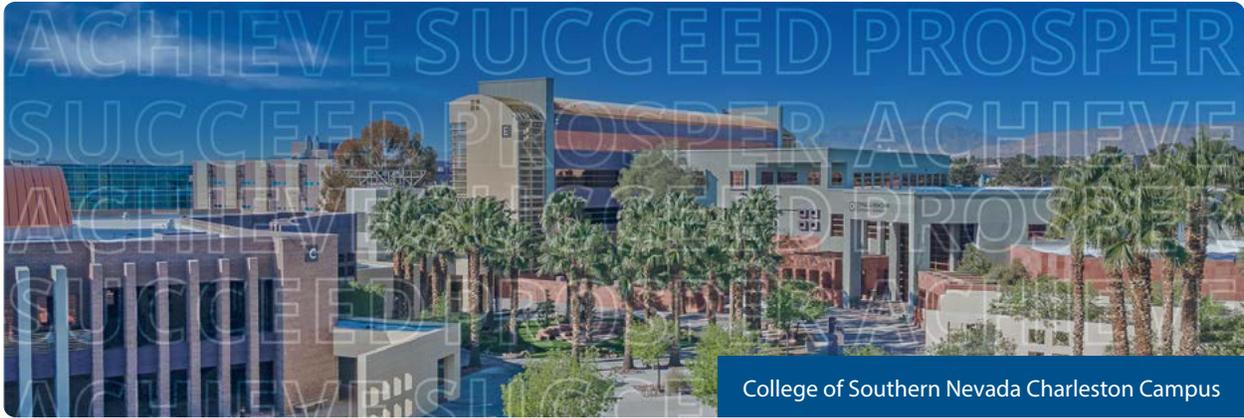
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COD professors Justin Wagner and Tony Chen



College of Southern Nevada Charleston Campus

Founded in 1971, the **College of Southern Nevada** is the state's largest and most ethnically diverse, higher education institution, with more than 35,000 for-credit students per semester and 12,000 non-credit students per year. The college offers more than 180 degrees and certificates — including 25 available entirely online — in more than 70 areas of study. The college features several nationally or regionally prominent programs in high-demand fields, including cybersecurity.

The cybersecurity program is the only one of its kind at the community college level in Nevada, having earned the designation National Center of Academic Excellence in Cyber Defense Education (CAECD). Many students are involved in an active cybersecurity club that regularly participates in cyber competitions, including the National Cyber League competitions. Our students enjoy a robust

experience in the program, with access to the latest technology, including a fully functional Faraday Cage encompassing an entire room. CSN offers its students real-world, hands-on experience before they ever leave the classroom. Our cybersecurity faculty is comprised of experts with experience in business and industry, academia, and law enforcement.

CSN specializes in two-year degrees and workforce development that allow students to prosper. The college also offers seven bachelor's degrees in specialized fields and is the state's largest provider of adult basic education and literacy training. CSN is a Minority Serving Institution and Nevada's first Hispanic Serving Institution. CSN is extremely accessible with three main campuses in Las Vegas, North Las Vegas, and Henderson, each covering 80 acres, as well as sites and centers placed throughout the southern Nevada area.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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CSN Cybersecurity classroom with Faraday Cage



CSM Campus

College of Southern Maryland's (CSM) Cybersecurity Associate of Applied Science degree program prepares students for entry-level security positions and serves those already working in the field who wish to update their skills. On completion of the program, students will be prepared for entry-level positions in security or transfer to a four-year institution to complete a bachelor's degree in information assurance, information security, network management, network security, or cybersecurity.

Cybersecurity students will take classes that will help to prepare for the following in-demand entry level cybersecurity industry certifications: CompTIA A+, CompTIA Security+, CompTIA Linux+, and EC Council Certified Ethical Hacker (CEH). Depending on elective selections, students may take courses to prepare for these additional certifications: EC Council CHFI, AWS Certified Cloud Practitioner, and

CISCO CCNA. Students may be eligible to receive Credit for Prior Learning through Certification Evaluation for up to 15 credits with any of the following current certifications: CompTIA A+, CompTIA Security+, CompTIA Linux+, CISCO CCNA, EC Council CEH, EC Council CHFI, AWS Certified Cloud Practitioner, and ISC2 CISSP.

CSM also offers a certificate program that prepares students for entry-level positions in the information technology field such as Network Associate, Network Support Analyst, Network Technician, Network Administrator, Security Analyst, Security Administrator, IT Specialist. Graduates will be able to conduct network management and maintenance including router and switch configuration, firewall implementation and management, user access control, and network security monitoring.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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CSM Cyber Class



COLORADO SCHOOL OF MINES



MINES Campus

Colorado School of Mines (Mines) is a globally known public university devoted to the education and research in engineering and science to solve the world's significant challenges related to the earth, energy, and environment. It is accredited through the doctoral degree by the Higher Learning Commission of North Central Association.

The mission of the Center for Cyber Security and Privacy (CCSP) is to support and promote cybersecurity and privacy education and research at the Colorado School of Mines and the region. CCSP is hosted in the Computer Science Department at Mines, which offers B.S., MS, and PhD degree programs in Computer Science. CCSP fulfills its mission by leveraging the unique strengths of Mines in engineering and applied science education and research, promoting high-quality and high-impact cybersecurity and privacy research, bolstering

cybersecurity and privacy education and training, fostering cross discipline and cross-institution collaboration, knowledge sharing, and resource sharing, and engaging the local communities and the region.

The education and research activities at CCSP are closely aligned with the Federal Cybersecurity R&D Strategic Plan, and with the Centers of Academic Excellence in Cyber Defense (CAE-CD) program requirements. The National Security Agency (NSA) and the Department of Homeland Security (DHS) have designated the Colorado School of Mines as a CAE-CD institution through academic year 2021. Mines undergraduate and graduate students who complete our Cyber Defense Education requirements will receive an official Cyber Defense Education Certificate authorized by NSA and DHS.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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MINES Students



CSU-Pueblo Campus

The **Center for Cyber Security Education and Research (CCSER) at Colorado State University Pueblo (CSU-Pueblo)** has been designated as a Center of Academic Excellence in Cyber Defense since 2016.

Mission objectives of CCSER include, but are not limited to providing educational outreach programs in cybersecurity to K-12 students, and all interested parties, institutions, and organizations in the wider Colorado area; producing a growing number of students and professionals with expertise in cyber defense that will contribute to the advancement of the field; providing collaboration opportunities among students, faculty, and public and private institutions committed to excellence in the areas of cybersecurity and information assurance; and seeking, encouraging, and developing alliances with other CSU-P departments and CAEs, as well

as educational institutions and industry in order to pursue joint educational, research, and grant opportunities.

The CCSER is a technically oriented program within the Computer Information Systems (CIS) sector of the Hasan School of Business. CCSER emphasizes threat vulnerability analysis, cyber threats, system vulnerabilities, network traffic analysis, cyber defense, network administration, and computer forensics in addition to areas of study in block-chain technology and cybersecurity risk strategies.

The CCSER encourages all interested students to compete in the National Cyber League (NCL) cyber competition. Our CSU-Pueblo “CyberWolves” team has been ranked among the top 10 NCL teams in the nation during the last 2 years.

Additionally, the CCSER has engaged several local area high schools students and teachers to compete in the NCL, which has created much excitement and interest in the fields of information technology and cybersecurity among high school students.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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CSU-Pueblo CyberWolves: #4 NCL Ranked out of 373 National Teams, Fall 2018



CTU is a student-centric, tech-driven university committed to innovation

Through innovative industry-current curricula and technology-enabled student-centered teaching, the College of Computer Science, Engineering and Technology at **Colorado Technical University™ (CTU®)** empowers students to become motivated, creative, ethical, and skillful professionals who can resolve challenges in Computer Science, Computer/Electrical Engineering, and Information Technology to meet the needs of the digital economy.

CTU's Bachelor of Science in Computer Science-Cybersecurity Engineering degree program is designed for busy adults interested in pursuing a career path in computer software solutions using programming and algorithmic techniques.

For this Cybersecurity Engineering concentration, students effectively explore a broad range of methods, processes, and procedures to design

and develop computer software in addition to context-specific best practice and hands-on skills relevant to cybersecurity engineering. These include cybersecurity engineering-related theories, techniques and tools to construct software solutions to cost-effectively detect, mitigate, prevent and remove various types of security vulnerability and attacks.

- The Bachelor of Science in Computer Science program with a concentration in Cybersecurity Engineering was validated to map to the DHS/NSA cybersecurity knowledge units.
- The Department of Homeland Security and the National Security Agency have recognized Colorado Technical University as a National Center of Academic Excellence in Cyber Defense (CAE-CD).

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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CTU is a student-centric, tech-driven university committed to innovation. The bachelor's in cybersecurity engineering is built on CTU's legacy of online degree programs, which have been offered since the early 2000's. Students in the Computer Science - Cybersecurity Engineering bachelor's program pursue their degrees online or at one of our Colorado campuses, including the newly remodeled Colorado Springs campus.

CTU has awarded more than 125,000 degrees since 1965 and has been ranked among the Best Online Bachelor's Programs by U.S. News & World Report for the last eight years.



Columbia Basin College, Computer Science (CS) Department, was designated as a Center of Academic Excellence in Cyber Defense (CAE-CD) in 2017. This designation is given to schools that have proven a commitment to excellence in the field of Information Assurance and Cyber Defense Education. We are one of a few community colleges in Washington State with this designation. The Computer Science Department is committed to providing students and the community with the training, academic studies, and valuable hands-on experience necessary for employment in the Information Technology industry.

The Computer Science department offers Bachelor of Applied Science (BAS) degrees in Cybersecurity and Information Technology. The majority of the students pursuing Computer Science A.A.S. degrees transfer into our B.A.S. degrees. We accept A.A. and A.A.S.

degrees from other colleges into our Cybersecurity B.A.S. degree and our Information Technology BAS degree. The Computer Science Department provides students with access to cybersecurity practitioners through internships, guest lecturers, and events. The department also partners with many local companies to provide student internships. The Computer Science Department also has a Cyber club that is very active in many competitions.

Students who complete the following two-year Associate in Applied Science (AAS) degrees will receive a letter that contains the designation along with a listing of the CAE Knowledge Units (KU) completed.

- Cybersecurity
- Database Administration
- Information Technology
- Network Administrator

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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End-to-end secure data protection has become the lifeblood of our society and from the beginning we have aimed at providing cybersecurity excellence in our students. **Columbus State Community College (CSCC)** launched its Cybersecurity specific degree in 2018 to provide cybersecurity expertise to meet the vulnerabilities of the explosive growth of information technologies. We must develop our talent to provide for the secure handling of critical information in the face of rapidly increasing threats. Our mission is to develop the nation's cybersecurity workforce, ensure cyber academic/curricular excellence, engage communities in cybersecurity practices, chart cyber pathways for diverse students, and launch cybersecurity careers – early and often.

We're growing a rock-solid cybersecurity program and in 2015 we began our quest to develop a cybersecurity pathway to the workforce. Our

curriculum is cyber industry and NIST informed, leading to a highly focused, technically powerful, two-year degree that leads to the workplace and beyond. We have been engaged with the NSA's GenCyber cybersecurity summer camps since 2016, developing the nation's young cyber talent. Our camps reflect the diverse make-up of CSCC. We are also partnering with Ohio high schools to develop cyber warriors at the associate level through our College Credit Plus. Furthermore, our degree articulates to a bachelor's in cybersecurity at Franklin University (also designated a CAE-CD). We are well placed to launch cybersecurity careers.

In 2019 we began developing paid apprenticeship opportunities for second year cybersecurity students. Students that successfully land an apprenticeship are paid to get hands on experience with a company while they finish their degree. Interested students are groomed during their first year at CSCC to apply for apprentice positions at a growing number of industry partners in the greater Columbus area. These partners include businesses like Nationwide Insurance, State Auto Insurance and American Electric Power. These partnerships are increasing, and we continue to see the numbers of our students converting to full time jobs rise. The bottom line is that the apprenticeships are working, our students are demonstrating they have what it takes, and our local employers are reaping the benefit.

Columbus is indeed becoming the Silicon Valley of the Midwest as attested to by Intel Corporation's choice to invest \$20 billion to build two new factories in central Ohio. It's a great time to join the dynamic and agile Columbus State Cougar team.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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CSU Clock Tower

Columbus State University (CSU) has been a leader in cybersecurity education in the state of Georgia since its designation as a Center of Academic Excellence in Information Assurance Education (now Cyber Defense) in 2011. It received a \$2.5 million gift in 2015 from Total Systems (TSYS) Inc., a leading global payments provider, to establish the state-of-the-art TSYS Center for Cybersecurity at CSU. Equipped with an open cyber range, the mission of the center is to produce computer science, information technology, and business graduates with advanced competency in cybersecurity, develop faculty expertise in cybersecurity, and provide training opportunities for businesses.

Since its redesignation as a CAE-CD in 2015, CSU has added a cybersecurity track in the BS Computer Science program, a master's degree, and a graduate certificate in Cybersecurity Management.

The Master's in Applied Computer Science with a track in cybersecurity was ranked #1 in the Top Online Master's in Computer Science in the nation by GoGrad.org in 2016 and 2017, and ranked #2 by Intelligent.com in 2019. Year 2020 sees the launch of three new undergraduate programs – a BS in Cybersecurity, a BBA in Cybersecurity Management, and a Cybersecurity Practitioner Certificate in Financial Technology (FinTech).

The School of Computer Science at CSU has received more than \$1 million in grants from the NSA to host competitions, offer summer workshops, develop middle school curriculum, and build intelligent tools for cybersecurity training. Recent successes at CSU include \$365,000 from the NSF to continue the REU@CSU Research Experiences for Undergraduates Site in Security and Privacy for Mobile Sensing and IoT from 2020 to 2022.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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TSYS Cybersecurity Center Lab



COMMUNITY COLLEGE OF RHODE ISLAND



Community College of Rhode Island Campus

The National Security Agency and the Department of Homeland Security have designated the **Community College of Rhode Island** as a Center of Academic Excellence in Cyber Defense (CAE-CD) through academic year 2023. CCRI, the largest public, two-year, degree-granting college in New England, provides a variety of career, technical, and academic programs at four main campuses in Warwick, Lincoln, Providence, and Newport as well as online and at the Westerly Education Center. CCRI's cybersecurity program is designed to provide students with a strong foundation in the principles and methods of cybersecurity, as well as the fundamental knowledge and tools for applying security measures across a variety of network architectures and settings.

In addition to providing the groundwork for pursuing a bachelor's degree in cybersecurity, this associate degree program provides the educational

background and hands-on training necessary to prepare students for entry in the cybersecurity sector and meets NSA and Centers of Academic Excellence core foundational content and standards.

At the core of the associate degree program is the cyber defense path, composed of the critical networking and cybersecurity-based classes that are the courses used in the KU mapping for this designation. The courses include Programming Concepts, Introduction to Computer Ethics, Introduction to Cybersecurity, Database Design and Management, Networking Technology, Intermediate Networking, and Network Security Hardware. Students who complete these core courses are awarded a certificate of completion that recognizes that they have completed the cyber defense path as part of the cybersecurity curriculum at CCRI.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Rhode Island Cyber Range



(Mission) “Creating opportunities for student success”
- (Unique) **Coastline College** offers a fully online AS in Cybersecurity. - (Highlights) With distributed campuses in Southern California, Coastline College’s Cybersecurity program offers an Associate of Science degree, in addition to several certificates. Coastline’s Cybersecurity program helps students develop a unique skill set in the information technology field with critical thinking and investigative techniques. Recognized by the National Security Agency and Department of Homeland Security since 2014 for its strong cybersecurity program, Coastline is a Center of Academic Excellence in Cybersecurity.

Coastline is committed to creating opportunities for student success by guiding diverse student populations toward the attainment of associate degrees and certificates leading to career advancement, personal empowerment, and transfer.

By meeting students where they are, Coastline provides innovative instruction and services designed to achieve equitable outcomes. As an early pioneer of distance learning, Coastline was founded as the “College Without Walls” in 1976, and now provides over 81% of instruction through various distance learning platforms. Coastline is a Minority Serving Institution (MSI) with a diverse student population, also recognized as an Asian American, Native American, and Pacific Islander-Serving Institution (AANAPISI) and a Hispanic-Serving Institution (HSI).

Coastline collaborates to develop cybersecurity education pathways through articulation agreements and activities to inform students about the cybersecurity education and career pathway programs. Among the various pathway initiatives, the program includes CyberTech Girls workshops and CyberPatriot competitions for middle and high school students, an online AS in Cybersecurity degree with hands-on technical experiences, a cybersecurity student club, skill-building cybersecurity competitions, and industry certifications for apprentices in the CA Cybersecurity Apprenticeship Program.

DESIGNATIONS

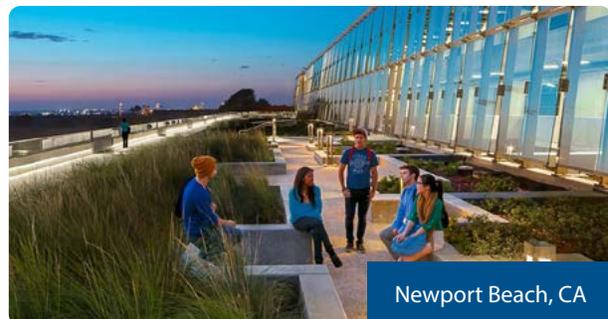
- CAE-Cyber Defense

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Learning Resource Center

Cosumnes River College's (CRC) Cybersecurity program is the oldest one at a community college in California. Our certificates and degree are designed to give students currently employed as an Information Technology (IT) professional, or those currently working on their networking degree, the additional skill sets necessary to work in this rapidly growing field.

We are located in Sacramento the capitol of California. This has several advantages, because a majority of our students obtain jobs with the state once they finish their education at CRC. We are also close to many of Northern California's largest employers, such as Intel, Tesla and Google. Our program is taught entirely online with some hybrid options for students who prefer meeting face-to-face.

Highlights:

- Hands-on experience in a state-of-the-art computer center.
- Opportunities to work on specialized projects.
- Study in a field that has great employment opportunities and encompasses many careers.

Career Opportunities:

- Cybersecurity Specialist/Analyst
- Information Technology Technician
- Network/Systems Administrator

DESIGNATIONS

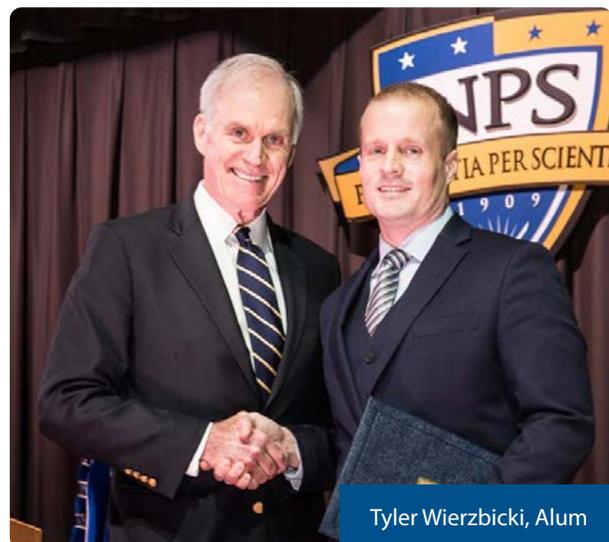
- CAE-Cyber Defense

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Tyler Wierzbicki, Alum



County College of Morris Campus

The **County College of Morris (CCM)** has been a local and national leader in information security education for over two decades. CCM became the first community college in New Jersey to be designated as a National Center of Academic Excellence in Cyber Defense Two Year Education (CAE-2Y) in 2017. Our faculty is recognized nationally as expert educators and have been leaders in setting the direction of our college's information security curriculum.

In 2018, we started a Share-time program called Cyber Security Information Protection (CSIP) for High School students. This program allows the students to spend their Junior and Senior years attending the program at CCM. These students will earn our Information Security certificate and more than 50% of the credits needed for an Applied Associates of Science in Information Technology.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Our mission for the CCM Center for Cybersecurity is to further the education of our present and future cybersecurity professionals, increasing awareness for students in other disciplines, and in preparing our greater community to be better cyber citizens. CCM is committed to increasing the diversity of professionals in the Cybersecurity field and we are actively involved in hosting GenCyber camps and through our work with NCWIT [National Center for Women & Information Technology].

In recent times, County College of Morris (CCM) has gotten significant national attention with more than a dozen national recognitions. CCM has been recognized as the top 1.8% of the Best Community Colleges nationwide by Academic Influence. Its latest recognition from Best Accredited Colleges places CCM as the Top Community College in New Jersey.

The community college ranking looked at the salaries earned by alumni, the percentage of alumni who find high meaning in their jobs and the percentage of degrees awarded in science, technology (this includes our Information Technology and Cybersecurity offerings), engineering and math.

For five consecutive years, PayScale has ranked CCM #1 in New Jersey for associate degree holders who earn the best salaries.



Cypress College Campus

The **Cybersecurity Center at Cypress College** was designated as a Center of Academic Excellence in 2018. Our mission is to advance cybersecurity education by providing curriculum, resources, support, and collaboration to develop and implement effective pathways to increase cybersecurity professionals. We offer cybersecurity and cyber defense certificate programs and an Associate of Science in Cyber Defense. After completing our program, students are prepared for industry recognized certifications including ITF+, Cloud Essentials, Network+, Security+, CySA+, CCNA, and Cyber Ops.

Our center is involved in the Pathway to Advancement of Cybersecurity Education (PACE) program funded by Small Workforce Program (SWP) and the National Science Foundation (NSF). The goal of PACE is to develop and implement pathways from middle school all the way to a four-year college with multiple

opportunities for employment exit points. Specific goals include:

- Embed cybersecurity content in middle school/ high school curricula
- Provide outreach to generate interest in cybersecurity
- Offer cybersecurity dual-enrollment courses to middle school/high school students
- Provide articulation and alignment with high school and 4-year institutions
- Increase student enrollments in cybersecurity
- Recommend best practices and disseminate PACE results

During the 2019 academic year, 508 students completed our cybersecurity courses, 90 students obtained CompTIA and/or Cisco industry certificates, and 53 students completed one of our cybersecurity certificate programs (12 to 24 units). Additionally, 1708 middle and high school students participated in our CyberPatriot training and competition events. CyberPatriot is our outreach program where our college student mentors provide weekly after-school training at six different middle and high schools in the community.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Dr. Izadi Working with cybersecurity students.



Beacom Institute of Technology building

Dakota State University (DSU) has been a member of the CAE community since 2004 and is one of few universities that hold all three CAE designations. Notably, DSU was one of the first four institutions designated as a CAE - Cyber Operations in 2012. DSU offers applied undergraduate through doctoral-level programs centered around cyber operations, cyber defense, and computer science.

DSU continually works to provide educational opportunities to students through scholarship and outreach activities. They have been participating in the CyberCorps Scholarship for Service (SFS), and the DoD Cyber Scholarship Program (DoD CySP) since 2010 and have funded 115 students. DSU hosts several GenCyber camps each summer for a wide range of participants, including middle school girls, rising high school students, and K-12 teachers. They are a leading institution in the Cybersecurity Faculty

Development grant, which aims to equip the CAE community better to address faculty shortages in cyber.

At the beginning of 2022, DSU announced a \$90M initiative to grow the cyber-research industry in South Dakota. The initiative enables DSU to expand its existing Applied Research Lab (ARL) by opening a second facility to back 400-500 full-time positions. These labs support national security and defense while offering workforce and economic development opportunities in SD.

In addition to the new facility, DSU is building capacity to double the number of graduates from The Beacom College of Computer and Cyber Sciences, where DSU's CAE programs are housed.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations
- CAE-Research

CONTACT INFORMATION

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Students collaborating



Danville Community College (DCC) is located in the most southern part of Virginia providing training to a very rural, agriculturally based, service region. DCC is designated as a Center of Academic Excellence in Cyber Defense (CAE-CD). DCC's cybersecurity programs provide curriculums that are mapped to the Centers of Academic Excellence (CAE) standard. These programs also provide students with the opportunity to take coursework both online and in traditional classroom based settings, meeting the diverse needs of our students in this service region as well as local community.

Since DCC's service region is considered rural, obtaining the CAE-CD designation has provided our students with access to training that would otherwise not be available to them. As an added benefit, DCC's Cybersecurity and Cybercrime Investigation Certificate programs are transferrable to many four-

year institutions and provides cybersecurity skills needed for companies like Microsoft, CISCO, and Perspecta that have job opportunities in our area along with local banks and IT support industries. This has been a positive factor in other industries to consider this area for their corporate needs.

The opportunities that DCC offers to our students include participating in a variety of events such as cyber competitions and extra-curricular activities and membership in the DCC Cyber Knights Club. These students have also benefitted from the experience of traveling to these competitions as well as various field trips to local IT facilities to explore the opportunities available to them from completing the various cyber programs we offer.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Davenport University W.A. Lettinga Campus

For over 150 years, **Davenport University** has stood apart from other universities because of its unrelenting focus on ensuring that its graduates rise to the top of the job market. Its unique approach to education offers students a career-centered curriculum and empowers them through real-world experience. Students find that Davenport provides an education that works for them, with more than 60 bachelor's and master's degree programs, small class sizes, seven-week courses and classes held online or on campuses across Michigan. As a private, not-for-profit university with accreditation by the Higher Learning Commission, students can be assured Davenport will deliver a quality education that's focused on their success.

Since first achieving CAE status in 2011, the College of Technology established and maintains an actively growing Information Security and Assurance Center

known as ISaAC. ISaAC is a hub for up-to-date security-related information including current news & research, faculty biographies, undergraduate and graduate program information, internship and job postings, and security resources.

To complement the Information Assurance program, the College of Technology developed a bachelor's program in Digital Forensics. Students in this program are immersed in hands-on activities ranging from conducting investigations to analyzing intrusions on mobile devices, personal computers, storage devices, and networks.

The Digital Forensics program was designated a Center of Academic Excellence in Digital Forensics (CDFAE) by the DoD Cyber Crime Center (DC3) in 2015.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Davenport University SFS Scholars



Daytona State College created the Center for Cybersecurity and Cyberforensics to meet the demands for high-quality education and training. Through our nationally recognized center, students receive the education and training they need for jobs that secure our community, state, and the Nation's computers, networks, and critical infrastructure.

The quality of programs at Daytona State is recognized by several entities attesting to the value of the curriculum, instruction, and administrative support. In 2015, the college joined a handful of institutions nationwide as a Center of Digital Forensics Academic Excellence (CDFAE) by the Defense Cyber Crime Center which sets standards and best practices for digital forensics practitioners, educators, and researchers. In 2016, Daytona State was designated as a Center of Academic Excellence in Cyber Defense (CAE-CD) by the National Security Agency and

Department of Homeland Security.

Daytona State has consistently been recognized as a leader in higher education by U.S. News & World Report, which ranks the college among the Top Tier Best Online Bachelor's Programs. The U.S. Department of Education's College Affordability and Transparency Center has ranked Daytona State among the top 50 most affordable public four-year institutions in the country, with less than half the tuition of the national average. And U.S. News & World Report has ranked Daytona State among its Top Online Bachelor's Programs for Veterans.

Offering more than 100 certificates, associate, and bachelor's degree programs, Daytona State College has responded to the education and workforce training needs of Volusia and Flagler counties and beyond for more than 60 years.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Delta College is one of the country's leading community colleges – recognized for our innovation, our community leadership, and our teaching excellence. We're also known for caring about each student every step of the way.

Online Security is a growing and increasingly critical area of specialty. With Delta's Cybersecurity program, you will learn how to protect the private information of companies and their customers. Plus, at Delta College, you'll prepare for this rapidly growing career field through our nationally recognized Cybersecurity center.

Delta College's Cybersecurity Center is recognized by the Department of Homeland Security and the National Security Agency as a Center of Academic Excellence in Cyber Defense Education. The Cybersecurity Center provides a dedicated

cybersecurity simulation lab and is fully supported by Delta's cybersecurity faculty. You can study remotely using our new state-of-the-art NDG appliances that allow you to have the same lab experience from home as you do in the classroom.

Participate in virtual cybersecurity competitions in the Cyber Defense club and discuss industry trends, events, and news with guest speakers that work in the field full time.

Delta college started with an Information Security and Technology degree before 2011, in 2012, we changed the curriculum to Information Assurance, and in 2017 changed to a Cybersecurity degree. We work hard to keep up to date with the latest trends in Cybersecurity so you the student are well prepared for your future employment.

DESIGNATIONS

- CAE-Cyber Defense

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The College of Computing and Digital Media Building, located in the heart of downtown Chicago

DePaul University is the largest Catholic university in the United States and the largest private, nonprofit university in the Midwest, with nearly 22,500 students. Our tradition of providing a quality education to students from many different ethnic, religious, and geographic backgrounds, with particular attention to first-generation students, has resulted in one of the nation's most diverse student bodies. DePaul offers over 300 academic and professional programs for undergraduate and graduate students. Here, our students gain hands-on experience through internships, service, and learning opportunities across Chicago.

The College of Computing and Digital Media houses the School of Computing, which features technical degrees in computing, cybersecurity, health informatics, information systems, and data science. Students in the BS and MS Cybersecurity programs

learn how to design, implement, and maintain systems designed to support security policy and networking architecture consistent with mitigating risk and preventing attacks. The program curriculum is developed in cooperation with an industry advisor board—leaders in business who meet regularly with our faculty to ensure students are getting the skills employers are looking for. Extensive labs, accessible locally and remotely, provide a great infrastructure to support a hands-on education.

Our campus is located in the heart of Chicago's business district and we offer a robust array of online courses as well. Students have access to 100 percent of their program's lectures captured and available online. The MS in Cybersecurity can be completed entirely online.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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CDM emphasizes hands-on learning with equipment in a dedicated Security Lab



East Carolina University (ECU), a public, four-year university established in 1907, is located in Greenville, North Carolina. ECU has 11 colleges/schools/institutes, 10 of which are degree-granting. Since 2005, ECU has been offering CAE-CD education through the Department of Technology Systems, which is housed within the College of Engineering and Technology. The department offers degree programs with emphases on cybersecurity through our Bachelor of Science in Information and Computer Technology, Master of Science in Network Technology, and post-baccalaureate certificate in cybersecurity.

ECU is a leader and a pioneer in hands-on, technology-based cybersecurity educational programs. Our hands-on laboratories for cybersecurity, internetworking, Internet of Things (IoT), and other related technologies provide an

unparalleled and heterogeneous environment for our students to apply their knowledge to solve real-world cybersecurity issues. The diversity of the experiences that our students receive make them uniquely qualified to hit the ground running upon employment and handle cybersecurity challenges from multiple dimensions.

The recent addition of our Cybersecurity Analysis and Action Center (CAAC), which was made possible through a Capacity Building grant from NSA\DoD, provides a state-of-the-art facility for training the next generation cybersecurity workforce while building capacity for teacher training and development.

Another grant from the National Science Foundation (NSF) Secure and Trustworthy Computing (SaTC) program facilitated the development and implementation of an “Online Student-Centric Game-Based Learning System for Cybersecurity Education.” This “Competitive Labs as a Service (CLaaS)” allows instructors from regional institutions to practice and improve their cybersecurity capabilities to train the next generation workforce.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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ECPI University has sixteen locations and is online

Founded in Norfolk, Virginia in 1966, **ECPI University** has long-demonstrated a commitment to forward-thinking, market-based curriculum, being among the first to offer classes in the field of computer programming. Now offering programs in nursing, health science, technology, business, criminal justice, and the culinary arts, ECPI University has established a solid reputation for integrating high-quality instruction with application-based learning that is aligned with the employment marketplace. Twice yearly, academic advisory boards made up of professionals in their particular field, gather at each campus to review curriculum and make recommendations based on the ever-changing needs of the workplace.

ECPI University offers a military-friendly, student-centered environment, featuring small class sizes, free tutoring, and career services. Taking two

classes at a time, students can earn college credit every five weeks. Maintaining that pace, they can earn a bachelor's degree in 2.5 years or an associate degree in 1.5 years. Classes are offered day, night, and online. Faculty members incorporate an array of hands-on activities to reinforce learning and retention, allowing students to quickly apply what they learn in the workplace.

ECPI University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award the associate, baccalaureate, and master's degrees and diplomas. SACSCOC is the regional body for the accreditation of degree-granting higher education institutions in the southern states. ECPI University now has campuses in Virginia, North Carolina, South Carolina, Florida, and Texas.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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ECPI University Cyber Student



East Stroudsburg University has been designated a Center of Academic Excellence in Cyber Defense since 2003. The Computer Security program is taught by faculty that are dedicated to cybersecurity and information assurance education, training, research, literacy, and awareness.

In 1999, the East Stroudsburg University (ESU) Computer Science Department began to develop our Undergraduate Computer Security program, offering the first Computer Security course in 2000. By 2002, ESU offered students a Bachelor of Science degree in Computer Security, the first such undergraduate degree in the United States.

Our rigorous baccalaureate program requires courses in introductory computer science, introductory and advanced cybersecurity, and advanced mathematics. Our students round out

their education with coursework designed to foster critical thinking, develop communications skills, and impart an ability to navigate a complex, diverse, and global society.

With small class sizes for courses within the major, ESU is able to provide quality education to the individual student. East Stroudsburg University is proud to play a significant role in developing a strong, capable, and technologically proficient workforce that is equipped to manage and protect our critical cyber infrastructure.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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The Information Assurance and Cyber Defense program at **Eastern Michigan University** places emphasis on design, integration, administration, hardening, and protection of all types of computer information systems and network infrastructures in cyber environments.

Our mission is to support the computing and cybersecurity needs of local, regional, and national government and private organization through excellence in education, scholarship, and service. We are committed to providing quality educational opportunities to both traditional and non-traditional students and seek to equip our students with the knowledge and skillset necessary for future computing and cybersecurity professionals to build, maintain, and protect networks and computer systems in both government and industry.

Our students are immersed in solid theories as well as intensive hands-on practical experiences to enhance their critical thinking and problem-solving capabilities applied to all elements in modern computing disciplines.

Our curriculum covers:

- Computing and networking theories/practices
- System architecture and administration, integration, and troubleshooting
- Cybersecurity threat/risk evaluation
- Incident response analysis and practice
- Network/digital forensics and investigation
- Penetration testing and system auditing
- Cyber laws, legislation, policy/compliance, and project management

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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EASTERN NEW MEXICO UNIVERSITY RUIDOSO BRANCH COMMUNITY COLLEGE



ENMU-Ruidoso Campus

Eastern New Mexico University – Ruidoso Branch Community College (ENMU-Ruidoso) currently serves as a Title V institution for Hispanics, has a strong dual credit program with nineteen high school students enrolled in cybersecurity certificate program for the Mescalero Apache Tribe, Mescalero High School, and is planning to expand to the local high schools in Lincoln County, New Mexico.

The A.A.S. in Information Systems (IS) Cybersecurity is designed to introduce students to contemporary information systems security and information assurance and to demonstrate how these systems are used throughout global organizations. The focus of this program will be on the key components of information systems assurance and cybersecurity; people, software, hardware, data, security, and communication technologies, and how these components can be integrated and managed to

create competitive advantage. The National Security Agency and the Department of Homeland Security have designated ENMU-Ruidoso as a Center of Academic Excellence in Cyber Defense (CAE-CD). This program is specifically designed to prepare students in the National Initiative in Cybersecurity Education (NICE) framework for Operate and Maintain and Protect and Defend, and provide current information systems professionals with an Information Systems Security certificate to meet the needs of current and future employer requirements.

The program maps to a Cybersecurity Technician job position based on NICE framework. Upon completion of this program, students will receive a university certification of completion, the CompTIA Security+ and EC - Council Certified Ethical Hacker (CEH)[™] industry certification in addition to their degree.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Ruidoso Eastern New Mexico University (ENMU)
Professor Stephen Miller
(Photo: Rita Greene/Ruidoso News)



The **Center for Network Computing and Cyber Security (CNCACS) at Eastern Washington University (EWU)** emphasizes real-world experience that is integrated with hands-on, practical, and ethical hacking labs. EWU prepares the next generation of students to design, harden and protect computer and network systems for all cybersecurity environments.

Our mission is to train and support those who will fulfill the computing and cybersecurity needs of private organizations, as well as local, tribal, regional, and national governments by expanding opportunities for personal transformation through excellence in learning, scholarship and service. We are committed to providing diverse, equitable and inclusive educational opportunities to all students. EWU equips our students with the knowledge and skill sets necessary for the future of computing and cybersecurity.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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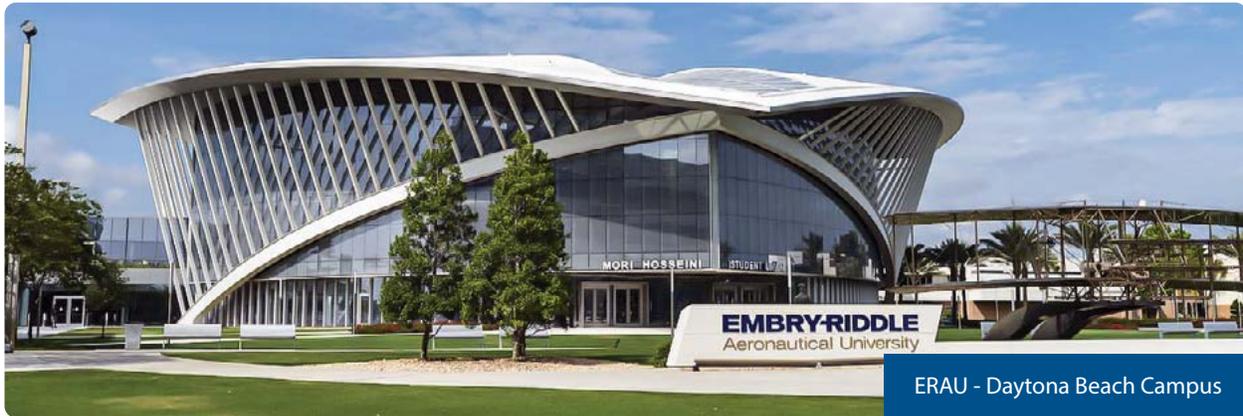
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ewu.edu/cstem/csee/computer-science-bs

EWU considers participation in cyber defense and cyber physical system competitions an important part of student development. The university supports clubs dedicated to cybersecurity in competitions that include the Department of Energy CyberForce Competition, regional and state capture-the-flag competitions, the Collegiate Cyber Defense Competition and NCAE cyber games. EWU has excellent and well-known faculty members with practical experience and deep knowledge in network security, penetration testing and cyber physical systems security.

The CNCACS at EWU has been designated as a National Center of Academic Excellence in Cyber Defense Education (NCAE-C) by the Department of Homeland Security (DHS) and National Security Agency (NSA) through 2026. The goals of the CNCACS at EWU include, providing students with educational opportunities in information assurance, computer security, network security, and cyber physical systems security; providing a cybersecurity research environment for faculty, staff, and students; providing opportunities to strengthen local, tribal, regional, and national partnerships; and providing opportunities for enriching information assurance education across the curriculum.

The information assurance and cybersecurity topics are integrated into the undergraduate curriculums offered within the Department of Computer Science and Electrical Engineering into a Bachelor of Science in Computer Science with a cyber security minor. Students completing the NCAE-C course requirements will receive a certificate of completion.



ERAU - Daytona Beach Campus

As the world leader in aviation and aerospace higher education, **Embry-Riddle Aeronautical University (ERAU) - Daytona Beach** is the largest and most comprehensive institution specializing in aviation, aerospace, engineering, and related degree programs. ERAU is also a major research center pursuing solutions to real-world problems in partnership with aerospace industry, other academic institutions, and government agencies.

During its long and noteworthy history, starting with its aviation roots in 1926, ERAU has consistently followed its mission and placed a strong emphasis on preparing students for productive careers and leadership roles in government agencies, the military, and the private sector.

ERAU - Daytona Beach offers a Cybersecurity Engineering Area of Concentration within the

Bachelor of Science in Computer Science, a Cybersecurity Engineering Minor, and the Master of Science in Cybersecurity Engineering.

The Cybersecurity and Assured Systems Engineering (CyBASE) Center at ERAU - Daytona Beach campus engages in cybersecurity projects associated with critical infrastructures and assured systems, such as aviation and aerospace systems. Students perform research on a broad range of topics that focus on the design, development, and implementation of techniques and tools for cybersecurity assessment and protection of avionics systems and airborne platforms. CyBASE projects are carried out in the Cybersecurity Engineering Lab (CyBEL).

Furnished with state-of-the-art hardware and software, the CyBEL facility is isolated from the outside world to allow for training and research work in cybersecurity attack and defend scenarios. Designed to meet instructional and research needs in cybersecurity, CyBEL also includes a visualization infrastructure to analyze and display information on cyber-defense related data.

DESIGNATIONS

- CAE-Cyber Defense

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ERAU - Daytona Beach Cybersecurity Center



EMBRY-RIDDLE AERONAUTICAL UNIVERSITY - PRESCOTT



ERAU-Prescott Campus

Embry-Riddle Aeronautical University (ERAU) is a private, not for profit, institution with a history dating from the early days of aviation. Its residential campus in Prescott, Arizona, opened in 1978 and has been designated as a CAE-CD since 2019. Over 3000 students are enrolled in 25 bachelor’s degrees in fields such as cyber intelligence and security (CIS), global security and intelligence studies, aeronautical science, engineering, and space physics, and three master’s degrees in CIS, security and intelligence studies, and safety science. The bachelor’s degree in CIS is one of a few ABET CSC accredited cybersecurity programs.

This CAE is centered in the Department of Cyber Intelligence and Security, in the nation’s first College of Security and Intelligence, preparing students for productive careers in public and private sectors. This center offers cyber education

for the entire Prescott campus. Faculty are experts in areas such as intelligence, security, forensics, cybersecurity, engineering, and aviation, enabling a truly interdisciplinary experience for students. The center’s state-of-the-art Cyber Lab and Global Security Operations Center enables hands-on education and research in traditional areas of cybersecurity and emerging topics such as artificial intelligence and cyber-physical system security.

The center has multiple DoD CySP scholars, supports cross-college cyber clubs including the first Women in Cyber Security (WiCyS) club in Arizona, and engages students in unique discovery and outreach activities in CIS. This center offered the world’s first aviation cybersecurity competition to high schools, community colleges, universities, and the professional community worldwide at conferences such as DEFCON and A-ISAC Summit in 2020.

DESIGNATIONS

- CAE-Cyber Defense

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ERAU-Prescott Cybersecurity Students



EMCC Main Campus Avondale

Estrella Mountain Community College (EMCC)

was designated a CAE-CD institution in 2014. This Hispanic Serving Institution offers the Information Technology Security Certificate as well as the Information Technology and Power Systems Security Associate of Applied Science (A.A.S) degree.

This program is uniquely positioned to help combat the shortage of highly trained cybersecurity technicians. The program teaches students essential cybersecurity concepts and allows them to specialize in an area. Students are able to select from one or more of the following specializations: Network Security, Linux Systems Security, Microsoft Systems Security, and Power Systems Security. The Power Systems specialization focuses exclusively on the power and energy sector and has been described as a one-of-a-kind by various industry representatives. EMCC's cybersecurity curriculum

was developed through a close working relationship with an industry advisory board that is composed of representatives from the public and private sectors. Furthermore, the curriculum went through a rigorous vetting during the spring of 2017 by local cybersecurity industry members. The relationships and information gleaned from the vetting process has been used to improve EMCC's curriculum and to help guide students towards internships and/or employment.

As students' progress through the program, their coursework will provide them the required skills necessary to make them sought after job candidates. Additionally, the curriculum prepares them for the rigors of IT security industry certification exams.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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EMCC Instructional Computing faculty, Larry Heinz, explains cybersecurity to students



Excelsior College campus

Founded in 1971, **Excelsior College** is a regionally accredited, not-for-profit, distance learning institution that focuses on providing educational opportunity to adult learners. The College contributes to the development of a diverse, educated society by valuing lifelong learning with an emphasis on serving individuals who are historically underrepresented by higher education. Excelsior meets students where they are academically and geographically by removing obstacles to the educational goals of adult learners through affordable access to quality instruction and the assessment of learning.

Excelsior College is designated by the National Security Agency and Department of Homeland Security as a Center of Academic Excellence in Cyber Defense. Its career-aligned cybersecurity curriculum expands across several online programs at the undergraduate and graduate levels.

Excelsior's programs and experienced faculty prepare students for advancements in such areas as cyber operations, cybersecurity management, cybersecurity technology, and nuclear cybersecurity. Undergraduate and graduate level courses prepare students for industry certification exams, including the Security+ certification, in addition to contributing to a rich program experience.

The National Cybersecurity Institute (NCI) at Excelsior College is a center for cyber defense education dedicated to assisting government, industry, military, and academic sectors meet challenges in cybersecurity policy, technology, and education.

In addition, NCI targets the development of effective cybersecurity practice in specific sectors, including health care, finance, utilities, energy, telecommunications, education and training. NCI sponsors Excelsior students to participate annually in cyber competitions. Excelsior was awarded the 2018 GenCyber NSA/NSF Grant to host a cybersecurity camp for middle and high school educators.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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The Mansion - Florham Campus

Fairleigh Dickinson University (FDU) is a National Center of Academic Excellence dedicated to the preparation of world citizens through global education. The University strives to offer students with the transformational, intercultural, and ethical experiences necessary to participate, lead, and prosper in the global marketplace of ideas, commerce, and culture.

Founded in 1942 by Dr. and Mrs. Peter Sammartino, FDU has grown into the largest private university in New Jersey. Today, more than 11,200 students from 32 states and 72 countries are enrolled on the University's two campuses in northern New Jersey and its international campuses in Wroxton, England and Vancouver, Canada.

FDU offers multiple undergraduate and graduate degrees and certificate programs in various

disciplines through its four colleges and schools on three campuses. It has offered degree programs in computer science since 1975 and concentrations in cybersecurity since 2010. The undergraduate information technology program started in 2004 and offers a concentration in security and forensics since 2015.

FDU Center for Cybersecurity and Information Assurance was established in 2012, paving the way for FDU's CAE-IAE, CAE-CDE, and CAE-CD designations in 2013, 2015, and 2021, respectively. Our CAE designation has resulted in a steady growth of student enrollment, engagement of faculty in course and program developments, and thriving student research and scholarship for service experiences through the NSA Cybersecurity National Action Plan (CNAP) grant in 2017 and DoD Cyber Scholarship (DoD CySP) funding since 2019.

Ongoing faculty research on hardware security, IoT, artificial intelligence, and physical security further strengthens the training of high quality and skilled cyber defenders for our country.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

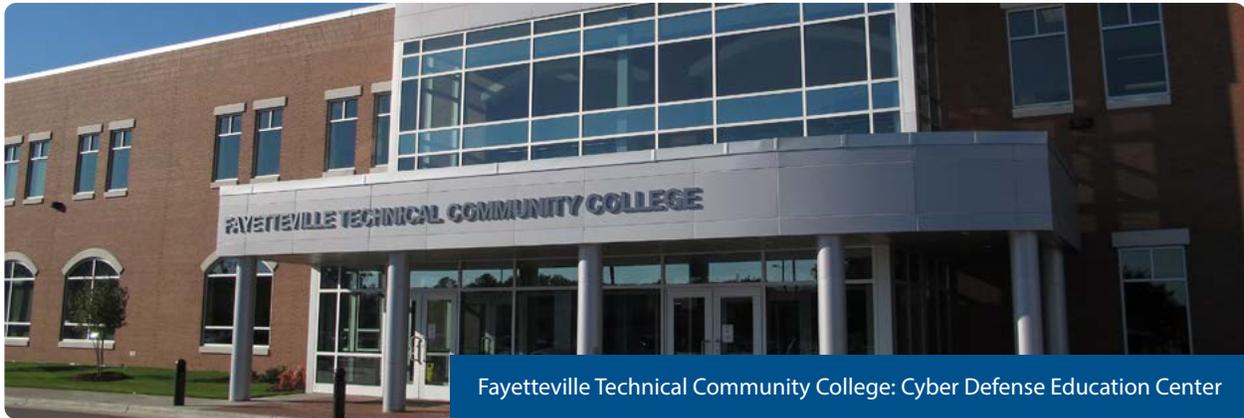
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Robotics Lab - Metropolitan Campus



Fayetteville Technical Community College: Cyber Defense Education Center

The Systems Security & Analysis (A25590S) program at **Fayetteville Technical Community College** is an Associate in Applied Science (AAS) degree concentrated under the Information Technology program. The curriculum offered in this program provides individuals with the skills required to analyze and implement effective and comprehensive information security controls. While in the program, students will learn about the theoretical aspects of cyber security and receive hands-on education and experience using skills-based labs. The program also integrates instruction and objectives from several of our academic partners including Cisco, CompTIA, EC-Council, Palo Alto, and Red Hat. Upon graduating, students will qualify for employment in entry-level positions with businesses, educational systems, and governmental agencies which rely on computer systems to design and manage information.

Fayetteville Technical Community College also works closely with our local Fayetteville / Ft. Bragg ISSA (Information Systems Security Association) to host monthly meetings, workshops, and an annual cybersecurity conference. The program is also affiliated with the local Women's Society of Cyberjutsu (WSC) Southeast regional chapter. WSC's mission is to advance women in cybersecurity careers by providing programs and partnerships that promote hands-on training, networking, education, mentoring, resource-sharing and other professional opportunities.

The program also has a student-led Cybersecurity Club that works to raise cybersecurity awareness both on campus and in our local community. The Cybersecurity Club also participates in several cybersecurity competitions such as the National Cyber League (NCL) in the team and individual games.

In 2019, Fayetteville Technical Community College was named Academic Innovator of the Year Award by EC-Council, an organization committed to expanding Cyber security career paths in higher education. The Red Hat Academy at Fayetteville Technical Community College has earned the Red Hat Training Academy Innovators Award by Red Hat for the 2019-2020 academic year, with FTCC's student ambassador of the academy earning the 2019-2020 Student Ambassador of the Year. During Red Hat's recent 2021 North American Training Partner and Instructor Conference, FTCC was given the Director's Award for Red Hat Academies. Holley was given the Director's Award for Red Hat Academy instructors.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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There are several things that distinguish the ISI programs at **Ferris State** as one of the top 25 in the nation. In 2017 the ISI undergraduate program earned ABET Engineering Accreditation for Cybersecurity (one of the first seven universities in the nation to achieve this distinction). ABET is evidence that a collegiate program meets standards essential to produce graduates ready to enter the critical fields of STEM education. The ISI undergrad and MISI masters programs rank highly by many national organizations and are the premier Cybersecurity degrees in the State of Michigan. Roughly 98.4% of ISI graduates surveyed over the past three years indicated they would choose ISI program if they had it to do over again.

We are proud of our cybersecurity industry partnerships which help us to train the next generation. For example, the Department of Defense

DESIGNATIONS

- CAE-Cyber Defense

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Cyber Crime Center (DC3) and the Air Force Office of Special Investigations has named Ferris State University as the first university in the United States to obtain designation as a Center of Academic Excellence in Digital Forensics. The National Science Foundation and other foundations have also awarded Ferris State with research grants which have resulted in extensive publications in multiple journals, books, and periodicals. Work has been cited in the United States Supreme Court; landmark case Riley v. California.

Faculty at Ferris State, which include a Distinguished Professor, Fulbright Scholar, and International Educator of the year, average over 15 years of work experience ranging from leadership positions in multibillion-dollar corporations to law enforcement and licensed professional investigators. These members have taught on 4 continents that includes teaching digital forensics to the entire federal cybercrime units in Chile and Perú. Our faculty members have been certified in many industry certifications and as expert witnesses in multiple courts.

Ferris State Alumni have distinguished themselves as leaders dozens of organizations worldwide. The current student body includes graduates from over 50 countries. Students also compete in multiple cybersecurity competitions and frequently finish in the top 10% nationally. Ferris State has Michigan's most advanced digital forensic research lab equipped with EnCase, FTK, Nuix, Cellebrite, XRY, Passware, Maltego, Shadow Dragon, i2, Digital Laser microscopes and much more. Active student organizations include the Information Security & Intelligence Association and Women in Cybersecurity.



Florida Atlantic University's Center for Cryptology and Information Security (CCIS) was established in the fall of 2003 by Spyros Magliveras as a FAU College of Science center with funding provided by a federal earmark. Today it is founded on the unique strengths of cryptology and information security specialists in four different colleges of FAU: the College for Design and Social Inquiry, the College of Business, the College of Engineering and Computer Science, and the College of Science. In July 2016, FAU and the Airforce Research Laboratory, Information Directorate, Rome, New York, US (AFRL/RI) entered into an Education Partnership Agreement for a period of 5 years. Moreover, CCIS established an MoU with the Spanish National Cybersecurity Institute (INCIBE).

Research of the center faculty is funded through various national and international sources and covers

a broad spectrum of topics, including cryptology, cybercrime, cyber forensics, operational cybersecurity, critical infrastructure security, data analytics, internet measurement, secure systems, security from an interdisciplinary perspective, social perspectives of information security, and more.

Center faculty is actively involved in the organization of major scientific conferences, and two managing editors of the Journal of Mathematical Cryptology are with CCIS. FAU is well known for its work in quantum-safe cryptography, including the co-authorship of four semi-finalists in NIST's ongoing standardization effort in post-quantum cryptography, participation in an International Telecommunication Union's study group to develop standards for quantum cryptography, and a 2018 NATO Science for Peace and Security Partnership Prize for a project in the area of post-quantum cryptography.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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At **Florida A&M University**, we recognize the incessant importance of information security. The **Florida A&M University Center for Cyber Security (FCCS)** recognizes that as technology advances, the world becomes progressively more challenging. FCCS focuses on education and research and development for all aspects of information security, including systems vulnerability assessment, theory development and formalization methodologies and mobile digital forensics. FCCS is aligned with and supportive of Florida A&M University values and mission which include:

- To promote, coordinate, implement education research and innovation in cyber defense and cybersecurity
- Ensuring participation in FCCS research projects and educational endeavors is open to faculty, visiting scholars, undergraduate, and graduate

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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- students including students from diverse disciplines and underrepresented populations
- Promote and value teaching, scholarships, and active learning
 - Encourage experimentation, innovation, and creativity and involve graduate and undergraduates in cyber defense and cybersecurity research

FCCS core objectives and purpose include:

- Offer coursework leading to certificates in Cyber Defense and Cybersecurity that align with National Security Agency and Department of Homeland Security standards as defined by the National Centers for Academic Excellence Cyber Defense Program Office
- Increase minority participation in Cyber Defense and Cybersecurity related careers
- Support university initiatives and projects Cyber Defense and Cybersecurity
- Establish a program of research in Cyber Defense and Cybersecurity
- Serve as a community, regional, and national resource for educational institutions, small businesses, and the general population

The activities of the FCCS fall into five major areas which include:

- Research
- Curriculum and standards
- Education and training
- Service and outreach
- Efforts to gain certification as a CAE-CD



In 2009, **Florida Tech** founded the **Harris Institute for Assured Information (HIAI)** to serve as the University's focal point for research and education in cyber defense. The National Security Agency and Department of Homeland Security designated Florida Tech as a Center of Academic Excellence in Research in 2011.

HIAI provides labs and infrastructure for faculty and students engaged in cyber defense-related research. The president of Florida Tech and board of trustees designated cybersecurity as the first of five Pillars of Excellence. This designation represents the University's commitment to cyber defense research and education with significant local and national impact.

Research at HIAI includes distributed coordination and command and control for cyber operations,

cyber emulation environments, human-computer interaction, biometric authentication, and Internet of Things. Over the past 5 years, HIAI has been awarded over \$9 million in research funding and has supported the cyber defense-related research activities of a total of 12 Ph.D. and 9 master of science students.

Faculty and students at Florida Tech actively participate in research in all six of the core cyber defense areas, as demonstrated by a wide variety of publications, patents, research collaborations, and technology transfer agreements with local and national corporations, government agencies and universities, including DHS, DARPA, DoD, AFRL, Mitre, Harris Corporation, Raytheon/BBN, Notre Dame University, University of Florida, and Worcester Polytechnic Institute.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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Florida Memorial University

Florida Memorial University is a Historically Black College and University (HBCU) in Miami Gardens, Florida, and is one of the oldest HBCUs in the state. Founded in Live Oak in 1879, FMU relocated to St. Augustine in 1900, and moved to its current location in 1968.

FMU has a culturally diverse and international student population and is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). The University offers undergraduate and graduate degree programs designed to prepare students for today's highly competitive technological society.

The Department of Computer Science, Math, and Technology has developed a Bachelor of Science in Cybersecurity that aligns with the mission of the University to prepare students to function in

a highly competitive, technological, and global society.

The Cybersecurity program complements the current ABET accredited computer science and information systems programs. According to labor market data, Cybersecurity is one of the fastest growing sectors in computer science. Individuals with these degrees have several job titles including Network Security Consultant, Infrastructure Security Consultant, IT Security Analyst, Cyber Intelligence Analyst, and Information Assurance Engineer.

The Cybersecurity degree also is designed to attract prospective computer science professionals seeking to advance into a growing Cybersecurity specialty in areas such as medicine, law enforcement education, financial, and governmental sectors.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Teamwork/Collaboration



Florida State College at Jacksonville's (FSCJ)

Associate of Science in Information Technology Security degree program is for individuals interested in beginning or advancing a career in computer and network security. This hands-on program focuses on digital forensics, intrusion detection, penetration testing, scripting, and networking. The program provides students the skills needed to investigate computer, cyber, and electronic crimes and focuses on digital forensics techniques and procedures, assuring that digital evidence is accurate, complete, and reliable. Students with specific current industry-recognized certifications such as CompTIA's A+, Security+, Microsoft, and Cisco may receive credit for the associated college credit course.

FSCJ Center for Cyber Security works to advance the practice and public awareness of IT security through education and service. Our faculty offer guidance to

students, members of different academic disciplines across the College, local government, and industry partners.

FSCJ hosts hands-on summer camps for local teenage students interested in cybersecurity. The camp was developed by FSCJ, FBI Jacksonville Cyber Squad, and InfraGard. During the camp, students worked with FBI agents who helped them understand the importance of behaving responsibly online. The camp also provided hands-on, behind-the-scenes access to some of the FBI's work, a SWAT demonstration with special agents in full uniform, remote-controlled robots, and life-saving equipment. The camp introduced boys and girls ages 14-17 to the world of cybersecurity. It showed them all the opportunities available for those who want a future in fighting cybercrime.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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The **Fordham Center for Cybersecurity** offers an intellectual home for cybersecurity students and faculty and for the broader Bronx community. This interdisciplinary center brings together diverse members of the Fordham community to promote educational, research, and service projects in the area of information and computer security that benefit our neighbors and fellow New Yorkers.

Designed for both working professionals and students and taught by leading experts in academia and industry, Fordham's unique, one-year Master of Science in Cybersecurity is delivered in the heart of New York City through a combination of weekend, evening, online, and hybrid courses. Offering small classes and close mentorship, this program offers six classes (up to 12 credits) online and in-person.

Using methods in computing, information science,

engineering, and social science, our students learn how to identify solutions to global cyber threats while mastering legal, ethical, and policy issues in this critical field of study. Fordham's core curriculum is designed to focus exclusively on cybersecurity, which provides students with the depth of knowledge and formal training that is ever more vital to employers across the professional cybersecurity landscape.

With nearly one in five Americans falling victim to a cybercrime, the demand is high for skilled analysts with cutting-edge knowledge of how to detect, prevent, and recover from a cyberattack. Our graduates are fully-prepared to help protect commercial networks, critical information infrastructure, and national security information systems and can feel confident that their academic program will prepare them to compete successfully for rewarding careers in this growing and lucrative field.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Forsyth Technical Community College advances student success through excellence in learning, completion, equity, and post-graduation outcomes. We are a catalyst for equitable economic mobility, empowering lives and transforming communities.

Forsyth Tech has been serving the citizens of Forsyth and Stokes counties since 1960. We began as the Winston-Salem/Forsyth County Industrial Education Center, offering vocational instruction and training in skilled trades.

Today, as Forsyth Technical Community College, we still offer those programs, as well as college transfer and two-year degree programs, corporate training, continuing education, personal enrichment classes and much more. We offer 86 Associate Degrees, 24 online programs, 4 Transfer Degrees, 34 diplomas and 78 certificates. We serve over 11,000+ continuing

education and curriculum degree students around our communities of Forsyth and Stokes counties.

As the Davis iTec Cybersecurity Center, our Mission is to proactively increase our understanding of robust cyber defense (CD) technology, policy and practices that will enable our Nation to effectively prevent and respond to a catastrophic cyber event. This program will contribute significantly to the advancement of a skilled cybersecurity workforce.

We will establish a process that will provide programs that commit to excellence in the field of cyber defense education at community and technical colleges and government training institutions. We will provide innovative, comprehensive, and multidisciplinary education and training in the cyber defense field. We will strengthen the cybersecurity workforce by providing cyber defense education and training through degree and certification programs at community and technical colleges and government training centers.

We will build an effective education pipeline model with K-12 schools to encourage students at an early age to enter cyber defense fields of study. We will provide the Nation with a pipeline of qualified students poised to become the future skilled technical workforce. We will continuously improve the quality of cyber defense programs, curriculum, faculty, students, and other institutions.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Franklin University was founded in 1902 in Columbus, Ohio

For more than 115 years, **Franklin University** has been the place where adult learners can complete their degrees faster. From our Main Campus in downtown Columbus, Ohio, to our convenient online classes, this is the place where working adults learn, prepare, and achieve.

Franklin University is the first four-year, private institution in Ohio to hold the CAE-CD designation. Our transfer-friendly, online B.S. Cybersecurity program is especially popular with over 150 community and technical college partners. Franklin works with partner colleges both in our region and nationally to ensure that cybersecurity students have a direct pathway to finish a four-year degree and jump into their cybersecurity careers.

The cybersecurity program is led by faculty who are both thought leaders and practitioners. They partner

with an advisory board of business and industry leaders who provide guidance on theory-to-practice ideas, global business perspectives, and emerging topics.

Students benefit from Franklin University's reputation for excellence in curriculum and course development that create learning experiences to address prevailing security concerns within industries and communities. Students also receive real-world experience as they work with local businesses to prepare security plans, assess risk, penetration tests, run vulnerability scans, and assist with current security needs.

Franklin's Center for Public Safety and Cybersecurity Education engages both students and community members in cybersecurity education, with many community-facing events during the school year. As the Center seeks to expand cybersecurity education, we've created workshops for small businesses, online microcredentials such as a Certificate in Cloud Security and partnered with CompTIA to provide real-world certifications to our students.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Franklin University Graduation, Fall 2021



FULLERTON COLLEGE



Fullerton College Campus

Fullerton College, founded in 1919, is the oldest California community college in continuous operation. Sitting on 83 acres of land in Fullerton, California, the college offers 122 Associate degree programs, 110 career technical education certificates, and 25 Transfer Associate degrees. Fullerton College transferred the most students to the California State University system twice in the last five years. Additionally, the college has been the number one transfer institution to California State University Fullerton every year for the last five years. Fullerton College serves about 30,000 students, with half of those students identifying as Hispanic/Latino, and the College qualifying for designation as a Hispanic Serving Institution and an Asian American and Native American Pacific Islander-Serving Institution.

The Fullerton College CAE Cyber Defense Education program prepares students for their academic goals,

transitions to four-year universities, and increases awareness to be better digital consumers or entry into the cybersecurity workforce. Fullerton College offers an Associate degree and stackable certificates in cybersecurity to provide students with knowledge and skills that align with the CAE Knowledge Units. The program teaches students essential cybersecurity concepts and positions them to address the shortage of trained cybersecurity professionals. Additionally, the curriculum prepares them to pursue industry-recognized cybersecurity certifications.

The Fullerton College Hornet Security Education Center fosters partnerships with industry, educational institutions, and professional organizations. Students benefit from extracurricular activities, career fairs, competitions, industry guest lecturers, and the expertise of knowledgeable faculty and practicing professionals.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Fullerton College Students



GMU Campus

Located near Washington, DC, **George Mason University (GMU)** has grown rapidly over the past half-century and is recognized for its innovation and entrepreneurship, remarkable diversity, and commitment to accessibility. As Virginia's largest public research university, GMU enrolls 37,000 students from 130 countries and all 50 states. GMU's graduates lead all public universities in Virginia with the highest starting salaries, and 80 percent of GMU degree earners are employed within six months of graduation, making GMU rank among the top 100 universities for best value.

In 2016, GMU was named a Tier 1 research university, the highest designation from the Carnegie Classification of Institutions of Higher Education. The driving forces behind research at GMU are to solve real-world problems and to serve as an engine of innovation for the region and state. Some of GMU's

most notable research includes developing new techniques and algorithms to secure the cyberspace.

George Mason University is one of the National Security Agency's original seven Centers of Academic Excellence in Information Assurance Education. GMU currently holds the designation of a Center of Academic Excellence in both Cyber Defense and Cyber Research through 2021.

The Center for Secure Information Systems was established in 1990 as the first academic center in security at a US university and leads cyber defense research at GMU. GMU's academic programs include a BS in Information Technology, with concentration in Information Security, and a BS in Cyber Security Engineering.

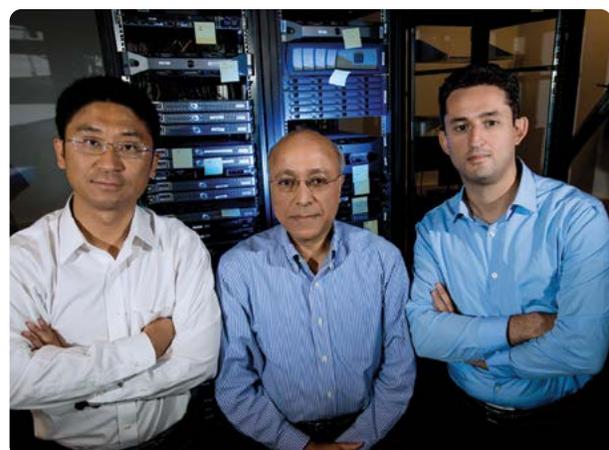
DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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CSIS faculty members Kun Sun, Sushil Jajodia, and Massimiliano Albanese



Georgia State University (GSU) is a public research university based in Atlanta, GA, the largest institution of higher education in the state of Georgia and in the top 10 in the nation with more than 54,000 students. GSU ranks among the nation's top universities in Carnegie Foundation's elite category of "R1: Doctoral Universities - Very High Research Activity" and is the only university in Georgia to have received both CAE-R and CAE-CD designations.

The Information Security and Privacy: Interdisciplinary Research and Education (INSPIRE) Center is an interdisciplinary center at GSU that brings together individuals and units with an interest in the areas of cybersecurity and privacy, and serves as a central point of collaboration for researchers from units across the campus. The interdisciplinary collaborations enable us to draw insights from different perspectives and effectively address

today's multi-faceted and complex cybersecurity and privacy challenges.

GSU is a minority-serving institution (MSI), a predominantly Black institution (PBI), and leads the nation in graduating minority students. It ranks No. 1 in the nation among not-for-profit institutions as well as the nation's historically black colleges and universities (HBCUs) in awarding bachelor's degrees to African American students. The university has very high racial diversity and 74% percent of students are minorities or people of color (BIPOC) and the diversity of its student body continues to grow. It graduates more Hispanic, Asian, first-generation, and low-income students with a bachelor's degree than any other university in Georgia.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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One of the most successful feeder institutions into the federal cybersecurity workforce pipeline, educating and sending computer security experts into government service since 2004, is **The George Washington University (GW)**, with its Partnership in Securing Cyberspace through Education and Service (Project PISCES). Through its Cyber Security and Privacy Research Institute (CSPRI), GW is a Center of Academic Excellence in Research (CAE-R), focusing on research areas in cryptography, secure elections, mobile security, related AI, and social implications of cybersecurity.

GW provides education opportunities for students with diverse backgrounds to become cybersecurity professionals and help protect the safety and security of our nation's information infrastructure. We do this by combining scholarships, community college student access, university coursework across

disciplines, internships, laboratories, and government service. The unifying and reinforcing Signature Seminar uses current practitioners and recognized leaders in cybersecurity to inspire and motivate our CyberCorps®: Scholarship for Service (SFS) students. It prepares them with the knowledge, perspective, and expertise to perform well in their future government positions, repay their obligation as scholarship recipients, and serve their country.

Our multidisciplinary academic program in cybersecurity and our location five blocks from the White House and a few miles from hundreds of government agencies combine to make GW's CyberCorps® program attractive for students and for the government. Our very high placement rate for CyberCorps® graduates reflects that fact, as does our success in recruiting and graduating higher than average numbers of women in the field.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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Germanna Community College (GCC) has proudly served the greater Culpepper and Fredericksburg Virginia region for 50 years. We provide accessible, high-quality educational and training opportunities that address our communities' diverse and changing learning needs. Our proximity to Washington, DC and nearby government military facilities such as Marine Corps Base Quantico, Naval Surface Warfare Center Dahlgren, and US Army Fort AP Hill means our students must be ready to support the cybersecurity needs of our region.

Germanna is recognized as the region's leader and preferred partner providing excellence in accessible educational opportunities and related services to our communities. Our quality learning experiences enable students to participate effectively in the social, economic, political, intellectual, and cultural life of their communities. Germanna is the premier gateway

to personal and community development, ranked as the #1 community college in Virginia and recognized as an *Aspen Prize Top 150 U.S. Community Colleges*.

Students can choose to start their career in cybersecurity with a one-year program such as the Cybersecurity & Networking Foundations Career Studies certificate, use those credits to earn a more advanced career studies certificate as a data center technician/IT technician, then earn their Associate of Applied Science in Cybersecurity, Networking, Information Systems Technology, or IST Cloud Computing. Germanna's programs allow students to seamlessly transfer to premier 4-year colleges and universities to continue their education. Our degree programs include student internship opportunities with area employers. Students from all over the world can choose to study at Germanna through our online course and degree offerings.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Grand Canyon University Campus

Find your purpose in technology at **Grand Canyon University's College of Science, Engineering and Technology**, where students are encouraged to be active participants in their training while preparing for careers marked by service, integrity, ethical decision making and concern for the common good. Our faith-integrated, interactive learning environment invites students to embark on an educational journey that extends beyond textbook and classroom learning. Joining our ambitious technology community is an opportunity to truly design, create and apply. Students are inspired to experience the purposeful and lifelong task of leading the scientific and technological revolution while also serving humanity.

Our dedicated faculty help students in this program start exploring their future vocation by simply identifying what they enjoy doing, such as solving

societal problems, thinking outside the box and improving quality of life. Through discovering these passions, they can choose a top degree program like computer programming, technology management or cybersecurity and learn in a unique and deeply nurturing Christian setting.

With the field of cybersecurity and the need for protecting our cyber products and networks rapidly growing, GCU's Bachelor of Science in Information Technology with an Emphasis in Cybersecurity program helps students prepare for a variety of employment opportunities within this line of work. In this program students learn valuable skills such as: ethical hacking, coding and relevant programming languages that current industry professionals are using — equipping them with the necessary skills and information to excel in whatever career they choose to pursue.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Cyber Student at GCU



**GREAT FALLS
COLLEGE**
MONTANA STATE
UNIVERSITY

GREAT FALLS COLLEGE MONTANA STATE UNIVERSITY



Great Falls College Montana State University Campus

Great Falls College Montana State University is a two-year institution located in Great Falls, Montana. In 2019, it was designated as a Center of Academic Excellence in Cyber Defense for its Associate of Applied Science (AAS) in Network Support and Security degree. The degree is one of five computer technology degrees available through the college, including a Certificate of Technical Studies (CTS) in Cybersecurity for those already working in the computer industry who want to add to their skills and an AAS in Cybersecurity for those just entering the field. Outcomes for these programs are based on the National Institute for Cybersecurity Education (NICE) framework. An added bonus for students - they can complete the CTS in Cybersecurity and an AAS in Programming completely online.

At Great Falls College MSU, students have a lot of opportunities. They can earn industry credentials

such as CCNP, MCSA, CompTIA Network+, CompTIA PenTest+, and CCNA Security. Because of a collaborative working relationship with the military and local community industry partners, students have access to up-to-date training, which includes hands-on experiences and collaborative projects to simulate the workplace and culminates with an internship or capstone project.

On campus, students are able to participate in a Cyber Club, mentor high school and middle school students, and participate in cyber competitions. Of course, none of this would be possible without a strong faculty committed to teaching with backgrounds in government, military, finance and healthcare to distinguish the program.

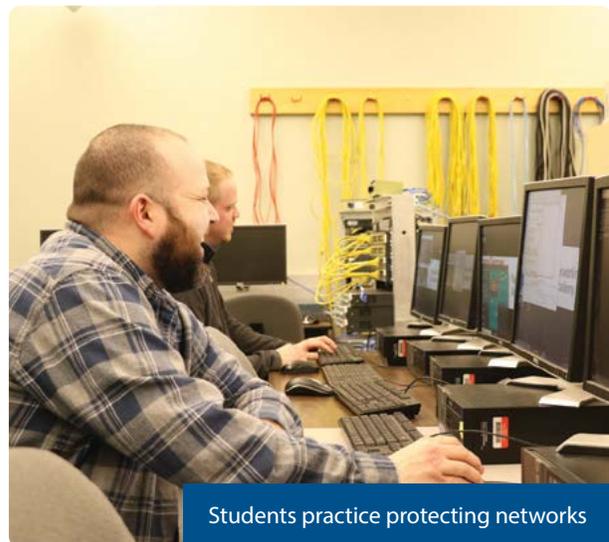
DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Students practice protecting networks



GRC Instructor

Green River College's AAS-T in IT Systems and Security program prepares students for entry-level employment in a variety of IT positions such as help desk technician, technical support specialist, network technician, and network or computer systems administrator. Students receive foundational training in a broad range of networking, systems administration, and software development, resulting in a well-rounded knowledge of information technology.

Currently, the AAS-T IT program has over 400 students enrolled in classes. During the second year of the program, students are able to choose between a focus on Software Development or Network Administration and Security. Individuals who graduate from the AAS-T program are able to continue their education at Green River College with a Bachelor of Applied Science Degree in either

Network Administration and Security or Software Development.

Students interested in the AAS-T program can complete classes on campus, in the evenings, or fully online. Classes are offered year round with the option for students to start any quarter. Funding is available through generous college foundation scholarships, financial aid, and worker retraining if applicable.

With over 400 AAS-T students, more than 300 BAS students, and 11 full time faculty to help guide them through the learning process, Green River College is excelling at training IT professionals that are prepared to start work immediately after graduation.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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GRC Cybersecurity Student



Lawrenceville Campus

The National Security Agency (NSA) and the Department of Homeland Security (DHS) have designated **Gwinnett Technical College** as a National Center of Academic Excellence in Cyber Defense Two-Year Education (CAE2Y) through academic year 2025. The goal of the CAE2Y program is to increase the understanding of Cyber Defense (CD) technology, policy, and practices that will enable our nation to prevent and respond to a catastrophic cyber incidents and events. This CAE2Y designation recognizes that Gwinnett Technical College meets the increasing demands of the program criteria that contribute significantly to the advancement of state-of-the-art CD knowledge and practice by developing this important technically skilled workforce. This designation, issued jointly by the NSA and the DHS, is one of the most prestigious recognitions for cybersecurity excellence a college can receive. Gwinnett Tech is

the first-two-year college in Metro-Atlanta to receive this distinction.

Gwinnett Tech students will learn to master the 15 core competencies identified by NSA/DHS as appropriate for two-year programs. These include cyber defense, security design, cryptography, and ethics. The college designed the coursework to prepare students for entry-level positions in the cybersecurity workforce and to help them to prepare for and pass multiple cyber-related industry certification examinations required by many employers. Dr. D. Glen Cannon, president, states, “This designation brings recognition and prestige to our college, and greatly enhances our graduates’ pursuit of an exemplary cybersecurity career. Our students will be workforce ready to take on any cyber challenge they meet, whether working for in private, public, or government sector.”

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Alpharetta-North Fulton Campus



The Information Assurance and Cybersecurity Center at Hampton University (IAC@HU)

is a multidisciplinary center devoted to information assurance, education, research, and training. The center provides program and curriculum development, workshops, multidisciplinary research opportunities, outreach to other HBCU/MI's and community colleges, and access to information assurance and cybersecurity research resources. As part of the Center, the Information Assurance and Cybersecurity Lab (IA lab), located in the Computer Science Department, provides an isolated networked computer environment suitable for information assurance and computer security education, research, and training. The goals of the IAC@HU include:

- Providing students with educational opportunities in information assurance and

- computer security
- Providing an information assurance and computer security research environment for faculty, staff, and students
- Providing information assurance and computer security resources not only within the University, but also to the local community, including law enforcement, government, business, and the public
- Providing opportunities for enriching information assurance education across the curriculum

The IAC@HU is designated as a Center of Academic Excellence in Cyber Defense (CAE-CD) by the Department of Homeland Security (DHS) and National Security Agency (NSA) through 2021. The information assurance and cybersecurity topics are integrated into the undergraduate curriculums offered within the Department of Computer Science: Computer Science (CSC), Computer Information Systems (CIS), and Cybersecurity – Computer Science track (CYS). These curriculums reflect existing advanced technology and provide Hampton University students with knowledge of state-of-the-art computer security and information assurance technology. Information assurance and cybersecurity is one of the most important areas in information technology, computing and general high technology areas. All three undergraduate curricular (B.S. in Computer Science, Computer Information Systems and Cybersecurity – Computer Science) meet the Center of Academic Excellence in Cyber Defense (CAE-CD). Students completed the CAE-CD course requirements will receive a certificate of completion.

DESIGNATIONS

- **CAE-Cyber Defense**

CONTACT INFORMATION

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Highline College campus

Highline College is proud to be a CAE-CD with two of its programs – Digital Forensics & Investigations AAS and Network Security Engineer AAS mapped to the KUs. Highline was one of the community colleges who originally mapped to the 4011 and 4013e. Once the KUs were established, Highline remapped to those earning a re-designation for six years.

The CIS / Computer Science department has had a networking degree since the late 1990s. By 2003, the department added Network Intrusion Detection along with Data Recovery and Forensics (now known as Digital Forensics). The introduction of the Bachelor of Applied Science in Cybersecurity and Forensics shows the dedication not only of the department but of the institution to the program by becoming the first BAS offered at Highline to be approved by the WA State Board of Community and

Technical Colleges.

The institutional support and that of the IT Staff is further shown in that Highline has hosted the Pacific Rim Collegiate Cyber Competition (PRCCDC) for over a decade. Since 2016, the Highline AAS and BAS students have been a part of the build team for this annual event. They also support and run the International Collegiate Cyber Defense Invitational (ICCDI). Our students also compete in the DoE Cyberforce Competition™ ranking 10th in the November 2018 event.

Highline is the oldest college in King County, WA now in its 57th year. It is also the fifth most diverse college in the United States with over 80 languages spoken here.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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ICCDI Student Designers



Hill College Hill County Campus

The mission of **Hill College** is to provide high quality comprehensive educational programs and services. The college enhances the educational, cultural, and economic development of its service area and assists both individuals and the community to prepare for a more productive life.

Hill College has a long-standing tradition of quality and comprehensive technical education programs. With 28 school district partners, the college can promote cybersecurity awareness, course offerings, curriculum sharing, and professional development.

Hill College is designated as a National Center of Academic Excellence in Cyber Defense Education for its Associate of Applied Science (AAS) in Computer Science, Networking Cybersecurity. The curriculum path includes the completion of stackable certificates leading to the AAS. Computer Science -

Technical Core Certificate of Completion, Computer Science - Networking Cybersecurity Certificate of Technology, and Networking Cybersecurity AAS prepares students to complete nationally recognized industry certification exams such as Microsoft's networking administration, CompTIA A+, Security+, and Network+.

Through these partnerships, discounted exam vouchers are provided to students. As a member of the North Texas Community College Consortium, students enjoy seamless transitions from the AAS to four-year institutions. Hill College has university partnerships with 15 colleges, providing avenues for collaboration with the cybersecurity program.

We are proud to partner with industry leaders ensuring students obtain marketable skills needed for successful technical careers. The Computer Science department works closely with Workforce Education, providing corporate training utilizing the Texas Workforce Skills Development Grant and The Texas Workforce Commission's Small Business Grant.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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HCC CSNT students

The core cyber defense education program at **Honolulu Community College (HCC)** is the Computing, Security, and Networking Technology (CSNT) Program. Previously known as the Computing, Security, Electronics, and Technology (CENT) Program, the new name reflects the focus of the program and becomes official starting in the fall of 2019 at HCC.

The CSNT program provides students with extensive hands-on training in information and communication technology. Most courses include a laboratory component where students gain experience configuring and managing physical and/or virtual systems located in the classrooms or the CSNT datacenter. The embedded Certificate of Achievement (CA) in Information Assurance (IA) is built on the Knowledge Unit (KU) requirements for a collegiate institution to be recognized as a

CAE-CD. The program supports industry recognized certifications including A+, LINUX+, Security+, CCNA, and MCP.

The CSNT program also offers third year courses that articulate to the Bachelor of Applied Science in Information Security Assurance at the University of Hawaii at West O’ahu. Non-credit education course offerings at HCC are supported by the Pacific Center for Advanced Technology Training (PCATT). PCATT offers an extensive selection of cybersecurity related courses for industry professionals looking to upgrade their skills or learn new skills. Cybersecurity related courses offered include, Security+, CISSP, CEH, CCNA Security, MCSE, and much more. PCATT also offers customized training to meet the needs of your organization.

DESIGNATIONS

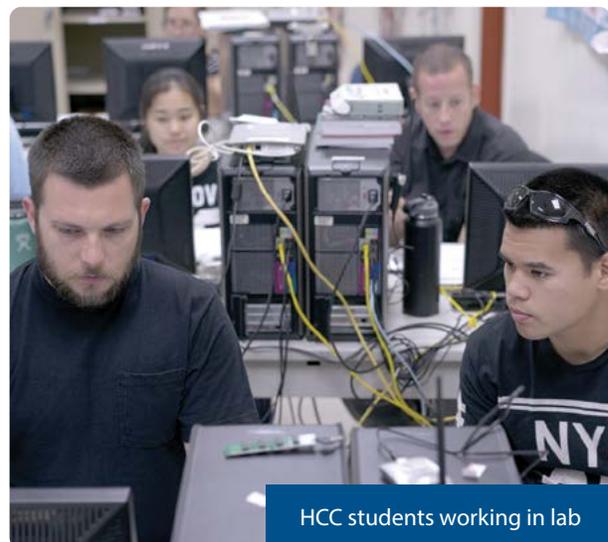
- CAE-Cyber Defense

CONTACT INFORMATION

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HCC students working in lab



Houston Community College campus

Houston Community College (HCC) is composed of 15 Centers of Excellence and numerous satellite centers that serve the diverse communities in the Greater Houston area by preparing individuals to live and work in an increasingly international and technological society. HCC is one of the country's largest singly accredited, open admission community colleges offering associate degrees, certificates, workforce training, and lifelong learning opportunities.

HCC established a Cybersecurity center under the HCC Digital and Information Technology Center of Excellence. HCC is committed to excellence in Cybersecurity and Cyber Defense education. The Houston Community College Cyber Center's goal is to provide cybersecurity education, information, and awareness to our community.



One of fifteen HCC campuses

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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HCC being awarded the CAE-CD designation



Located in Columbia, Maryland, **Howard Community College** has been helping students to achieve their academic goals since 1970. The mission of the college is to provide pathways to success; the mission of the cybersecurity department is to develop in students the ability to protect and defend cyberspace and to promote cyber awareness and best practices within their communities.

The cybersecurity courses at HCC map to industry exam certifications such as the CompTIA Net+, Security+, CySA+, CCNA, and the EC-Council CEH. Students benefit from industry partnerships and resources for experiential learning, opportunities for extracurricular and cyber competitions, and the expertise of experienced faculty and practicing professionals. Closely tied with the cybersecurity program is an apprenticeship program with AT&T and SCD Information Technology.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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HCC also offers an Early College program in which high schoolers complete half of their A.A. program before graduating from high school; they complete the second half of the A.A. within a year following their high school graduation. HCC also offers certificate programs to career changers, including Network Security Administration, Cisco, Digital Forensics, and Cloud Operations and Security.

HCC's Science, Engineering, and Technology Building houses many of the classrooms used for the cybersecurity program, and includes state-of-the-art technology and facilities with hands-on lab instruction.

HCC cybersecurity graduates may take advantage of HCC's transfer agreements and continue to 4-year programs or enter the workforce. Possible career paths include entry to intermediate industry positions such as information security specialists, and network administrators.

HCC is also the 2019 winner of the Malcom Baldrige National Quality Award in the category of education.





Idaho State University (ISU) located in Pocatello, Idaho, is designated as a Center of Academic Excellence in Cyber Defense and continues to be a leader in cybersecurity.

The Industrial Cybersecurity Engineering Technology program prepares students to secure the systems that control power plants, oil and gas pipelines, and manufacturing facilities. The Information Assurance program (IAP) defines new directions and leads students to the beginning of a life-long learning process that helps them continue to define the future. The IAP program emphasizes information systems and security skills in organizations and many technical disciplines. Graduates from the IAP are information systems professionals with a broad spectrum of both technical and managerial skills. Our emphasis is on policy and procedure as well as training, education, and people issues. A recently

added Master of Science in Computer Science and new faculty enhances this program. ISU continues with outreach to the intermountain area through:

- Cyber range competitions
- Public media broadcasts
- K-12 classroom lectures
- Radio podcasts
- Regional and student newspaper editorials
- Journal publications
- ACM club meetings
- Poster sessions in the ISU SUB
- Awareness broadcast on the ISU broadcast system

As one of the original seven CAE programs, we continue to attract qualified students to enter the federal government through superior education, training, and awareness in cybersecurity for Idaho, the intermountain west, and the Nation.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Illinois Institute of Technology (IIT) is world renowned for research and education in engineering, architecture, law, and design, and has now brought this same focused, real-world educational quality to cybersecurity. The only university in Illinois to earn ABET accreditation in information technology (IT), Illinois Tech's Department of Information Technology and Management now offers a Bachelor of Science in cybersecurity and IT in a curriculum designed to be accredited in both areas. The Master of Science in cybersecurity and digital forensics provides expanded opportunities for research, and the professional Masters' in the field is not only available at the Chicago campus but can be completed entirely online. Students, faculty, and practitioners have an opportunity to present research at Illinois Tech's annual ForenSecure, a regional Chicago-area cybersecurity and digital forensics conference now in its 17th year. Illinois Tech cybersecurity education

and ForenSecure are supported by the Center for Cyber Security and Forensics Education (C2SAFE) and the School of Applied Technology Forensics and Security Laboratory (ForSec Lab). C2SAFE is a collaborative space where business, government, academia, and security professionals intersect. The ForSec Lab hosts live lab facilities with multiple state-of-the-art workstations and is home to the Remotely-Accessible Dynamic Infrastructure for Students to Hack (RADISH) allowing students to have full access to lab resources from any location and from nearly any internet-connected device.

Illinois Institute of Technology offers quality, comprehensive cybersecurity education with significant depth and breadth in one of the world's great cities, opening tremendous opportunities for both students and faculty.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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ILLINOIS STATE UNIVERSITY



Illinois State University (ISU), founded in 1857, is the oldest public university in Illinois. Illinois State is a co-educational, residential university that offers 160+ degree programs to approximately 18,100 undergraduate students and 100+ graduate programs to about 2600 students. Illinois State works as a diverse community of scholars, educators, and staff to support our commitment to fostering a small-college atmosphere with large-university opportunities. Housed in the School of Information Technology, the Cybersecurity program at Illinois State is the first of its kind in the state and home to 300 undergraduate majors. Our program has been designated as a Center of Academic Excellence in Cyber Defense by the department of Homeland Security and National Security Agency since 2014.

Coursework in Cybersecurity significantly emphasizes hands-on learning for both defensive and offensive

aspects of the curriculum. The school has invested heavily in virtual lab environments, allowing students to work on practical aspects of Cybersecurity from anywhere with an Internet connection. A state-of-the-art Cybersecurity lab is currently under construction with a recent \$3M gift from State Farm Corporation and will significantly enhance our students' experience. Our relatively small class sizes offer students personal interaction with the faculty who are active researchers in a variety of fields in computer and network security. Our faculty enjoy the chance to work with students in undergraduate research and independent studies. The ISU security club offers students extracurricular opportunities via student led projects, and students in the club actively participate in cyber defense competitions. The school also hosts an annual high school cyber defense competition which has been well received in the Central Illinois region.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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IRSC Campus

As a leader in education and innovation, **Indian River State College (IRSC)** transforms lives by offering high-quality, affordable, and accessible education through traditional and online delivery.

The Cyber Center of Excellence (CCoE) at IRSC was formed in 2015 and received the Center of Academic Excellence in Cyber Defense designation from the NSA and DHS in 2018.

Our core mission is to:

- Deliver instructional excellence to students to
- help provide the InfoSec workforce with properly
- prepared cybersecurity professionals
- Strengthen and establish partnerships within
- the community to provide cybersecurity
- education, training, and student-led services
- Facilitate cybersecurity related training within

- every program and degree offered to elevate
- general cybersecurity knowledge across all
- disciplines
- Continue to develop and expand our visibility
- throughout our local K-12 educational facilities to
- enhance cybersecurity education and awareness

The Cyber Center of Excellence at IRSC brings together nearly a dozen computer science faculty with expertise in ethical hacking, digital forensics, network engineering, data analysis, machine learning, and secure programming. By combining cutting-edge labs with exceptional instruction in an engaging environment, our students are prepared to solve real-world security issues. Our industry certification voucher program enables students to achieve certifications from entities such as CompTIA, Microsoft, EC-Council, Cisco, and Offensive Security at no cost. IRSC's Advanced Technology Center offers multiple labs for students to get hands-on with the latest hardware and software technologies in a relaxed and fully staffed environment. Students may choose from online, in-person, or blended classes to fit their schedules, and 91% of our students graduate debt free.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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IRSC Cyber Classroom



Indiana University (IU) is a Center of Academic Excellence in Cyber Defense for both education and research. IU is a leader in addressing difficult cybersecurity challenges through our unique operational services, academic programs, and cybersecurity and scholarly research.

IU conducts broad scholarly research to investigate emerging trends and issues. Our research portfolio includes the Luddy School of Informatics, Computing, and Engineering which explores technology's role in society to help design better systems, Security and Privacy in Informatics, Computing, and Engineering (SPICE), and the Ostrom Workshop. IU is also home to Big Red 200 – an HP Cray Shasta supercomputer supporting AI/cybersecurity research. IU provides multiple avenues of study for those interested in cybersecurity.

These avenues include digital badges, executive education, undergraduate programs, and graduate degrees from the Luddy School of Informatics, Computing, and Engineering, the Hamilton Lugar School of International Studies, the Kelley School of Business, the Maurer School of Law, and unique interdisciplinary degrees and programs.

IU leads nationally recognized services addressing the unique needs of research and education. The GlobalNOC has been building and supporting national, international, and regional R&E networks for almost 20 years. IU leads the OmniSOC, a shared cybersecurity operations center service for higher education.

IU's Center for Applied Cybersecurity Research (CACR) leads the National Science Foundation's Cybersecurity Center of Excellence (Trusted CI) and the NSF-sponsored ResearchSOC. IU also leads the Research and Education Networks Information Sharing and Analysis Center (REN-ISAC) that promotes cybersecurity operational protections and response.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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INDIANA UNIVERSITY OF PENNSYLVANIA



For two decades, **Indiana University of Pennsylvania (IUP)** has been a leader in cybersecurity education and encouraged the growth of professionals in the field. The BS in Computer Science/Cybersecurity track (originally Information Assurance) was first offered in 2002. This new degree program combined core computer science and cybersecurity classes with a minor in criminology, creating a novel curriculum that helped students gain a broad understanding of the field and be work-ready. A minor in cybersecurity was also added in 2002 and continues to offer students in all disciplines a better understanding of cybersecurity.

IUP is one of the first institutions in the nation to receive designation by the National Security Agency (NSA) as a Center of Academic Excellence and has held this designation for almost two decades. In 2005, IUP founded the Institute for Cybersecurity (ICS) to further encourage and

promote cybersecurity at IUP and the surrounding community.

In the years since its creation, the ICS has established unique and high-quality cybersecurity programs fostering strong faculty research and teaching expertise, and provided unprecedented cybersecurity learning opportunities, including the annual Cybersecurity Days, weekend workshops, and summer camps open to all students and teachers in the local community. Recently, IUP's cybersecurity program has experienced record student enrollment, an unprecedented flow of federal awarded grants from DoD and NSA/NSF, and the launch of many novel initiatives including DoD CySP, GenCyber, IoT Security, and expansion of CAE-C education that not only improve our programs but also enhance cybersecurity research and education in the entire region.

DESIGNATIONS

- CAE-Cyber Defense

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Considered a trailblazer in cybersecurity education, **Iowa State University** in Ames, Iowa, boasts a keen eye for delivering programs that enhance its students' marketability in the everchanging world of cybersecurity. As one of the original seven charter schools honored to become members in the Center of Academic Excellence in Cybersecurity Education, Iowa State has developed one of the largest educational and research programs in the nation. Iowa State started a graduate degree in the field over 20 years ago. Today, Iowa State still has that graduate degree among other cybersecurity options and is still one of only three cybersecurity engineering programs in the entire country.

The university and the Center for Cybersecurity Innovation & Outreach (CyIO) provide cybersecurity education pathways for all students. To do that, Iowa State has created over a dozen cybersecurity

courses, its cybersecurity engineering degree, a cybersecurity minor, its graduate degrees, as well as several proposed degrees and programs to offer cybersecurity education to non-engineering students. CyIO was created in 2000 and has become nationally recognized for its multidisciplinary cybersecurity research, teaching, and outreach—across Electrical and Computer Engineering, Mathematics, Political Science, Management Information Systems, Computer Science, and more.

Iowa State is also nationally known for its revolutionary Cyber Defense Competitions that pit the industry's very best against talented students across the Midwest. More than 6,000 participants have attended the 75 CDCs. More than 1,000 Iowa State alumni participated in one or more CDCs as students, attracting attention from international companies seeking fresh talent with real-world security experience. Iowa State University pioneered cyber defense learner competitions. Today, students from high schools and colleges from across the nation use university facilities for competitions held five times a year.

The 160-year-old land-grant university has extending education opportunities to high school students, working professionals, community college graduates, university graduates, and several industries and sectors prevalent to Iowa through its creation of security literacy modules, programs, and other cybersecurity education initiatives. Iowa State University, the land-grant and largest educational institution in Iowa, is nationally known for its commitment to the student innovation and finding solutions to tomorrow's challenges.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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Main Campus Evansville

Ivy Tech Community College is Indiana’s largest public postsecondary institution and the nation’s largest singly accredited statewide community college system. It serves as the state’s engine of workforce development, offering degree programs and training that are aligned with the needs of its community along with courses and programs that transfer to other colleges and universities in Indiana. Ivy Tech Community College is accredited by the Higher Learning Commission and a member of the North Central Association. Ivy Tech has offered information security credentials since Fall 2008, starting on our Columbus campus and now available at all 19 campuses statewide. Ivy Tech’s Associate of Applied Science (AAS) in Cybersecurity/Information Assurance was designated as a CAE-2Y in 2012 and re-designated in 2017.

Ivy Tech Community College created the Center for

Cyber Security to meet the demands for high-quality cyber security education and training. Through our nationally recognized center, Ivy Tech students receive the education and training they need for jobs that secure our community, state and nation’s computers, networks, and critical infrastructure. The program will build the foundation to identify and fix computer security attacks. Cyber Security is a degree that can be applied to many facets of the student’s life, from personal to work experiences. We offer Certificates, Technical Certificates, Associate of Science, and Associate of Applied Science. Our cyber curriculum provides students with hands-on skills required for security infrastructures, data, and devices.

There are also chances for internships and externships to increase student competency in Cyber Security in real-world situations. Ivy Tech, in conjunction with the Indiana National Guard, offers the Cyber Academy, an 11-month AAS Cybersecurity program that helps meet ever-increasing cyber workforce demand. The program is being hosted at the Muscatatuck Urban Training (MUTC) center in Butlerville, IN. MUTC is home to the United States’ Department of Defense’s largest urban training complex, a real city where virtually everything and everyone is “in play.” The physical infrastructure includes a well-integrated and managed cyber-physical environment or “CyberTropolis,” an electromagnetic effects system with real people living and working on the campus.

Ivy Tech is an academy member for leading tech companies, including CompTIA, AWS, Microsoft, Palo Alto, Cisco, Oracle, Salesforce, and Apple.

DESIGNATIONS

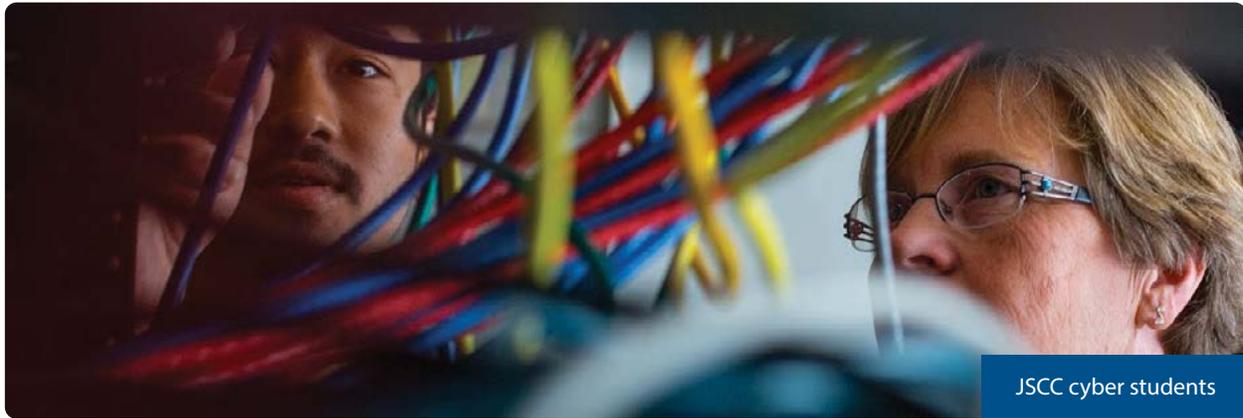
- CAE-Cyber Defense

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Jackson State Community College (JSCC) was the first community college in Tennessee to receive the CAE-CD designation. JSCC was also the first institution to offer an Associate of Applied Science (AAS) degree in cybersecurity in Tennessee. JSCC was the lead institution in Tennessee to develop a statewide Cyber Defense concentration under the Computer Information Technology A.A.S. degree program.

Over the past 15 years, JSCC has offered more than 25 cybersecurity related faculty development workshops for community college faculty across the State of Tennessee as part of the Cyber Security Education Consortium (CSEC). The college has also partnered with the University of Memphis on several projects including the National Science Foundation grant-funded Puzzle-Based Learning Project. The project produced multiple game-like cybersecurity

puzzles that were made available for public access to be used in high school, community college, and university cybersecurity classrooms.

JSCC continues to provide access to cybersecurity resources through its Cyber Security Center website. The JSCC Cyber Security Center provides cyber defense and networking program information, general information about cyber defense/security, links to valuable cybersecurity education and training materials, and provides an avenue to promote collaboration and interaction between students, faculty, and the community. The College partners with several government agencies to strengthen its cybersecurity educational presence in Tennessee. JSCC is always available to assist other community colleges in the development of their cybersecurity programs.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Jacksonville State University, Jacksonville, Alabama

Jacksonville State University (JSU) is a public, comprehensive university serving northeast Alabama, since 1883. The university offers three programs in cybersecurity: BS in Computer Science with a concentration in Information Assurance, BS in Computer Information Systems with a concentration in Information Assurance, and MS in Computer Systems and Software Design with a concentration in Information Security and Assurance. JSU has been a Center of Academic Excellence in Cyber Defense since 2014. Prior to receiving the designation, JSU established the Center for Information Security and Assurance (CISA) through the Mathematical, Computing, and Information Sciences (MCIS) department in 2008. The objective of CISA is to provide an avenue for research and education in computer and network security, digital forensics, cryptography, risk assessment and mitigation, disaster recovery and management, security regulations and

compliance, and information security management.

The CISA resources include two cutting-edge laboratories equipped with networked desktop computers that are configured with multiple operating systems, such as Windows, Debian, and FreeBSD. Virtualization technology, including VMware and VirtualBox, has been in use for several years. Our faculty, with a diverse background from several departments across the campus, works closely with students to ensure their success. They provide both theoretical and hands-on training for students to learn through real experience and to increase their academic performance. Critical thinking, creativity, and innovation are promoted to help students to solve problems that arise in this ever-changing field. The university is also a Cisco Academy, Oracle Academy, and has agreements with Microsoft and LinkedIn Learning.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Cocky - Go Gamecocks!



James Madison University (JMU) is one of the original seven Centers of Academic Excellence in Information Assurance Education (now Cyber Defense) (CAE-CD). Since January 1997, JMU has been a leader in online Information Security education. Designed for working professionals, our highly-ranked program is one of the most comprehensive online Information Security Master's degree programs in the country and is part of the College of Integrated Science and Engineering. We are an innovative collection of applied STEM units, focused on connecting students to cutting-edge tools and technology as they focus on real-world problems.

Our Computer Science Department offers an undergraduate Information Security Certificate program. We combine our cybersecurity with co-curricular activities, including hackathons,

programming competitions, and the Cyber Defense Club. We have also been active in the Hacking 4 Defense program. JMU also offers a Masters in Business Administration with an Information Security concentration, a Bachelor of Science in Intelligence Analysis and a new online graduate certificate program focusing on Cyber Intelligence. These programs are designed to address a variety of the information security needs of the nation.

Set in the beautiful Shenandoah Valley of Virginia, JMU is a tight-knit community of 22,000 undergraduate and graduate students and 3,000 faculty and staff who come from across the country and around the world. Only two hours from Washington D.C., JMU is fast becoming one of the nation's leading lights in higher education.

DESIGNATIONS

- CAE-Cyber Defense

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John A. Logan College (JALC) is an active and proud member of the Cyber-Security community. Our first mission is to our students, and our community development projects are supported by the school's staff, faculty, administration, and prominent members of our community.

We attend cyber events, virtual job fairs, training, and conferences. John A. Logan College provides valuable real-world experience by attending conferences such as Community College Cyber Summit and Women in Cyber Security.

John A. Logan College has a Collegiate Cyber Defense Competition team, The Logan Defenders, and a computer club that has competed at CCDC, NCL's, and Argonne National Laboratories. The College is also a WiCyS Women's Chapter member. Members of WiCyS elect to do extra work, tutorials,

labs, training, and volunteer for community projects each year.

We are most proud of our students' involvement in building a more aware and stronger community. Our department utilizes demonstrations and projects to work with K-12 STEM/STEAM programs and the Girl Scouts, Boy Scouts, bootcamps, athletes, and parents.

Our faculty is proud to be a part of something so important, and we hope to continue these progressive steps in building a more secure future with our community.

DESIGNATIONS

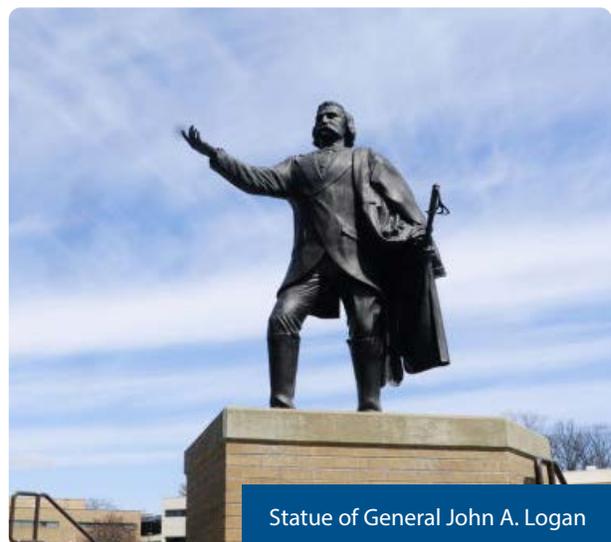
- CAE-Cyber Defense

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Johns Hopkins University, Homewood Campus, Baltimore

At the forefront of cybersecurity research, national data and infrastructure protection, the **Johns Hopkins University Information Security Institute (ISI)** houses preeminent programs and experts spanning multiple disciplines.

ISI's groundbreaking research in networking, medical privacy, and systems evaluation has positioned Hopkins as a top resource for national defense, homeland security, and bioterrorism.

Faculty members lead multi-university efforts in advancing of state-of-the-art security practices. ISI researchers understand that secure systems rely on robust cryptographic protocols and are pioneering new applications that resist attacks.

Most recently, ISI has:

- Created a COVID spread simulation map to model the outbreak and modes of transmission in both suburban and rural areas throughout the pandemic
- Developed software that locates and identifies security vulnerabilities in popular web applications that will empower developers to make their applications more impervious to cyberattacks
- Entered a partnership with the U.S. Department of Defense in an effort to enhance the cyberspace workforce and create opportunities for ISI students

ISI offers a highly ranked, full-time Master of Science in Security Informatics (MSSI) degree. More than 100 students are enrolled in the program, which provides them with the technical foundation and knowledge needed to meet the nation's growing demand for highly skilled professionals. With this program and the access to ISI's many industry partners, ISI students are extremely well-positioned to become the next leaders in the cybersecurity field.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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ISI students and faculty testing drone



Johnson County Community College (JCCC) was founded in 1969 to serve the residents of Johnson County, Kansas, an active suburb of Kansas City, Missouri. JCCC was awarded the National Center of Academic Excellence in Cyber Defense Education (CAE-CDE) designation in April of 2019 through the academic year 2024. The JCCC Information Technology-Networking program aims to be a local and national leader in cyber defense education. To further support cyber defense in education, the program created the Cyber Center. The mission of the center is to provide program guidance and oversight, general cyber defense information, and collaboration and outreach opportunities among students, faculty, and other institutions.

The Associate of Applied Science degree in Information Technology provides students with a foundation in designing, installing, implementing

and securing computer networking resources. Course requirements include network operations and product-specific requirements for Microsoft, Linux and Cisco. Our curriculum aligns with certification requirements for: Microsoft Azure Fundamentals, Microsoft 365 Fundamentals, Microsoft Azure Administrator, Microsoft 365 Certified: Modern Desktop Administrator Associate, Cisco Certified Network Associate (CCNA), Linux Professional Institute Certification (LPIC), CompTIA A+, CompTIA Security +, and CompTIA PenTest+. We offer transfer options to four-year programs, where students can earn a bachelor's degree in Cybersecurity, IT Management, or other related fields.

In addition to our Associate of Applied Science degree in Information Technology, we offer a Cybersecurity Certificate that prepares students to step into the role of Security Analyst. Students learn the skills to protect computers, networks, and data from unauthorized access, change, or destruction. Upon completion, students have strong foundational skills in Cyber Defense, Network Security, Ethical Hacking, Digital Forensics, and Scripting.

DESIGNATIONS

- CAE-Cyber Defense

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Johnson & Wales University Cybersecurity Center

Security lapse across the nation has increased the nation’s electronic and cyber infrastructure risk. It is getting worse, according to James Legg, president of ThycoticCentrify, a leader in cloud identity security. The reason, according to Legg, is the lack of people with the appropriate cybersecurity expertise and experience needed, with nearly 465,000 unfilled cybersecurity jobs across the nation (Forbes, October 2021).

The Cyber Threat Intelligence & Defense bachelor’s degree program at **Johnson & Wales University** is designed to fill a critical and growing need in the cybersecurity marketplace. The program focuses on educating and training the new wave of cyber specialists that can track, analyze, and counter digital security threats. Students engage in real-world experiences through project work that strengthens their ability to understand incident

response techniques that detect, scope, and respond to internal and external intelligence. Proactive cyber defense is the direction of the future. The gathering of information about adversaries’ trends and behaviors in anticipation of opposing an attack against computers and networks is critical to mitigating operational risk. Skills learned are reinforced through applied industry projects and experiential education opportunities.

Our program support multiple student organizations focused on cyber and computer science competitions; the ACM team, the Hack JWU team, and a Cyber club. We also support and provide opportunities to be part of the Upsilon Pi Epsilon honor society.

Building on Johnson & Wales University’s mission to provide an exceptional education that inspires professional success and lifelong personal and intellectual growth, additionally providing the tools and experiences to meet the needs of the growing demand in the cybersecurity field.

DESIGNATIONS

- CAE-Cyber Defense

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Johnson & Wales University



Anderson Hall aerial view

Cybersecurity work at **Kansas State University** began with early work in language-based security. In 2006, additional work began in applying security concepts to existing systems in a practical and efficient manner. High-assurance systems and language-based security researchers also developed new research programs in computer security and information assurance. Further expansions in 2010 and 2017 led to a holistic program focused on fundamental and applied research and associated educational and outreach activities, all carried out under the umbrella of the Center for Information and Systems Assurance. The center was first designated as an NSA/DHS National Center of Academic Excellence in Cyber Defense Research in 2010, with a mission to conduct research in information assurance and computer security, teach students about information assurance, and engage the academic and professional communities

in collaborative efforts that support the teaching, development, understanding, and operation of safe and secure systems. This center serves as a meeting space and facilitator for inter- and trans-disciplinary research and educational collaborations in areas related to the safety and security of computer, information, and cyber-physical systems within Kansas State University and beyond.

The Center for Information and Systems Assurance supports a broad, cutting-edge cybersecurity program within the department of computer science. There are six core computer science faculty whose areas of specialization include social networks and information propagation, privacy, network and distributed system security, cyber-physical and IoT security, safety and security co-engineering, hardware and software security co-engineering, applied cryptography, secure by construction systems, data flow integrity protection, and security and privacy of AI and machine learning. Students at all grade levels are welcomed and encouraged to participate in research activities as part of extra-curricular work.

The cybersecurity track, part of the Bachelor of Science in computer science program, provides a structured path to security education as part of a comprehensive computer science curriculum. Cybersecurity courses present a thorough and comprehensive look at fundamentals of computing system security, network security, data-centric security, cyber-physical system security, and social and human-centric aspects of security. Hand-on activities are incorporated throughout the classroom experience and culminate in a hands-on real-world capstone project.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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Hynes Hall - Overlooking New York City

Kean University was founded in 1855 and was the first public post-secondary institution in New Jersey. With a rich history of excellence and innovation in higher education, Kean is a world-class, vibrant, diverse university offering more than 50 undergraduate majors and more than 60 options for graduate study, including six doctoral programs, with four campuses in New Jersey and the only public university in America to have a campus in China. U.S. News & World Report has recently ranked Kean University among the top universities in the northern United States for helping economically disadvantaged students enroll and graduate within six years. Kean is ranked 41st for social mobility out of 170 universities in the region. In addition, Kean University was recently designated as the state's first urban research university, recognized for its growing role in conducting research and generating solutions to issues in urban communities in New Jersey.

The university enrolls over 16,000 students and Kean's mission is to provide an affordable, and accessible education that prepares students to think and respond critically and creatively in a rapidly changing world.

Kean's Center for Cybersecurity provides and offers a central hub for university, community, and global outreach on critical cybercrime and cybersecurity research and information. The Center is created under the direction of pursuing a collaborative methodology, emphasizing a multidisciplinary approach to cybersecurity education. This integrative approach, structure and strategy recognize the benefits gained by providing cybersecurity education in both technical and non-technical fields. This collaboration includes true Cybersecurity program integration between the Kean University School of Computer Science and Technology and the School of Criminal Justice and Public Administration. The Kean Center for Cybersecurity partners with several industry certification bodies and partners, including CompTIA, EC-Council, Palo Alto Networks, ISC2, and created the first Cloud Security Alliance chapter in New Jersey, offering students the opportunity to connect with industry professionals. Since its creation, the Center for Cybersecurity has provided proactive cybersecurity defense education, policy guidance, mentorship, training, and outreach. Notable and pertinent accomplishments include: Hosting 6 student-driven Hackathons; Establishment of one of the first Women in Cybersecurity (WiCyS) chapters; Creation of a Small-business Cybersecurity Guidance training; Acceptance of an authentication design patent; Publishing research papers involving security and presenting at many academic conferences.

DESIGNATIONS

- CAE-Cyber Defense

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Kennesaw State University, Kennesaw Campus

A leader in innovative teaching and learning, **Kennesaw State University** offers undergraduate, graduate, and doctoral degrees to its nearly 43,000 students. With 11 colleges on two metro Atlanta campuses, Kennesaw State is a member of the University System of Georgia and the third-largest university in the state. The university's vibrant campus culture, diverse population, strong global ties and entrepreneurial spirit draw students from throughout the region and from 126 countries across the globe. Kennesaw State is a Carnegie-designated doctoral research institution (R2), placing it among an elite group of only 6 percent of U.S. colleges and universities with an R1 or R2 status. KSU has been designated and re-designated as a National CAE since 2004.

The mission of Kennesaw State University's Institute for Cybersecurity Workforce Development is to:

- Foster inter-disciplinary collaboration in cybersecurity workforce development across the University
- Develop and deliver educational opportunities, academic discovery, commercialization opportunities
- Help the State of Georgia support public and private sector workforce demands through high-quality offering of certificates, degree programs, and ongoing education for managers and high-level executives

The Institute for Cybersecurity Workforce Development offers both a bachelor's and master's degree in Cybersecurity. These programs combine expertise from faculty in cybersecurity, information security and assurance, information technology, computer science, software engineering and criminal justice to create unique, interdisciplinary, 100% online degree programs.

The ICWD hosts its annual Conference on Cybersecurity Education, Research, and Practice each fall. It also hosts the Southeast Collegiate Cyber Defense Competition each spring."

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Michael J. Coles College of Business



View of Atrium and cyber.domain in Aeronautics and Engineering Building expansion

The College of Aeronautics and Engineering (CAE) at **Kent State University** is engineering the way forward with theory, technology, and real-world hands-on learning. Connected and supported, our students and faculty work together to construct now and next with a unique focus of exploration and experimentation to guide our world toward progress and possibility. Our mission is to embrace a unique synergy of aeronautics, engineering, and technologies, positively changing the trajectory of the regional, national, and global community by:

- Providing a dynamic educational experience that fosters experiential learning
- Cultivating innovative research that transforms ideas into reality
- Producing forward-thinking professionals, empowered through their diverse and collective perspectives

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Our community pursues excellence in all we do. Built on the foundations of respect, compassion, and inclusiveness, we operate and make decisions with integrity as we engage in collaboration to build a sense of belonging and achieve our mission. We embrace perseverance and recognize that overcoming obstacles will ultimately lead to the kind of innovation that can most greatly impact and improve lives.

The Computer Engineering Technology (CET) program prepares students to become experts in computer systems and critical thinking with one goal in mind: to solve the unsolvable. This hands-on application-based program explores human-computer interaction and the hardware-software interface to prepare students to analyze computer, networking, and software solutions. Given the interconnectivity of the systems of the future, security is an important part of those solutions! Because of this, CET students take classes alongside our Cybersecurity Engineering students. This provides students with the opportunity to work in multidisciplinary teams they will encounter in industry, while also providing them with a mindset that considers the security of an overall system.

The CAE has broken ground on a 44,000 square foot expansion of the Aeronautics and Engineering Building on the Kent Campus. Upon completion in 2023, this new space will include the cyber.domain, a collection of teaching and research laboratories, including a Cyber Range/Esports Lab, a Networking Lab, a server room, and a Simulation, Cybersecurity, and AI Research Lab. The cyber.domain is critical to the academic progression of students as they learn to fend off security and master the art of computer systems and critical thinking.



Lake Superior College, Duluth, Minnesota

Lake Superior College is the only two-year college in Minnesota designated as a Center of Academic Excellence in Cyber Defense by the National Security Agency/Department of Homeland Security.

Located in Duluth, Minnesota, it is the largest two-year college in northern Minnesota with enrollment of approximately 10,000 students. It is a member of the Minnesota State system with 30 community and technical colleges and seven state universities.

The college's leadership role in cybersecurity education includes:

- A Network Administration and Cybersecurity A.A.S. degree that is available online or on campus

- A national ranking as one of top 25 best online Associate Degrees in Cybersecurity
- A national ranking in the top ten most affordable online Associate Degree in Cybersecurity
- A CyberCorps® Scholarship for Service (SFS) with St. Cloud State University
- A Minnesota State Pathways transfer agreement with St. Cloud State University that allows LSC students to transfer and complete their bachelor's degree on the SCSU campus
- Free, summer cybersecurity camps that introduce high school students to the world of cybersecurity
- A \$240,000 grant from the NSA for Cybersecurity
- Workforce Education Initiative built a training lab for students that simulates work environments
- A \$98,938 grant from the U.S. Department of Education is helping train LSC cybersecurity students on the growing security risk offered by IoT (Internet of Things) devices

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Advanced campers and coach at Lake Superior College's 2018 GenCyber camp



LCC West Campus houses the Cybersecurity/Tech Programs

Lansing Community College (LCC) is one of the largest community colleges in Michigan and offers more than 200 associate degree and certificate programs, in addition to career and workforce development options. Classes are offered in online, face-to-face, and hybrid formats.

The college has grown from its downtown campus to include five locations in the Lansing area. LCC West Campus in Delta Township is home to the Technical Careers Division, which houses the college's Center for Cybersecurity Education along with other cutting-edge technical programs.

LCC is consistently named one of Michigan's best community colleges, and students enjoy unsurpassed instruction, updated facilities, cutting-edge technology, and comprehensive support services to help them succeed.

LCC associate degree and certificate programs are designed to help students gain the technical skills, knowledge, and expertise they need to unlock their potential and specialize in the cybersecurity profession of their choice.

The college is designated as a CAE in Cyber Defense and has developed the Networking and Cybersecurity degree in conjunction with employers – both locally owned and state government – to be relevant to career growth. Faculty lend their extensive field experience, while an advisory board ensures training is to the highest standard.

While at LCC, students will have an opportunity to participate in our National Chapter of the Cybersecurity Student Association and compete in ethical hacking competitions. Students can also aid in our community cybersecurity hygiene and career awareness event via our Cybersecurity Outreach program, through LCC's Center for Cybersecurity Education Center.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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LCC Cybersecurity Course



Fort McIntosh Campus - Laredo College

Laredo College is celebrating its 75th anniversary. We're situated on the banks of the Rio Grande along the Texas-Mexican border. Laredo College is a two-campus district serving the diverse needs of a growing community. Best Colleges.com ranked Laredo College as the number one community college in the state of Texas.

The College and Network and Cybersecurity AAS program earned a CAE Cyber Defense designation in 2018. The program has now expanded to include a specialization track in Cloud Computing. The program is structured to provide a sound foundation in network administration and cyber defense instruction. The program utilizes curricula from the Cisco, Red Hat Linux, Microsoft, and AWS academies. Program and academy instruction prepare students for industry certification in Cisco-CCNA, CompTIA Network +, AWS Cloud Practitioner, and AWS

Solutions Architect Associate. The program is articulated with three South Texas universities where students are encouraged to expand their knowledge and pursue baccalaureate degrees in the field.

The program is comprised of two stackable certificates and an Occupational Skills Award that students earn en-route to completion of the Associate degree. The program also provides instruction to high school students through dual credit. The program launched a Cybersecurity Institute in 2019 to augment instruction in the classroom. The Institute serves as a cybersecurity outreach hub providing cybersecurity training and awareness to the community. The Institute's lab environment is isolated from the College's campus network. This provides an opportunity for students in the program to experience the dark web in a controlled, educational, and supervised setting.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Program faculty and staff



Main Campus - Middletown, VA

Founded in 1970, **Lord Fairfax Community College** (Becoming Laurel Ridge Community College) is a comprehensive, multi-campus public institution of higher education. The college serves eight localities in the Shenandoah Valley and Piedmont regions of Virginia.

The college offers several pathways to develop the skills and knowledge needed to embark on a successful career with the cybersecurity field: 1) Associate of Applied Science (AAS) in Cybersecurity, 2) Cybersecurity Specialist Career Studies Certificate (CSC) and 3) Associate of Science (AS): Cybersecurity Engineering Specialization. The AAS degree program may be completed in two years with potential transfers to four-year bachelor's degree programs or by choosing employment in the cybersecurity field. The AAS program is a validated Program of Study (PoS) for CAE-CD. The AS

degree is sole designed for transfer to a four-year Cybersecurity Engineering program. The CSC can be completed in one year and/or can be transferred into the AAS degree program.

The cybersecurity faculty at Lord Fairfax Community College strive to incorporate into their classes the latest technologies and methods that a security defender must exercise to thwart attackers. Faculty incorporate a wealth of knowledge through education, internships, and cybersecurity competitions. The AAS program has been additionally accredited by the ABET Computing Accreditation Commission (CAC).

The college is also part of the U.S. Cyber Command Academic Engagement Network. Course work includes several facets of cybersecurity (penetration testing, secured software development, security policies, risk management, firewalls, digital forensics, and cyber law. These experiences provide a diverse and solid foundation, allowing the college's graduates to pursue numerous opportunities in the field of cybersecurity.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Cyber Lab At Middletown



Leeward CC, Pu'uloa Campus

Leeward Community College is located on the island of O'ahu in Hawai'i and has views of historic Pearl Harbor. At Leeward Community College, we work together to nurture and inspire all students. We help them attain their goals through high-quality liberal arts and career and technical education. We foster students to become responsible global citizens locally, nationally, and internationally. We advance the educational goals of all students with a special commitment to Native Hawaiians.

The core Cyber Defense program is in the Information and Computer Science (ICS) program. Students are provided with a wide background in ICS that includes programming, networking, operating systems, and cybersecurity fundamentals. Embedded in the program are the Certificate of Achievement in Information Security and the Certificate of Competence in Information Security.

These two certifications build toward obtaining the Associate in Science in ICS with a specialization in Information Security degree. Also, the ICS program has aligned several courses with industry certifications to better prepare students for the workforce.

The ICS program provides students with an extensive amount of hands-on training. Students can complete their degree by taking courses either online or in a traditional classroom setting. Our ICS courses provide free access to virtual labs for our ICS students for hands-on learning and for affordable education. In addition, the ICS program has an articulation agreement with University of Hawai'i West O'ahu (another CAE college) where students can transfer and obtain a Bachelor of Applied Sciences degree with a specialization in Information Security and Assurance.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Students hard at work in the classroom



LeMoyne-Owen College is located within the urban center of Memphis, Tennessee, which yields a rich cultural vibrancy to the institution dating back to 1862. We are a launching pad for success, no matter where scholars are on their academic journey.

In 2019, LeMoyne-Owen College was designated as a Center for Academic Excellence in Cyber Defense (CAE-CD) by the National Security Agency and Department of Homeland Security. Through this designation, LeMoyne-Owen College offers a Bachelor of Science in Computer Science with a concentration in Information Assurance and Cyber Defense.

LeMoyne-Owen's Center of Cybersecurity is a partnership between the Criminal Justice, Computer Science, and Education programs. Each program offers a concentration in cybersecurity. With the

establishment of a cyber defense degree, students have been exposed to digital forensics, cyber ethics and law, and many other aspects of cybersecurity. Students have opportunities to create applications, explore architectures, research virtual reality, study beginning robotics, and are given access to a 30-person lab where students study using industry available digital forensics tools.

As a Historically Black College/University, LeMoyne-Owen exposes underrepresented students to technology they would not normally experience. This center affords them the opportunity to explore a "what's possible" view of education and to increase their skills in the growing field of cyber defense. Graduates with LeMoyne-Owen College's cyber defense degree will be prepared for careers which address the escalating issue of cybersecurity.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Dr. Denise Ferebee in the LeMoyne-Owen College Cybersecurity Center with (L-R) front – Kayla Wright and Ja'Lynn Lanier, (L-R) back – Clarissa Farmer and Professor Charlotte Bush



Lewis University offers several distinctive opportunities for future information security specialists

Lewis University has been a Center of Academic Excellence since 2011, first in Information Assurance Education, and now in Cyber Defense. A mid-sized Catholic institution located about thirty miles southwest of Chicago, Lewis serves 6,500 students, about 10% of whom major in a program offered by the Department of Computer and Mathematical Sciences (CaMS) or Management Information Systems (MIS).

Through its Bachelor of Science in Computer Science, CaMS offers a Concentration in Cybersecurity, which gives students an in-depth understanding of how computers and networks function so that they can use existing tools and create new technologies for detecting, preventing, combating, and investigating cyberattack. CaMS also offers Concentrations in Digital Forensics and Networking through its Computer Science degree,

as well as a Master of Science degree in Computer Science which offers comparable Concentrations in Cybersecurity and Digital Forensics. CaMS hosts the University's Cisco Networking Academy and award-winning Cyber Defense Club, which took first place at the 2018 Department of Energy Cyber Defense Competition.

MIS offers innovative programs in Information Security Management at both the undergraduate and graduate levels. Students from this program have competed in national competitions such as the Cyber 9/12 Strategy Challenge.

Students from both programs can take courses on campus or online through our CloudLab and NetLabs platforms. They also can minor in the other program for a truly comprehensive education in information security.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Lewis students won 2018 DOE CDC



Located in Central Virginia, **Liberty University (LU)** is a liberal arts institution with 17 colleges and schools and offers programs in fields such as education, counseling, religion, law, aviation, cinematic arts, business, and more.

Liberty's cybersecurity program emphasizes real-world experience, meeting and exceeding industry standards, and student success. With six programs in cybersecurity, including undergraduate and graduate, we prepare students for careers such as governance, risk management, compliance, technology, and secure development. Recognizing the importance of cybersecurity for both the public and private sectors, Liberty is committed to preparing cybersecurity experts, increasing cyber capabilities through novel research, and increasing cyber awareness throughout the university and the surrounding community. To this end, the Liberty

University Center for Cyber Excellence (CCE) is established to formalize and coordinate these activities. The CCE serves as the focal point for cyber programs and provides extracurricular activities, including a Cyber Defense Club that participates in regional and international competitions.

Liberty has been designated as a Center of Academic Excellence in Cyber Defense since 2018. The School of Business at Liberty University is dedicated to building up Champions for Christ, emphasizing the character, ethics, and integrity that comes from a Christian worldview. All cyber programs are located in the School of Business. Students learn from dedicated faculty with decades of real-world experience and who are committed to student success.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Since 1927, **Long Beach City College** has been at the heart of the community providing educational programs with a commitment to excellence in student learning in a culturally diverse and vibrant environment.

LBCC is a two-year community college that encompasses state of the art, technology-rich learning environments, a broad range of academic and career technical instructional programs, strong community partnerships, and economic and workforce development initiatives that prepare students to be successful in the 21st century.

As one of the largest of the 114 community colleges in California, Long Beach City College is governed by the five-member, elected Long Beach Community College District Board of Trustees and serves the cities of Long Beach, Signal Hill, Lakewood, and

Santa Catalina Island. It offers many associate degrees and certificate programs which prepare students for transfer to four-year institutions, career advancement, and personal development.

With four schools to house its instructional programs, LBCC provides program offerings in Career and Technical Education, Language Arts and Communication, Social Sciences and the Arts, and Health, Science & Mathematics.

Long Beach City College is a community college with the largest face-to-face Cybersecurity program in Southern California. A Hispanic Serving Institution, LBCC is dedicated to improving equitable outcomes in skills, employment, and transfer for first-generation college students, military veterans, and students from underrepresented groups. LBCC has an active Cybersecurity club that meets every Saturday to practice ethical hacking and participate in cybersecurity competitions. Program graduates have taken on networking, IT, and cybersecurity roles at organizations such as East West Bank, Sony Entertainment, Netflix, and the Department of Defense.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Louisiana Tech University's Center for Information Assurance, housed in the College of Business, serves as a focal point for cybersecurity research and education in the northern Louisiana region. The mission of the Center is to foster, support, and conduct innovative education, training, and research in information assurance and cybersecurity across all types of industries throughout Louisiana and the Southeastern United States.

The Center supports educational programs at the undergraduate, masters, and doctoral levels in order to assure a supply of well-trained and capable information assurance and cybersecurity educators and experts. The Center offers an interdisciplinary, collaborative research environment that is led by faculty of the College of Business' Department of Computer Information Systems.

Programs supported by the Center include undergraduate and graduate certificates in information assurance, and a research-focused doctoral program. The Center also houses the Digital Forensics Lab, which faculty and graduate students use to conduct behavioral security research.

Graduates from Center-promoted programs are employed by organizations across the country and in a variety of industries, including government and government contracting, telecommunications, cybersecurity and defense, financial services, and healthcare.

Faculty affiliated with the Center hold editorships of major journals, and leadership positions in international conferences, including the IFIP-affiliated Dewald Roode Workshop on Information Systems Security Research, the ACM SIGMIS Computers and People Conference, and the Americas Conference on Information Systems. Faculty have published security-related research in numerous prestigious journals, including *Decision Support Systems*, *Information Systems Frontiers*, and *Communications of the ACM*.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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Top view of Loyola University Chicago campus

Loyola University Chicago (LUC) was established on June 30, 1870, as St. Ignatius College. The college was renamed to Loyola University Chicago in 1909. The university has two campuses in Chicago, one in Maywood (a suburb of Chicago), and one in Rome. Loyola University Chicago was designated as a National Center of Academic Excellence in Cyber Defense in 2020.

The Department of Computer Science in the College of Arts & Sciences offers B.S. degrees in cybersecurity, computer science, software engineering, and information technology, and M.S. degrees in computer science, software engineering, and information technology. The department provides program guidance and oversight for the Loyola Center for Cybersecurity and Privacy, which was established in 2019 to coordinate cybersecurity activities throughout the university. The Center

engages in interdisciplinary activities, collaborating closely with researchers and educators from the departments of Criminal Justice, Psychology, Political Science, Engineering, and Digital Humanities. The B.S. in Cybersecurity will include interdisciplinary courses in the near future.

Students participate annually in cybersecurity competitions, such as the DoE CyberForce competition, HackTheBox, and National Cyber League. The Cybersecurity Club offers students a place to further their experiential learning. Invited talks are also part of the Center and club activities.

Faculty members are highly engaged in both cybersecurity research and education. These activities have been funded by the NSF, NIH, US DoD, NSA, Motorola Solutions Foundation, Dr. Scholl Foundation, and Intel.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Cybersecurity Activities at Loyola University Chicago



Marquette University's campus is located in Milwaukee, WI

The mission of **Marquette University's Center for Cyber Security Awareness and Cyber Defense** is to provide excellence in education about cybersecurity, service through partnerships with the university and community, and research opportunities in cybersecurity technology, cybersecurity preparedness and cybersecurity education.

Marquette's Master of Science in computing with a specialization in information assurance and cyber defense is designed to establish the knowledge about security planning and management, and cyber issues and defenses for networks, databases and computing infrastructure. This specialization is the academic focus for the designation of Marquette University as a Center of Academic Excellence in Cyber Defense Education by the National Security Agency and the Department of Homeland Security.

The courses for this specialization reflect a broad technical perspective. While studying theory and performing classroom exercises serve to provide foundational knowledge, practical experience reinforces understanding. Marquette has added faculty members, new electives, and increased research initiatives to support our students and to emphasize the convergence of ideas from data science with cybersecurity analysis.

In addition, the computing program had been recognized by U.S. News & World Report, consistently ranking in the top-20 in Best Online Graduate Computer Information Technology Programs.

Additionally, the program is enhancing workforce development through the online career change specialization, making cybersecurity career opportunities available to students who do not have a computer science or information technology background. Graduates have found successful careers as cybersecurity analysts and engineers.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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GSM Kohler Group



Marymount University Campus

Marymount University is an independent Catholic university in Arlington, VA, close to many federal government agencies including the Department of Homeland Security, the Central Intelligence Agency, and the Pentagon. The school offers progressive cybersecurity programs at the undergraduate, masters, and doctoral levels. within the context of a liberal arts education. There are currently over 400 students in the various cybersecurity programs.

The BS in Information Technology is the third largest program at the university. After receiving a core knowledge across the computer science curriculum, students select one or more specialties including networking and cybersecurity, applied cybersecurity, cloud computing, computer science, forensic computing, and data science. The BS in Cybersecurity is an accelerated second-degree program for career changers who have completed a 4-year degree at an

accredited institution in another subject area and looking to join the cybersecurity workforce.

At the master's level, Marymount offers an MS in Information Technology, with a specialization in Cybersecurity, designed primary for career changes with management in mind. The MS in Cybersecurity is offered for students who are IT professionals and includes specialties in digital health and data science. A variety of dual degrees are also available, combining IT or Cybersecurity with an MBA or MS in Health Care Management, or combining the IT and Cybersecurity degrees. At the doctoral level, a D.Sc. in Cybersecurity is designed specifically for working cybersecurity professionals. The emphasis is on applied research across a wide variety of cybersecurity areas including cyber threat intelligence, human factors, machine learning applications, and more.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Main Campus of Mercy College at Dobbs Ferry, New York

The **Mercy College** Cybersecurity Program offers BS, 4+1, and MS degrees in the Dobbs Ferry, Bronx, and Manhattan campuses as well as online. The global objective of the Program curriculum is to defend the current and future Cyber threats and attacks, as well as convey those cyber knowledge units and skill sets to students and the communities. It established the Mercy Cybersecurity Education Center (MCEC) in 2010, and the BS program has been designated as a National Center of Academic Excellence in Cyber Defense Education (CAE-CDE) in 2011, 2015 and 2021.

The BS and MS programs maintain the curriculum in partnership with thought practitioners to current and future technologies. The technologies conveyed by the courses include hands-on labs and practices so they can focus on both or either development and/or operations of cybersecurity. The cutting-edge

courses prepare the students to 1) gain a foundational understanding of cybersecurity, 2) analyze the cybersecurity requirements, 3) develop and enhance the efficiency and effectiveness, and 4) advance to make the cybersecurity capabilities to be intelligently adaptive to cyber-attacks and threats.

The Cybersecurity program has trained the students to be equipped with both development and operation skills required by cybersecurity communities and to participate in regional and national cyber skill competitions. The program has produced about 150 BS and 150 MS graduates with advanced skills in Cybersecurity that are applicable across both the public and private sectors.

Cybersecurity graduates are qualified in the areas of network security engineers/administrators/managers, vulnerability assessment analysts and cybersecurity operations specialists, cybersecurity crime investigators, and etc at the federal and state governments, and by corporate and private (financial and medical) industries, in development and operational positions.

DESIGNATIONS

- CAE-Cyber Defense

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Cybersecurity Lab at Manhattan Campus



Metro State University, a member of the Minnesota State higher education system, is an accredited, comprehensive, urban university that provides accessible, affordable, high-quality student-centered educational programs to the citizens and communities of the Twin Cities metropolitan area, with continued emphasis on underserved groups, including adults and communities of color.

The university's faculty, staff, and students reflect the area's rich diversity, commit to creating anti-racist working and learning environments, and seek to remove barriers to something that should belong to everyone: access to the transformative power of higher education. The university is a designated "Yellow Ribbon" school that provides veterans, active military personnel, and military families with support, training, services, and resources to further their personal and professional goals.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Metro State proudly houses the MN Cyber Institute: a statewide education, research, and training institute for cybersecurity, forensics, and the Internet of Things, intending to position Minnesota as a national leader in cybersecurity and its related workforce through education, legislative, and community engagement, and innovative public-private partnerships.

MN Cyber Institute fosters the statewide cybersecurity ecosystem by providing infrastructure, research, education, and training capabilities to its stakeholders, including businesses, K-12 schools, institutions of higher learning, state government, staffing, and recruiting agencies, the Minnesota National Guard, and other local professional organizations.

MN Cyber also provides advanced cybersecurity training through MN Cyber Range. MN Cyber receives guidance through an advisory board comprised of chief information security officers from major organizations (3M, Best Buy, United Health Group, and Medtronic, among others) and state legislators.





MCC Penn Valley Campus

Metropolitan Community College (MCC) is the oldest and largest public institution of higher learning in Kansas City, Missouri, founded in 1915 as the Kansas City Polytechnic Institute. The Junior College of Kansas City, as it was known starting in 1919, was one of the first schools in the country to award an associate's degree. Today, MCC offers 125 associate degrees and certificate programs.

Metropolitan Community College comprises five campuses serving more than 30,000 students annually on the Missouri side of the Greater Kansas City area. MCC is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools. MCC offers a program path for students starting careers in cybersecurity. The A.A.S. Secure Systems Administration and Engineering program allows students to earn stackable certificates, mapped to industry credentials, while

working to complete an A.A.S. degree.

The Secure Systems Administration and Engineering program has experienced significant growth in recent years, and has produced well over 100 program completers during that time. In 2018, MCC achieved the designation as a Center of Academic Excellence in Cyber Defense at 2-year institutions (CAE-CD).

MCC was an original member of the Cybersecurity Education Consortium (CSEC) and is a current member of the National CyberWatch Center. MCC remains active in the CAE community and the Cybersecurity Program Coordinator, Brian Hurley, serves as a mentor for other schools seeking CAE designation.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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MCC System Administration



Fort Omaha Building 8

Metropolitan Community College (MCC)’s

Cybersecurity Center was established to support students and the community with resources on cybersecurity and to promote awareness in the metropolitan Omaha community.

MCC offers an Associate of Applied Science degree in Cybersecurity and students have the opportunity to continue their education at two universities as well as through the noncredit side of the college to obtain certifications in A+, Network+, and Security+.

Since 1974, MCC has delivered relevant, student-centered education to a diverse community of learners. The College boasts nine locations in a four-county area, giving access to tens of thousands of students to dozens of degree and certificate programs.

MCC serves more than 40,000 students annually and is focused on training students for fulfilling careers. Class sizes average 15 students and are led by instructors with first-hand, real-world experience and knowledge.

At MCC, students can complete their degrees differently. Classes are offered on campus, online, or in a hybrid format. The College boasts resources for every kind of student who may need help getting started or along their educational journey.

For those looking to continue learning, they can enroll in a single class, or work toward a certificate. MCC offers classes for students of all ages, from children to seniors.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Mercy Cybersecurity Education Center



Metropolitan State University, St. Paul Campus

Metropolitan State University, Saint Paul, MN, is an accredited, comprehensive, urban university that provides accessible, affordable, high-quality student-centric educational programs to the citizens and communities of the twin cities metropolitan area, with continued emphasis on underserved groups, including adults and communities of color. The University's faculty, staff, and students reflect the area's rich diversity, build a culturally competent and anti-racist learning community and demonstrate an unwavering commitment to civic engagement. The University is a "Yellow Ribbon" company. It provides veterans and active military personnel with community support, training, access to services, and the resources to further their personal and professional goals.

The University proudly houses MN Cyber, a statewide education, research, and training institute for cybersecurity, forensics, and IoT, with the primary

objective to position Minnesota as a national leader in cybersecurity and its related workforce through education, legislative and community engagement, and innovative public-private partnerships. The Institute helps foster the statewide cybersecurity ecosystem by providing necessary infrastructure, research, education, and training capabilities to all the stakeholders, including K-12 schools, institutions of higher learning, private businesses, state government, staffing, and recruiting agencies, the Minnesota National Guard, and other local organizations. The Institute also provides advanced cybersecurity training through MN Cyber Range. The Institute receives its guidance through the advisory board composed of state legislators and CISOs from major organizations such as United Health Group, 3M, US Bank, and Best Buy. The University's current cyber offerings include a BS in Cybersecurity, MS in Cyber Operations, BAS in Forensics, and BAS in Information Assurance.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Professor Kaleem with a diverse group of students



MGA Macon Campus

Middle Georgia State University (MGA) is a regionally focused university serving 7,800 traditional and adult students with campuses in Macon, Cochran, Dublin, Eastman, and Warner Robins. The University is one of the state's best values in public higher education; a student can earn a bachelor's degree for about \$20,000, which is about \$2,500 in tuition and fees per semester.

MGA's Department of Information Technology offers a Bachelor of Science in Information Technology (BSIT) program which is accredited by the Computing Accreditation Commission of ABET and includes a concentration in Cybersecurity.

The Department also offers a fully online Master of Science in Information Technology with a concentration in Cybersecurity and Forensics.

With a student enrollment of nearly 950 students, the Department of Information Technology is fully equipped to produce the next generation of technology and cybersecurity experts. Students have one-on-one interaction with highly qualified faculty who are actively engaged in research publications and scholarly activities.

Students utilize state-of-the-art digital forensics and security labs. Outside the classroom, students participate in cyber defense competitions. Each year the Department's Center for Cybersecurity Education and Applied Research (CCEAR) hosts an Academic Cybersecurity Seminar to provide students and the community the opportunity to network with experts in the cybersecurity field.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Protecting networks through secure coding



MDC's CyberSecurity Center

Miami Dade College (MDC) is one of the largest institutions of higher education in the nation—with over 90% of our students identifying as minorities and more than half (57%) coming from low-income households. MDC understands the importance of cybersecurity and its role in the workforce and equips students with the cutting-edge knowledge, hands-on skills and industry certifications to meet the increasing workforce demands of South Florida employers and beyond. This increasing demand for cybersecurity talent locally is the reason behind MDC's decision to make cybersecurity education a priority. In 2018, the College opened a cybersecurity Center to meet the growing need for cybersecurity talent, both locally and regionally.

The Cyber Range housed at the CyberSecurity Center is one of the key differentiators of the programs at MDC. Students across all programs,

degree-seeking and otherwise, can utilize MDC's Cyber Range to experience real cyberattacks in a virtual environment thereby augmenting their classroom education with the high-level hands-on training that is in such demand. MDC's cybersecurity programs also lean heavily on a highly respected Business Industry Leadership Team (BILT) comprised of 20 local and national cybersecurity professionals to ensure that the programs being offered are focused on the skills most needed by industry. Following the BILT's input and the powerful tools from the Cyber Center, MDC has developed and launched many cybersecurity initiatives that range from degree-seeking pathways to continuing education courses to corporate training. These programs are serving over 500 students per year, most of them underrepresented minorities.

The Associate of Science in CyberSecurity is the only NSA CAE designated 2-year degree in South Florida. The program provides students with the knowledge and skills for securing computers, applications, and networks, identifying threats, responding to cyberattacks and mitigating their impact. Upon successful completion, students will have the training to obtain five industry certifications and the skills to secure a job in the field.

With many grant-funded initiatives supported by the National Science Foundation (NSF), the American Association of Community Colleges (AACC) and other private donors, MDC has become a leader in the state supporting colleges and K-12 building their cybersecurity capacity. The College also maintains multiple cybersecurity collaboration agreements with universities.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Welcome To Mississippi State University

Mississippi State University (MSU) has been a part of the NSA Center of Academic Excellence Program since 2001. Currently, MSU holds all three CAE designations. The MSU CAE effort is led by the Computer Science and Engineering Department. MSU offers Cyber security and Operations degrees in both undergraduate and graduate programs.

Starting in 2021, MSU offers a B.S. in Cybersecurity. The undergraduate program of study is aligned with our Master of Science in Cybersecurity and Operations (CYSO) to create a 4+1 program. This allows our students majoring in Computer Science and Engineering, along with Cybersecurity to enroll in a 4+1 program with the CAE-CO and complete their Masters Degree in just five years. MSU has been a pioneer in cyber defense research. Security architecture provides the blueprint for in-depth defense strategies. You cannot avoid cyber threats

if you do not know how systems connect and what software those systems are running. Scalable, security architecture is a critical enabling technology required to model, defend, and wargame network-intensive cyber networks.

MSU supports one of the most robust cyber infrastructures of any university. Security researchers have access to state-of-the-art high performance computing assets to include petabyte scale high-speed storage. MSU has the capability to scale up laboratory research into enterprise scale cyber demonstrations and to do so in NOFORN and other restricted environments. Academically, MSU students pursuing the CAE-CO path complete our Master of Science in Cyber Security & Operations. There are multiple paths for students from Arts & Sciences, Business and Engineering to complete the Information Assurance Certificate that completes the CAE-CDE path.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations
- CAE-Research

CONTACT INFORMATION

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MSU Super Computer



With more than a decade as a CAE-R designated university and eight cybersecurity experts with active federal and industry research in the field, **Missouri S&T** is one of the nation's leaders in addressing cybersecurity threats. Missouri S&T's cybersecurity research program emphasizes cyber-physical security for critical infrastructures – from power plants to autonomous vehicles. The S&T computer science and computer engineering programs partner with 16 engineering and science disciplines across campus to create secure smart grid systems, manufacturing systems, sensor clouds, water treatment facilities, aerospace systems, and smart living environments.

S&T's cybersecurity experts are also highly regarded teachers. They actively mentor student researchers at the undergraduate, master's, and doctoral levels to prepare them for cybersecurity careers in

government, industry, and education. Students have access to cybersecurity courses that meet the NICE criteria at the advanced undergraduate and graduate levels.

Missouri S&T is a STEM-focused institution of 9000 students. It was founded in 1870 as one of the first technological institutions west of the Mississippi. The pursuit of innovative, collaborative applications with faculty and researchers at Missouri S&T has helped the university define its research and teaching strengths. The following four signature research areas connect to long-term critical national issues, research and entrepreneurship potential, and align with Missouri S&T's strategic plan. These areas are Advanced Manufacturing, Advanced Materials for Sustainable Infrastructure, Enabling Materials for Extreme Environments, and Smart Living.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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S&T students participate in a cybersecurity hackathon.



Mohawk Valley Community College (MVCC) provides accessible, high-quality educational opportunities to meet the diverse needs of our students. We are the community's college, committed to student success through partnerships, transfer and career pathways, and personal enrichment.

In 2018, MVCC was designated as a Center of Academic Excellence in Cyber Defense for its Associate of Science in Computer Science. This program combines the study of criminal justice and computer-technology to address current needs in the cybersecurity field. It prepares students to identify vulnerabilities and threats that affect corporate and government computer networks, to protect critical information in cyberspace, and to effectively design, implement, and support security policies for a large scale enterprise network.

Students examine a wide variety of security analysis and defensive tools and concepts and then attempt to circumvent them. This program prepares students to transfer to upper division cybersecurity programs or assume

entry-level positions in the cybersecurity industry. When the CAE Program Management Office created CAE Regional Resource Centers (CRR) in 2016, MVCC was appointed as the Northeast CRR. During their tenure in this position, MVCC performed outreach and built relationships with educational institutions in the region, as well as guide candidate colleges in the area on the path to designation. Notably, MVCC collaborated with faculty from other CAE institutions to create a professional development course for Career and Technical Education (CTE) instructors transitioning to cybersecurity and a cybersecurity CTE curriculum that aligns with the CAE Knowledge Units.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Montgomery College students gain experience through internships with partners such as the Montgomery County Government

Montgomery College's (MC) three suburban Maryland campuses are conveniently located between Washington, D.C., and Baltimore. Drawing students from more than 155 countries around the world, MC is one of the most diverse institutions of higher education in the U.S. As a designated National Center of Academic Excellence in Cyber Defense (CAE-CD) by the National Security Agency and the U.S. Department of Homeland Security, MC's degree and certificate programs offer students hands-on, practical skills in cybersecurity from seasoned industry professionals.

The program, created with industry partners, emphasizes computer security and information assurance concepts augmented with current industry standard techniques. Topics cover threats and vulnerabilities, prevention at the technical and human levels, detection, response, and management

aspects of security. The program trains entry-level computer technicians with cybersecurity expertise and offers transfer options to four-year institutions. Students can also study for valuable industry certifications, including the Computing Technology Industry Association's (CompTIA) A+, Network+ and Security+ certifications; Cisco Certified Network Associate (CCNA) certification; and the Security Certified Network Professional certification.

Students in the program can enhance their skills at the College's Cyber Lab, which can host 100-plus virtual servers, 250-plus virtual desktops, isolated networks, and wireless and forensic technologies. The lab is home to academic competitions and research activities, but also provides opportunities to IT industry professionals for teaching, learning, and professional growth.

The strength of MC's cybersecurity program earned distinction as one the 10 Best Community College Online Programs according to Intelligent.com in 2022. In addition, in 2021 Montgomery College was ranked the best community college in Maryland with the highest earning graduates by Zippia, the Career Expert.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Montgomery College students work and train in the cybersecurity lab



Montreat College's Bachelor of Science in Cybersecurity degree equips students with the knowledge and skills necessary to serve in today's competitive business and government environment. Operating under the college's Center for Cybersecurity Education and Leadership, Montreat's program emphasizes character and ethics as essential components of cybersecurity education. "Every cyber program in America teaches students how to be offensive hackers," says Montreat College President Paul Maurer. "When you teach a student to do that, they'd better have a moral compass, because every frontline cyber professional in the world has the keys to your kingdom."

Montreat College's program provides training and preparation in information technology, cybersecurity, business administration, and quantitative analysis, preparing students for professional positions in a

variety of technology specializations. Montreat's unique approach to teaching combines the theoretical with the practical, as faculty bring extensive real-world technology experience to the classroom.

Classroom instruction is often augmented with outside technology speakers and information technology facility tours. In many courses, student projects involve solving technology problems and providing information technology services to actual real-world organizations. Additionally, all students complete cybersecurity internships prior to graduation.

Since receiving the CAE-CDE designation for the bachelor's degree program, Montreat College has continued to lead the way in cybersecurity education by developing a one-of-a-kind Cloud Security curriculum utilized by other institutions, the creation of course materials and guides to develop professionalism and ethical reasoning in cybersecurity students, and cybersecurity summer camps available to middle school and high school students.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Moraine Valley Community College (MVCC) was one of the first community colleges in the country to offer an Associates of Applied Science (AAS) degree in cybersecurity. MVCC was a member of the 2010 inaugural class for two-year institutions earning CAE designation. As an early member of the academic cybersecurity community, the faculty and staff at MVCC addressed some of the challenges in offering a practical and relevant cybersecurity program. One of the first innovations addressed was teaching cybersecurity concepts and technologies in a safe environment in which students could learn and explore.

The MVCC team created a virtual teaching and learning center and has developed a lab library of over 400 exercises. This environment and lab library have been adopted by over 320 institutions nationwide. As a Cybersecurity National Regional

Resource Center, MVCC established a national Cybersecurity faculty development academy. The academy has served over 5000 teachers over the last ten years.

The MVCC team is very active in the NSA mentoring program. The college staff was one of the first group of two-year colleges (5 in total) to earn CAE2Y designation. Over the years, MVCC has mentored over 30 institutions in earning their CAE designations. The MVCC program services over 300 students each semester and has placed graduates in every major industry and in multiple government agencies.

MVCC also partners with several industry certification organizations and business partners in offering sponsored certification courses within our curriculum. These would include CompTIA, EC-Council, Palo Alto Networks, Cisco, LPI, Dell VMware, ISC2, and ISACA. The MVCC program is distinguished in the fact that we offer several leading-edge specializations including IoT, Mobile and Cloud Computing, and Industrial Controls Security.

The MVCC team currently serves as the CAE Midwest Hub manager. MVCC also leads or contributes to the following grant initiatives:

- Leads the RING K-12 cybersecurity career pathways project in partnership with the University of Alabama, Huntsville
- Contributes to the Feasibility Study
- Contributes to the Faculty Development initiatives
- Leads the Midwest States Cybersecurity Education Innovation Summits

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Our mission at **Morgan State University** is to provide the electronics industry and intelligence community with knowledge, methodology, solutions, and skilled cybersecurity engineers to help prevent penetration and manipulation of our nation's cyber-physical infrastructures. We apply invasive and noninvasive hardware and software reverse engineering techniques to assess physical layer cybersecurity vulnerabilities in embedded systems, specifically IoT devices.

We also develop countermeasures to secure them against sensitive data extraction, disruption, diversion, and obfuscation. We currently have twenty-four Ph.D. students in our MS/Ph.D. program in Secure Embedded Systems supported by NSA DoD CySP, NSF CyberCorps, GEM Consortium fellowship/scholarship programs, and research grants/contracts.

Our academic, industry, and government partners include Dartmouth, Johns Hopkins University (JHU), JHU Applied Physics Labs, Applied Research Laboratory for Intelligence and Security (ARLIS), Laboratory for Physical Sciences (NSA), Booze Allen Hamilton, MITRE, and many more. Our research spans many technical areas, including artificial intelligence/ML, secure autonomous systems, side-channel analysis, lightweight cryptography, and hardware/software reverse engineering.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Mount Aloysius College

The Information Technology B.S. with a Concentration in Cybersecurity and Digital Forensics at **Mount Aloysius College** provides students a unique hands-on learning experience with real world applications. The mission of the program is to prepare students for employment in various cybersecurity related areas and/or for the pursuit of further education and advanced degrees by educating them in the fundamental concepts, knowledge and skills used in the ever-changing world of technology. Our hands-on approach to learning emphasizes sound application of cybersecurity knowledge combined with the technical skills to produce graduates who will become responsible, ethical, and contributing leaders in industry and government.

Our program is under the instruction of diverse faculty with years of professional, government and/

or military experience. Our faculty understand the need for lifelong learning skills necessary to keep abreast of advancing technology and stress this to students throughout the program.

Our dedicated Cybersecurity center includes virtual environments that can be used for classes, competitions, demonstrations, testing and research. In addition to the physical lab space, students utilize the Mount Virtual Lab and the Mount Mini Lab, a portable and scalable lab environment that can be transported to other sites and locations for training purposes. Students leverage Windows, Mac and Linux environments through virtual machine environments.

In addition, they are exposed to vulnerable applications and websites for cybersecurity analysis and testing purposes. Our cyber defense team uses these environments in depth to prepare for cyber competitions and challenges. Courses are offered in the classroom as well as in hybrid and fully online formats to meet the needs of our diverse student population.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Faculty and students working in the Cyber lab



Mt. Hood Campus

The CyberSecurity and Networking Degree program at **Mt. Hood Community College (MHCC)** was initiated in 2011 and was the first AAS degree in cybersecurity in Oregon. Using support for curriculum, training, and travel generously provided by CyberWatch and CyberWatch West, MHCC faculty created the Oregon Center for Cyber Security (OCC-SEC) and became a CAE-CD college in 2014. Although founded on existing IT and Cisco Networking training, MHCC faculty chose to focus on training directed towards specific industry recognized certifications such as the A+, Linux+, Security+, CCNA and CCNA Security, Oracle certifications and more.

In 2018-2019, MHCC had the opportunity to dramatically enhance the entire cyber program with the addition of trainings specific for Cisco Cyber Operations, Certified Ethical Hacker, Red Hat CSA,

and Palo Alto Network firewall implementation. Adding a new degree pathway into Penetration Testing, as well as several certifications allows existing professionals in industry to hone their skills in a focused training path.

Using funding from an NSF grant, the CyberSecurity program created a collaborative effort with our Small Business Development Center (SBDC) and designed a small business advisory team using cyber student interns to deliver focused cybersecurity training, evaluation, and mentoring to local small and medium sized businesses. Between 2018 and 2019, over a dozen cyber students fulfilled their internship requirements by working directly to support members of the regional small business community.

Graduates from this program have gone on to excellent careers in local businesses, consulting firms, regional critical infrastructure, and military, and at least one-third of the graduates continue their education at some of the local four-year institutions.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Mt Hood Cybersecurity Students



Western Kentucky's **Murray State University (MSU)** is a medium-sized university in the Midwest, adjacent to Missouri, Tennessee, and Illinois. Murray State University Cybersecurity and Network Management program has twenty years of excellence. It is a distinction program, a recognition that identifies Murray State's program as unique among other post-secondary institutions in the state. MSU received funding in 1998 for a Program of Distinction in telecommunications and networking, using resources made available through the Regional University Excellence Trust fund. Specifically, a Center for Cybersecurity Education and Research was established through which the University is to address regional and national public and private sector Cybersecurity needs. MSU has expanded its focus to support all aspects of the current digital technology transition to cope with new trends in the world of industry 4.0. Our mission is to prepare

our students with skills needed in the modern computing era to design the digital infrastructure, network security, and cyber threats. As an NCAE-CD institute, both BS and MS cybersecurity programs at MSU have been developed in such a way to promote cyber awareness and prepare students for a wide spectrum of information security careers. The CNM program has a strong record of collaboration with the sixteen colleges in the KCTCS system.

Our program has successfully placed students throughout state and federal agencies and military installations. In conjunction with technology companies across west Kentucky, Murray State's Center for Cybersecurity Education and Research developed a nonprofit organization the Technology Council of West Kentucky (TCWK) to focus on the workforce development needs across the technology sector within the region. While TCWK will focus on coding, networking, and cybersecurity industry needs, much of the focus has been on the region's needs. In two years, membership among the technology council has grown to over 100 members, with representation from government, K-12 education, banking, healthcare, higher education, and more.

Since our designation as an NCAE-CD, we have expanded our cybersecurity educational labs by establishing joint scholarly activities with other NCAE institutes and cybersecurity companies to share the latest trends toward a common goal in this area. We have been very active in bringing high school students from our region for hands-on cyber activities and learning experiences paving the road for them for possible career opportunities in this field.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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National University campus, San Diego, CA

Founded in 1971, **National University (NU)** is among the largest, private, nonprofit universities in California. Dedicated to making quality education accessible and affordable to adult learners, who represent nearly 40 percent of the postsecondary population, NU offers programs at locations nationwide and online.

NU was among the first schools in San Diego to offer a master's degree in cybersecurity in 2011 and, through its Department of Engineering and Computing, launched a bachelor's program in April 2017, making it the only school in San Diego to offer both degree programs. NU is one of just seven designated centers in California and the first in San Diego to be named a CAE-CD.

Programs are tailored to meet workforce demands conveyed directly to faculty by the University's

Cybersecurity Advisory Board – consisting of industry representatives from public, private, and government organizations.

NU established over 50 academic partnerships and has articulation agreements with more than 100 community colleges. NU's highly-competitive cyber team participates in the Western Regional Collegiate Cyber Defense Competition, the Collegiate Pentest Competition, and the National Cyber League.

NU supports community partners with the SoCal Cyber Cup Challenge for middle and high school students in San Diego and neighboring counties. As a Hispanic Serving Institution, NU was selected by HACU to host the STEM Youth Leadership Development Forum in 2017, an interactive day of exploring STEM fields, including cybersecurity, for over 500 middle and high school students.

A veteran-founded nonprofit, NU was named a military-friendly college, and one in four NU students are active-duty servicemembers or veterans.

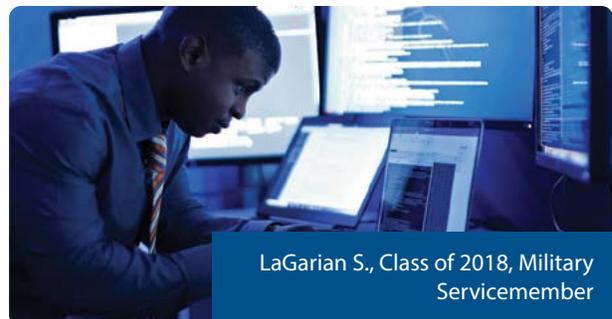
DESIGNATIONS

- CAE-Cyber Defense

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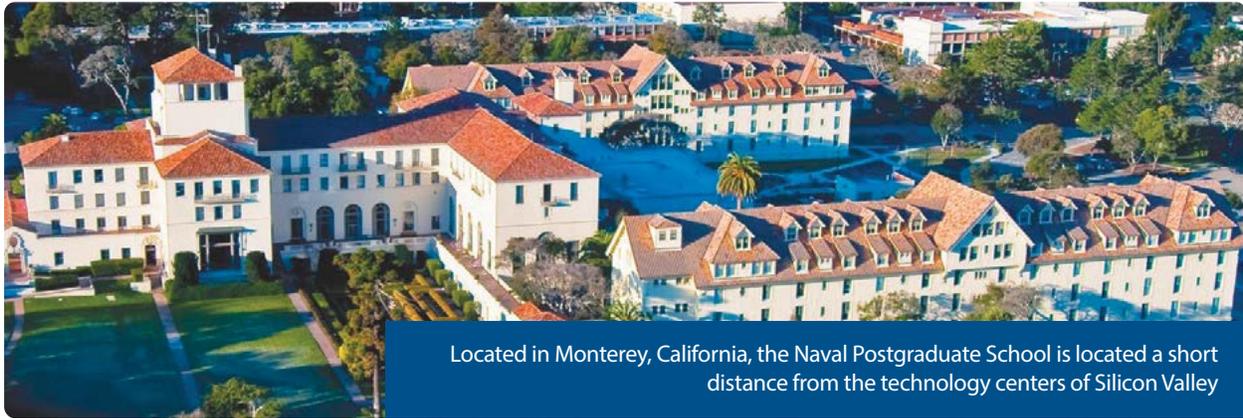
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LaGarian S., Class of 2018, Military Servicemember



NAVAL POSTGRADUATE SCHOOL



Located in Monterey, California, the Naval Postgraduate School is located a short distance from the technology centers of Silicon Valley

The **Naval Postgraduate School** provides relevant and unique advanced education and research programs to increase the combat effectiveness of commissioned officers of the naval service to enhance the security of the United States. Established in 1909, NPS moved west to Monterey, California in 1951. Today, NPS serves naval, defense and national security related interests by enhancing current and future readiness, fostering advances in technology, and providing educational and operational programs that directly support all facets of national defense and homeland security. At NPS, four world-class schools oversee 14 academic departments that offer 77 Master's degrees, 16 doctoral degrees and 60 certificate programs to the U.S. Armed Forces, DoD civilians and international partners.

Secure research facilities, interdisciplinary academic groups, 34 research centers, and specialized

laboratories add to the wealth of resources. NPS offers both resident and distributed-learning programs. Continuous learning, refresher and transitional educational opportunities abound. In addition, executive education courses and a variety of short courses are also offered by NPS, both in Monterey and abroad.

Over 615 scholars and professionals comprise the NPS faculty. Students and faculty are deeply involved in the development, advancement and utilization of emerging technologies. Its proximity to Silicon Valley and other technology centers, offers members of the NPS community opportunities for collaboration with industry and academe. For over 25 years, by combining classroom instruction with hands-on experimentation, NPS has played a leadership role in cyber defense and cyber operations.

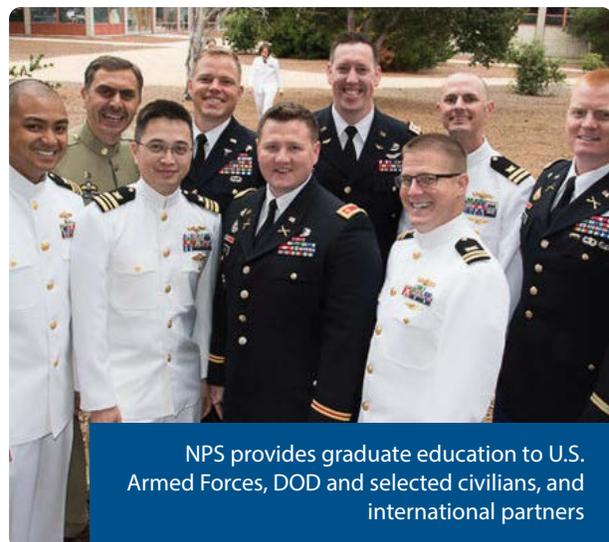
DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations
- CAE-Research

CONTACT INFORMATION

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NPS provides graduate education to U.S. Armed Forces, DOD and selected civilians, and international partners

NEW ENGLAND INSTITUTE OF TECHNOLOGY



NEIT Campus Main Building

New England Institute of Technology's cybersecurity and network engineering program prepares graduates for careers in the networking and cybersecurity industries. From multi-national corporations to local small businesses, cybersecurity defense is an integral piece of an organization's strategy. Information and the technology infrastructure it resides on are two of an organization's most valuable assets and these are often continuously threatened or under active attack.

Successful defense and protection of these assets requires a trained cybersecurity professional who not only understands the technical aspects, but also is aware of strategic business interests. An effective cybersecurity leader requires a blend of operational and technical expertise, leadership and management of projects and teams, and a solid foundation in the principles of cybersecurity.

The curriculum includes core topics in the realm of cybersecurity, such as: computer systems, mobile and network forensics, Windows and Linux security and incident response. Students acquire experience identifying and remediating evolving threats using the same security tools used by professionals in the field. Both security theory and hands-on practice are stressed.

A key program feature is the senior project where each student works with a faculty member to develop and present an in-depth project focusing on a specific cybersecurity topic. We also offer a cooperative learning experience based on industry demand during the final two terms of the program. These experiences, which may be paid or unpaid, allow students to receive college credit and to work off campus in an organization where they will practice and enhance their technical skills.

DESIGNATIONS

- CAE-Cyber Defense

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NEIT classroom



The **New Jersey City University (NJCU)** Cybersecurity program is an interdisciplinary center for cybersecurity education, training, and research. The center aims to provide current and future professionals with the knowledge and skills necessary to thrive and compete within the cybersecurity community. Our student's foundation is built through their degree program, certificates, and research opportunities.

NJCU students have realized significant career success as a result of our Information Assurance/Cybersecurity offerings. Students are working in agencies such as the New Jersey Office of Homeland Security and Preparedness, United States Department of Homeland Security, The Regional Operational Intelligence Center of the New Jersey State Police (Fusion Center), Coast Guard Intelligence, Naval Intelligence, National Security Agency (directly and with contractors), and others. Additionally, we have graduates that have

enhanced their careers even on the municipal policing level, working to develop their agency's information assurance programs. We also have those working in the private corporate sector.

The Cybersecurity Club at NJCU is a student-run organization focused on Cyber and Information Security topics. We provide free training using advanced technologies in digital forensics, log analysis, server configuration and hardening, virtualization, and industry leading certificates training. We utilize state-of-the-art Cyber Lab also known as Simulated Command Center with Cyber Lab located in the Professional Studies building.

President Sue Henderson Ph.D. is immensely supporting the advancement of our cybersecurity program, training, and research.

DESIGNATIONS

- CAE-Cyber Defense

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njcu.edu/professional-security-studies/cyber-security



President Dr. Sue Henderson (Middle), Dean Dr. Deborah Woo (Left) Dr. Kutub Thakur (Right) Assistant professor and director of cybersecurity program



New Mexico Tech is a public education and research university focused in science, technology, engineering, and mathematics, and is classified by the Carnegie Classification as a Research Doctoral: STEM-Dominant Institution.

With a long history of national defense related research, the Computer Science and Engineering (CSE) department at New Mexico Tech started to offer cybersecurity focused educational programs in 2001. The Information Technology (BS in IT) program, with the special emphasis on cybersecurity, was developed to serve as a national powerhouse for better training cybersecurity workforce with integrated research, training, and educational efforts. The CSE department offers BS in Computer Science, MS in Computer Science, and PhD in Computer Science degree programs. In addition, the department recently developed and offered

a graduate certificate program in cybersecurity for graduate students and post-baccalaureate professionals who want to build and strengthen their capabilities in cybersecurity for their academic and professional work. The cybersecurity program at the department includes foundational course offering such as Cryptography and Applications, Foundations of Information Security, Information Protection and Security, and Network Security, as well as many special topic and advanced courses on cybersecurity such as Access Control & System Security, Secure System Administrations, and Hardware-based Network Security.

New Mexico Tech is also the home of the Institute for Complex Additive Systems Analysis (ICASA), established by the New Mexico Legislature as a computer security and forensics division focused on cyberterrorism and cybercrime.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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New York University (NYU) is a private doctoral research university which is accredited by the Middle States Commission on Higher Education and New York State to award bachelor, masters, and advanced certificate degrees. The CAE-CO designation is for our Master of Science in Cybersecurity program. The CAE-R designation is for our Doctor of Philosophy in Computer Science program. The face-to-face program has been in existence at NYU for many years. This year, we extended the program to allow working adults from all over the country to remotely participate part-time in the program and attracted over a hundred students in our first cohort.

Due to the dedicated and successful work of promoting excellence in its cybersecurity programs, NYU has taken significant steps to institutionalize and sustain efforts through multiple educational and research initiatives. Recent initiatives include the

establishment of The NYU Center for Cybersecurity (CCS). NYU CCS is an interdisciplinary research institute dedicated to training the current and future generations of cybersecurity professionals and to shaping the public discourse and policy, legal, and technological landscape on issues of cybersecurity. NYU CCS is a collaboration between the NYU School of Law, NYU Tandon School of Engineering, and other NYU schools and departments. NYU CCS has institutional support as it helps NYU to deliver interdisciplinary cybersecurity education.

NYU offers students many diverse career and academic paths through four different graduate programs in cybersecurity. These include full and part-time online applied Master of Science degree in Cybersecurity, an interdisciplinary program in cybersecurity risk and strategy and a traditional academic Ph. D. in computer science with a focus in cybersecurity. The MS in Cybersecurity has the option to take courses both on-campus and online. A part-time lock-step curriculum for US citizens who want to pursue the MS in Cybersecurity online is available through the NY Cyber Fellowship program. The NY Cyber Fellowship provides a 75% scholarship towards tuition for the elite online Cybersecurity Master's Degree.

In the MS in Cybersecurity Risk and Strategy (CRS), courses are taught from a comprehensive perspective that combines the benefits of top-tier schools and leading faculty from computer science, law, policy, and business. CRS is a one-year program intended for experienced professionals from a range of backgrounds who seek to deepen their understanding of cybersecurity risk and strategy.

DESIGNATIONS

- CAE-Research
- CAE-Cyber Operations

CONTACT INFORMATION

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CYBERSECURITY AT NORFOLK STATE UNIVERSITY

We See the Future in You.

Cybersecurity at NSU

Norfolk State University (NSU) is positioned to be a national leader in cyber related research and education, providing opportunities for students to learn about the theory and practice of Information Assurance and Cybersecurity. The programs address the nation's growing need for a diverse group of qualified cybersecurity professionals. NSU is leading the way in developing the next generation of cybersecurity professionals to offer cutting edge curriculum designed for providing real world impact.

The Master of Science in Cybersecurity program empowers graduates from multidisciplinary backgrounds with the knowledge and skills to realize their full potential as next generation technical and organizational leaders in the ongoing war against cyber-crime and cyber terrorism. Our cybersecurity offerings are varied to include every aspect of protecting our nation's infrastructure. NSU holds

several key designations for its education and research programs in cybersecurity. In addition to the National Center of Academic Excellence in Cyber Defense (CAE-CD) Research, they also hold designation for Intelligence Community Center for Academic Excellence and Cybercorps Scholarships for Service.

The NSU Cybersecurity Complex located in the Marie V. McDemmond Center for Applied Research, includes state of the art data centers and research labs that provide training for students in areas that include cloud computing, big data analytics, digital forensics, wireless security, cyber-psychology, socio-cybersecurity and more. As a leader in cybersecurity education and research, the Cybersecurity Complex prepares today's students to provide tomorrow's cybersecurity solutions.

The Master of Science in Cybersecurity is an "all online" program that focuses on computer and information security, and on increasing the pool of well-educated security professionals. Students engage in theoretical studies and practical training like digital forensics, while developing the critical thinking and communication skills required by professionals in the cybersecurity field.

Norfolk State University is proud to offer the first Master of Science in CyberPsychology in the United States. No matter the cyber discipline, our students are prepared to defend US citizens and public, private and government organizations against cyber-attacks.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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North Carolina A&T Campus

The Center for Cyber Defense at North Carolina Agricultural and Technical State University (NC A&T) was designated as a Center of Academic Excellence in Information Assurance Education for the Academic Years 2010-2015 and was redesignated as Center of Academic Excellence in Cyber Defense (CAE-CD) for the Academic Years 2014-2021.

The Center for Cyber Defense at NC A&T was designed to educate and prepare students to serve the United States as professionals in the field of cybersecurity. The primary goal towards meeting this objective is to develop its integrated education and interdisciplinary research program in cybersecurity.

The Department of Computer Science (CS) offers the following programs: B.S. Certificate in

Cybersecurity; B.S. in CS with a Cybersecurity track; MS in CS with a Cybersecurity track.

Faculty in the Center for Cyber Defense at NC A&T conduct research in various areas of cybersecurity, including cyber identity, big data and data analytics for cybersecurity, cloud security, biometric-based authentication, software security, usable security, human factors in security, mobile security, and assured social computing.

The research and education activities in the Center for Cyber Defense are funded by the Department of Defense, National Science Foundation, National Security Agency, and National Nuclear Security Administration.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Students Working in the Cyber Defenders Lab



Hunt Library on NC State's award-winning Centennial Campus is consistently ranked among the world's top libraries, providing cybersecurity students and faculty with unparalleled resources

NC State University was one of the first 23 National Centers of Academic Excellence in Cybersecurity Research (CAE-R), holding its designation since 2008. The university is located in Raleigh, NC and is part of the "Research Triangle," which is home to three large research universities and many technology companies, including IBM, Cisco, RedHat, and Google.

NC State's cybersecurity research expertise is based in the Secure Computing Institute (SCI) whose mission is to enhance the security and privacy of computing systems for the betterment of society through (1) performing basic and applied research; and (2) advancing and delivering cybersecurity education. SCI includes the Wolfpack Security and Privacy Research (WSPR) Laboratory, the NSA Science of Security Lablet at NC State, the Hardware and Embedded Cybersecurity Research (HECTOR)

Lab, and the Secure Advanced Computer Architecture (SACA) Group. NC State is also the home of the NSA Laboratory for Analytic Sciences (LAS).

Cybersecurity research at NC State spans many CAE focus areas, including principles, security mechanisms, architecture, assurance, and analysis. Its research contributions range from theoretical to practical, from client-side to server-side, and the network in between. NC State has made strong contributions to the security and privacy of software and hardware systems with notable recent advances in software supply chain security, mobile security, web browser security, telecommunications security, and hardware side-channel attacks. Researchers use a range of methodological tools, including formal proofs of security for cryptographic systems, static and dynamic program analysis of software, and large-scale empirical studies.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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SCI Co-Directors William Enck and Laurie Williams



Founded in 1933, **North Idaho College (NIC)** is a comprehensive community college located on the stunning shores of Lake Coeur d'Alene. In 2017, NIC became the first community college in the state of Idaho to earn the Center of Academic Excellence in Cyber Defense designation from the NSA and DHS.

NIC offers an Associate of Applied Science (AAS) degree and technical certificates in the Computer Information Technology (CITE) program. Faculty use lectures with a hands-on focus to provide a comprehensive education preparing students to be able to pass industry certifications and gain employment in the IT industry. Much of the latest hardware and software necessary to provide the quality training was purchased using a grant funded by the Department of Defense. Our students are required to complete three credits of internship experience as part of the Advanced Technical

Certificate and AAS degree. This experience enables individuals to further gain the required knowledge and skills to be successful in information technology and cybersecurity-related fields while undertaking real-life challenges across the information technology industry.

NIC has operated a Cisco Networking Academy for over 20 years, is a Microsoft IT Academy member institution, and maintains academic partnerships with industry leaders such as CompTIA and VMware. Since earning the CAE-CD, NIC has also joined CyberWatch West and the National CyberWatch.

Faculty at North Idaho College have participated in the peer review process for candidates applying to NSA for the CAE-CD designation and attended faculty professional development sessions by colleges and universities participating in the CAE-CD program.

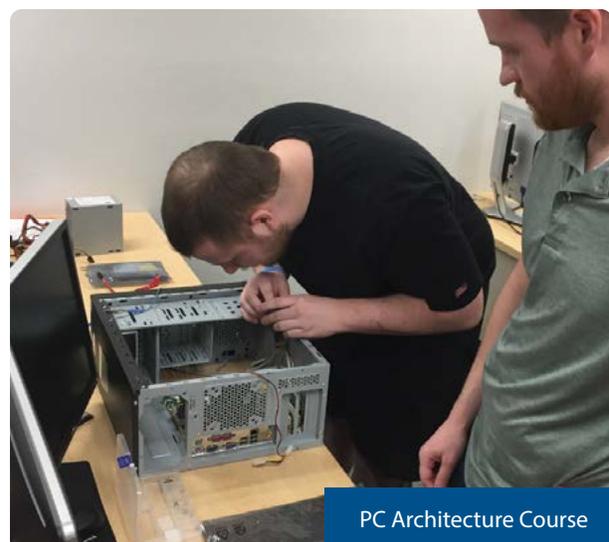
DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Established by the State Legislature in 1973 as a comprehensive community college offering vocational/technical, liberal arts, college transfer, and continuing education, **Northeast Community College** is a two-year college serving residents of a 20-county area in the northeast edge of Norfolk, Nebraska. Northeast is the only community college in the state with one- and two-year vocational, liberal arts, and adult education programs all on one main campus.

Service Area

According to 2010 census figures, approximately 160,000 persons live in small towns, villages, and rural areas within the College's 20-county service area. Agriculture and agribusiness are the principal industries in the area. Northeast has three extended campuses and two regional offices to serve the

needs of off-campus students in the 20-county service area.

Information Technology Degree Options

The information technology career field has many areas of specialization. To give students the ability to choose their areas of specialization, the information technology department has developed several AAS degree concentrations which focus on a wide variety of topics. Students choose from two of the following career concentrations: Cisco Networking Academy, Information Security, IBMi Application Development, Web and Visual Application Development, and Technical Services Support. Any student that chooses Information Security as one of their two concentration areas will complete the required Knowledge Units as identified for CAE-CD designation.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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West Village H (College of Computer Sciences)

Cybersecurity has been a major focus of research and education at **Northeastern University** since the turn of the century. The University has been recognized as a CAE-CD since 2002, as a CAE-R since 2008, and as a CAE-CO since 2012.

Cybersecurity is treated as a cross-disciplinary field involving computer science, electrical engineering, political science, and law. Interdisciplinary teams of researchers work on security and privacy challenges in cryptography, cloud security, mobile and wireless, and malware analysis and detection. To integrate the cross disciplinary collaborations, the Cybersecurity and Privacy Institute was formed in 2016 with nearly 100 faculty and student researchers funded by government agencies such as NSF, DARPA, ONR, and IARPA as well as industrial supports such as Google, Microsoft, and PwC.

Northeastern University continuously expands its cybersecurity education programs. Students are encouraged to participate in cybersecurity activities such as Capture the Flag, Hack Beanpot, MITRE embedded CTF (winners in 2019, 2020, and 2021), the DoE CyberForce (local winners in 2019), the Industrial Control System security competition Hack The Port (winner in 2022). Since 2008, students participated in the National Collegiate Competition in Cyber Defense, winning the national championship in 2010, and more recently the Northeast CCDC (2022). Northeastern is also a recipient of the NSF CyberCorps (SFS) and DoD CYSP scholarships grants supporting students to focus on obtaining an excellent cybersecurity education and contribute to the U.S. National Cyber Strategy to develop a superior cybersecurity workforce. Strong student interest in the field prompted the creation of a PhD in Cybersecurity in 2011, and a BS degree in cybersecurity, introduced in 2017. On the research size Northeastern University researchers (led by PI Noubir) participated in several DARPA Wireless Competitions, winning in DARPA DSC 2013, SC2 2017, 2018, and a finalist in 2019 (over \$1.5M in prizes).

Realizing that cybersecurity problems cannot be solved by technology alone, computer science faculty led the effort in designing interdisciplinary MS and PhD programs in cybersecurity to provide students a holistic view of cybersecurity, from both technical and social/economical standpoints.

As one of the first CAEs in New England, Northeastern University has been frequently invited to serve on panels to discuss and to present cybersecurity education and research.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations
- CAE-Research

CONTACT INFORMATION

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Griffin Hall, home of NKU's College of Informatics

Northern Kentucky University (NKU) is a metropolitan university of more than 16,000 students located in the Kentucky suburbs of Cincinnati, OH. NKU offered its first cybersecurity course in 2000. The inception of the College of Informatics (CoI) in 2005 helped dissolve barriers between information disciplines, enabling faculty to rapidly create new cybersecurity programs.

NKU offers a Bachelor of Science in Cybersecurity, as well as a Cybersecurity track in the Bachelor of Science in Computer Information Technology degree. At the graduate level, NKU offers an online Master of Science in Cybersecurity. Additional cybersecurity programs include minors in computer forensics and information security.

NKU was designated as a National Center of Academic Excellence in Cybersecurity in 2014. The

Center for Information Security at NKU works with the Colleges of Informatics and Law to organize an annual cybersecurity symposium. The first symposium was held in 2007. NKU has also held a variety of cybersecurity outreach programs for K-12 students, including summer camps and workshops for girl scouts to obtain cybersecurity badges, and for K-12 teachers, including a virtual GenCyber summer camp.

The university hosts two cybersecurity student organizations: a cyber defense team and a women in cybersecurity (WiCyS) organization. The cyber defense team has competed in the Collegiate Cyber Defense Competition since 2009, placing first in the state of Kentucky multiple times and competing in the national CCDC in 2014. The WiCyS group brings speakers to students and participates in the annual WiCyS conference, with two students receiving an award at the WiCyS 2021 conference.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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NKU students receiving award at Women in Cybersecurity 2021 conference



Northern Michigan University (NMU) is dedicated to education the next generation of cybersecurity professionals. NMU has a supportive and engaged community of faculty, staff, and industry partners. NMU is a beautiful campus located on the shores of Lake Superior in northern Michigan’s upper peninsula. The beauty of the upper peninsula and the growing professional community in Marquette make it an excellence play to live and learn. NMU’s cyber defense program prepares students for emerging careers in information technology. At NMU, students learn by doing. NMU has two cyber labs that contain physical networking equipment, IoT hacking devices, and auto hacking equipment.

NMU’s Student Cybersecurity Association serves the community by providing technical support, and also learns new technology together. NMU’s Upper Peninsula Cybersecurity Institute (UPCI) engages with

the K-12 community and industry stakeholders. NMU’s goal is to provide cybersecurity education to learners before they get to the university, while earning their university degrees, and provide continuing education to support lifelong learning. NMU support students beyond the classroom by giving opportunities such as participation in Michigan’s Cyber Auto Challenge and other hacking competitions.

Graduates from NMU’s cyber program have gone on to become project managers, network support engineers, information technology auditors, system support specialists, and more. NMU is a great launchpad for long-term success. NMU is unique in that it enables the digital infrastructure to deliver its education through the Education Access Network—a broadband cell tower network in the region that provides high speed access to educational materials to a diverse population.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Cybersecurity Professional

Northern Virginia Community (NOVA) is the largest supplier of talent in Northern Virginia and one of the largest community colleges in the US, comprised of more than 80,000 students and 3,400 faculty and staff members. We welcome students of all ages and back-grounds with the goal of ensuring every student succeeds, every program achieves, and every community prospers.

NOVA's mission is to deliver world-class, in-person and online postsecondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and a globally competitive workforce.

NOVA boasts one of the largest cybersecurity programs in the nation. As an extension of NOVA's leadership in cybersecurity, NOVA is a founding member of the National CyberWatch Center - a

national consortium of colleges and universities focused on improving cybersecurity education.

As the first community college in Virginia to be designated as a Center of Academic Excellence for two-year institutions (CAE2Y), NOVA's program immerses you in course work setting students up for 4 industry certifications.

Focusing on practical skills and topical security issues makes it an ideal degree program for students who already have a degree in an unrelated discipline and want to transition into a cyber career. For students just starting out, it transfers to 9 different bachelor's degree programs (many of them CAEs).

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Cybersecurity Student



Northwest Missouri State University Campus

The School of Computer Science and Information Systems at **Northwest Missouri State University** offers a B.S. in Cybersecurity degree where students develop skills and knowledge, including prevention, detection, and response to cyberattacks on computer-related infrastructure within an organization. Coursework in networking, ethical hacking, digital forensics, cyber risk management and response, applied cryptography, and secure systems administration provide a strong foundation in important security topics. In addition, students take computer science courses to help develop technical skills. Majors are exposed to programming with Python and Java, database systems including SQL, and web service technologies. All majors in the School of CS & IS have the opportunity to obtain knowledge in their field of study, develop professional competencies to communicate that knowledge, and acquire a value system to make

sound decisions regarding issues professionals will encounter on their workplace. Faculty in the School of Computer Science and Information Systems regularly connect with industry professionals who help shape the curriculum. This relationship provides timely content updates, as well as job and internship opportunities and guest speakers. The placement rate for School of CS/IS undergraduates is 97.8%.

Students at Northwest can become involved with cybersecurity beyond the classroom through participation in the Cyber Defense Club. This active student group meets weekly and participates in competitions and was named the Outstanding Student Organization at Northwest Missouri State University in 2018. In the H@ctivityCon 2021 competition, Northwest's Cyber Defense Club placed 63rd out of 2,527 teams. In the National Cyber League competition in 2018, one Northwest team placed 9th out of 54 teams in the gold division and 10th overall out of 368 teams. Some students interested in cybersecurity may also have an interest in gaming. In the fall of 2020, Northwest opened an Esports facility and has a team that participates in gaming competitions.

The current networking lab and classroom space are planned for remodeling into a Cybersecurity lab and classroom space beginning in July 2022. The renovation will allow students to learn new tools and techniques in an updated space with cutting edge technology. A large classroom space will provide a place for guest speakers and student groups to learn more about cybersecurity opportunities at Northwest and in the professional world.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Norwich University offers three cybersecurity programs: Bachelor of Science in Computer Security and Information Assurance, Bachelor of Science in Cyber Security online degree completion program, and a Master of Science in Information Security and Assurance. The services of our graduates at all levels are in high demand by private industry, government, law enforcement, the military, health services, and academia. Whether they are focused on computer network security, malware, forensics, or cyber investigation, our students will be well prepared for the kind of job that never gets stale and protects our country and private interests. With a focus on both theory and hands-on experience, Norwich provides a truly unique program utilizing state-of-the-art forensic tools unheard of at other institutions of this size. Norwich faculty make sure students at all levels and programs have a command of the basics, and then find opportunities for them both to work with

companies on real cases.

Ranked #2 by the Ponemon Institute for Cybersecurity in the U.S., Norwich University programs are consistently ranked among the best in the nation for cybersecurity education. Norwich University is recognized as a Center of Academic Excellence in Cyber Defense by the NSA and DHS and has received designation as a Center of Digital Forensics Academic Excellence by the Defense Cyber Crime Center. Beginning in 2002, Norwich University became a member of what is now called National Science Foundation's CyberCorps[®]: Scholarship for Service (SFS) program. Norwich is partnered with the United States Army Reserve to develop cyber-education curricula that align with federal standards and cybersecurity needs. Most recently, Norwich's online graduate program was named one of the top 10 best cybersecurity graduate programs in the country by Universities.com.

DESIGNATIONS

- CAE-Cyber Defense

Norwich is also home to GenCyber@NU, a National Security Agency and National Science Foundation-funded cybersecurity camp for high school students.

CONTACT INFORMATION

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The College of Computing and Engineering (CCE) at **Nova Southeastern University (NSU)** is situated in a sprawling, 314-acre Fort Lauderdale-Davie campus.

NSU, established in Fort Lauderdale, Florida in 1964 as a small college with some revolutionary ideas, currently has approximately 24,000 students and 172,000 alumni. NSU is classified as a research university with “high research activity” by the Carnegie Foundation for the Advancement of Teaching and is one of only 50 universities nationwide to be awarded Carnegie’s Community Engagement Classification. It is the largest private, not-for-profit institution in the United States that meets the U.S. Department of Education’s criteria as a Hispanic-Serving Institution.

Designated as a Center of Academic Excellence in Cyber Defense (CAE-CD) since 2005, NSU

is a recognized regional and national leader in cybersecurity education. Our distinguished faculty engage students in a unique, interactive learning environment that facilitates academic excellence and prepares our students for their future careers while they earn a BS, MS, or PhD, especially in our cybersecurity programs.

NSU offers three graduate degrees focusing on cybersecurity: MS in Information Assurance & Cybersecurity (technical, with focus on network security engineering); MS in Cybersecurity Management (managerial, with focus on security policy development and compliance); and PhD in Cybersecurity Management.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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NSU's Cybersecurity Day Outreach for high-school students every October since 2013



Ohlone College Campus

Ohlone College offers high quality educational and career pathways and personal enrichment courses to serve the diverse needs of all students and the community. Ohlone provides excellent instruction and support services, awards associate degrees and certificates, and promotes university transfer in an inclusive, equitable, and multicultural environment where student learning and achievement are paramount. Ohlone fosters innovation, encourages student expression, and promotes ethical behavior and global citizenship.

The Departments of Computer Science and CNET (Computers, Networks, and Emerging Technology) at Ohlone College offer courses that prepare students interested in transferring to a four-year university. Our programs for Associate Degrees and Certificates prepare students for employment in the fields of computers, networking, and emerging

technologies. Many of our students go on to pursue successful careers as computer programmers, cybersecurity specialists, business analysts, database administrators, systems administrators, support specialists, network technicians, computer engineers, web developers, and other related positions. Our CNET Department is a Cisco Network Academy, VMWare Authorized Academy, Palo Alto Network Academy, CompTIA Academy, and Microsoft IT Academy.

Our teaching philosophy is “learning by doing,” where students are taught by industry professionals and are given the opportunities to apply their academic studies to generate real-world solutions. In the classroom, our faculty, the majority of whom have deep backgrounds with Silicon Valley technology companies, share their real skills, experiences, and knowledge.

Meanwhile, our advisory board consists of industry leaders to ensure that our programs are up to date with cutting-edge industry trends.

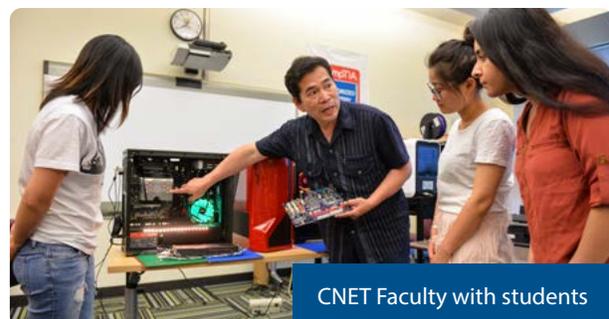
DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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CNET Faculty with students



Since its inception in 2003, **Oklahoma City Community College's (OCCC)** Cyber/Information Security program strives to prepare students for many in-demand cybersecurity positions. Graduates have obtained positions in both private industry and government positions throughout Oklahoma and surrounding states.

In April 2010, OCCC was among the first six, 2-year institutions to receive the designation as a Center of Academic Excellence in Cyber Defense (CAE-CD). We are proud that OCCC has continued to maintain this designation until 2021. This prestigious designation validates the education received by OCCC students.

OCCC offers an Associate degree and a Certificate of Mastery in Cyber/Information Security. Classes offer an offensive and defensive approach to

cybersecurity and topics covered include computer operating systems and hardware, computer programming, database systems, information security principles, network security and administration, secure e-commerce, enterprise security management, and cyber forensics. Students are also prepared for industry preferred cybersecurity related certifications.

OCCC students are provided a hands-on and well-rounded experience to develop their knowledge that is geared towards meeting industry needs. This is achieved through classroom lectures, labs inside and outside the classroom, in-class student presentations, individual and group research projects, guest lectures, Cyber Club meets, and National Cyber League Competitions. OCCC also hosts monthly InfraGard and quarterly Information Systems Security Association (ISSA) to further align its program with industry needs.

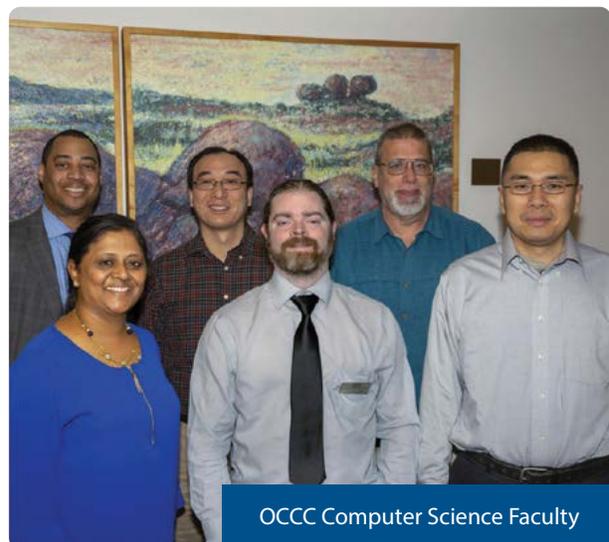
DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Oklahoma State University is a land-grant institution with more than 35,000 students across a five-campus system.

Located in Stillwater, Oklahoma, **Oklahoma State University (OSU)** was founded on Christmas Day in 1890 as Oklahoma Agricultural and Mechanical College. OSU has been a designated Center of Academic Excellence in Cyber Defense (CAE-CD) since 2005 and as a Center of Academic Excellence in Research (CAE-R) since 2008. OSU was one of the first universities to be awarded the CAE-R designation and was the first university in the country to hold both the CAE-CD and CAE-R designations simultaneously.

The STEM-certified Management Science and Information Systems department in the Spears School of Business offers cybersecurity degree paths at the undergraduate and graduate levels and also houses the Center for Telecommunications and Networking (CTANS). CTANS was established in 2002 as OSU's focal point for research, teaching, and

outreach in information assurance and forensics.

The OSU Information Security and Assurance Club (ISAC), established in 2009, offers students a central location for hands-on cybersecurity experience by way of a dedicated lab in the new Spears School of Business building. ISAC students compete annually in the Collegiate Cyber Defense Competition, act as mentors to the Stillwater High School cybersecurity club, and experience a high degree of interaction with invited guests that often leads to job offers in both government and corporate environments.

Faculty at OSU are actively engaged in research, editorial positions, and grant writing in all areas of cybersecurity and invite collaboration with other members of the CAE community.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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Students from ISAC compete annually in CCDC with support from the MSIS Department, Spears School of Business and the Center for Telecommunications and Network Security (CTANS).



Old Dominion University (ODU), located in the coastal city of Norfolk, is Virginia's entrepreneurial-minded doctoral research university with more than 24,000 students, rigorous academics, an energetic residential community, and initiatives that contribute \$2.6 billion annually to Virginia's economy.

The ODU Center for Cybersecurity Education and Research (CCSER) supports ODU's mission to serve its students and enrich the Commonwealth of Virginia, the Nation, and the world through rigorous academic programs, strategic partnerships, and active civic engagement. The mission of CCSER is to promote cybersecurity research and education in an interdisciplinary setting. The CCSER includes faculty and staff from across all colleges and reporting units at the university, including Information Technology Services, VMASC, and Military Affairs. Housed in CCSER, the Bachelor of Science - Cyber

Operations Major was designated as a CAE in Cyber Operations in 2019. This degree places an emphasis on technologies and techniques applicable to all operational and system levels. Coursework in cyber operations balances theory, practice, and hands-on labs inspired by real-life scenarios. Skills and competencies emphasized are in system attack, infiltration, exploitation, defense, mitigation, and recovery.

ODU students will have the skills and proficiencies that are critical to intelligence, military, and law enforcement organizations authorized to perform these specialized operations, playing a role in the enhancement of the national security posture of the Nation.

DESIGNATIONS

- CAE-Cyber Operations

CONTACT INFORMATION

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OWENSBORO COMMUNITY AND TECHNICAL COLLEGE



OCTC Main Campus

Owensboro Community and Technical College (OCTC) is a public, open-access institution in Owensboro, Kentucky. It is one of the 16 colleges that make up the Kentucky Community and Technical College System (KCTCS). OCTC, with four campuses, plays a vital role in the region for economic development, educational attainment, preparedness for transfer to a university, or transitioning directly to a professional career.

OCTC supports the dynamic Computer & Information Technologies (CIT) Program. The CIT program offers Associate in Applied Science degrees and multiple certificates in the focused areas of information security, programming, network administration, and website development and administration. Graduates of the CIT program are employed at many different organizations throughout the region. In addition, many CIT

graduates continue their education at Kentucky colleges and universities that have transfer agreements with KCTCS/OCTC.

The CIT – Information Security (IS) Program earned the CAE-CD designation in 2019. The IS option provides students with a comprehensive foundation in the principles of cybersecurity, as well as the fundamental knowledge required for entry-level positions in the cybersecurity industry. The IS option covers a wide variety of security analysis, defensive tools, and concepts. Students experience hands-on practical assignments that prepare them for the real world. Included in their experience at OCTC are opportunities to participate in service-learning projects where students give back to the community by providing technical expertise.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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OCTC CIT Students working in lab



The Seidenberg School of Computer Science and Information Systems at **Pace University (Pace)** offers robust academic programs for students to focus on cybersecurity topics such as cyber defense and threats, cryptography, biometrics, security design principles, web security, network and device forensics, human-centered attacks, information security policy, cybersecurity analytics, and machine learning. Cybersecurity is embedded in all levels of Pace's academic programs, which includes a cybersecurity concentration in the Bachelor of Science in Information Technology and the Master of Science in Cybersecurity, launched in September 2020.

Pace has established a growing community of cybersecurity students through student club activities, competitions, and workshops. To enrich the students' experience, we support professional development activities that assist students in

career planning, enhance their technical skills and professional profiles and connect them with potential employers. Pace also offers two cybersecurity scholarship programs, including the DoD CySP program supported by the Department of Defense and the CyberCorps: Scholarship for Service program supported by the National Science Foundation.

To increase diversity in our cybersecurity students, we focus on recruiting and retaining students from underrepresented groups and foster deeper understanding of cybersecurity through experiential learning and mentoring, including opportunities to work closely with faculty in research projects and in their research labs. Related labs include the Cybersecurity Education and Research Lab, the Computer Forensics Lab, and the Intelligent Agents Lab.

DESIGNATIONS

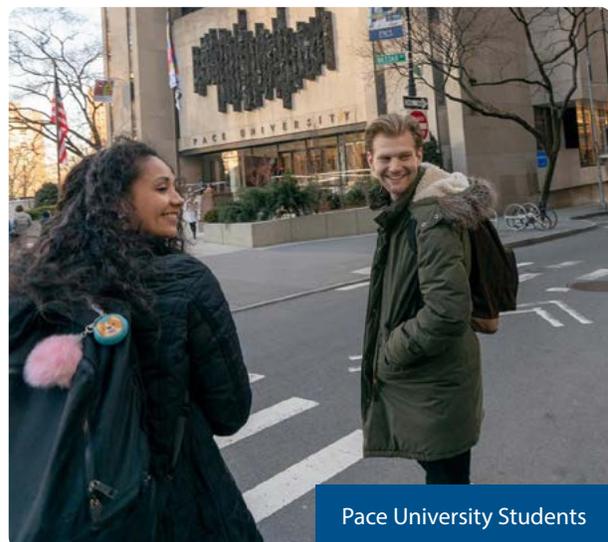
- CAE-Cyber Defense

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Pennsylvania Highlands Community College is a dominant higher education provider in west central Pennsylvania and a catalyst for regional renewal, positioning our graduates to be recognized as highly competent, exceptional members of the community and workforce. Upon graduation, students are able to demonstrate the fundamental knowledge and integration of ideas, methods, theory, and practice. PHCC has six locations throughout the Southern Allegheny region that serve residents of western Pennsylvania.

Designated in 2018 for its Associate of Applied Science (A.A.S) in Information Technology: Cyber Security, Penn Highlands provides students with the ability to not only administer networks, but also to secure those networks and conduct penetration tests to ensure they are not vulnerable to attacks. Students work closely with faculty who maintain

current positions within local technology companies and perform cybersecurity work on a daily basis. Faculty affiliations allow students to have direct contact with local organizations when pursuing internship opportunities. Students cover aspects of the Microsoft Certified Solutions Associate (MCSA), CompTIA Linux+, Network+, Security+ and A+, Wireshark Certified Network Analyst, and the EC-Council Certified Ethical Hacker certifications.

Cybersecurity graduates are trained in computer hardware, operating systems, networking, databases, programming, and defensive and offensive security. They may enter the workforce immediately or transfer to a four-year program at colleges and universities. PHCC has a strong working relationship through articulation agreements with Indiana University of Pennsylvania that allow our cybersecurity program students the ability to attend any of their events.

DESIGNATIONS

- CAE-Cyber Defense

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Penn State University Campus

The **College of Information Sciences and Technology (IST) at Penn State University** is focused on solving problems and advancing opportunities that exist at the intersection of information, technology, and people. Students blend knowledge of information technologies— computer programming, discrete mathematics, database concepts, an understanding of information systems—with strong communication skills and teamwork to understand how information technologies can be used in real applications involving individuals, organizations, and national and global organizations. Faculty bring diverse professional expertise to the classroom, challenging students to think critically and work collaboratively to explore innovative solutions that lead to real-world impact. Penn State offers an undergraduate program that teaches students the skills they need to develop new technology and the role that technology will play in our lives, businesses, and the world. Students will

be challenged to think critically to solve problems using technology in a variety of contexts. Our programs include a set of courses that provide an understanding of the theories, skills, and technologies associated with network security, cyber threat defense, information warfare, and critical infrastructure protection across multiple venues. Penn State offers two cybersecurity-related certificates: a certificate of recognition and a certification of achievement. Any student who graduates with a major or minor in Security and Risk Analysis, or from the IST Masters program, receives a certificate of recognition. Students who completed the courses as required for the CAE designation receive a certificate of achievement noting their accomplishment. Both certificates verify that the student graduated from an institution and program whose faculty, curricula, and commitment were evaluated and found to be of high quality as defined by the NSA/DHS requirements.

DESIGNATIONS

- CAE-Cyber Defense

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Penn State IST Students



PPCC Rampart Range Campus

Pikes Peak Community College's cybersecurity degree program prepares people for the Cisco Certified Network Associate Security (CCNA Security) certification test or the Computing Technology Industry Association Security+ (CompTIA Security+) certification test. Students can then pursue careers as cybersecurity analysts, information systems security engineers, systems design engineers, and more. Easy job placement and a starting salary of \$60,000 a year make this a solid career path. With two new cyber labs at its Rampart Range and Centennial Campuses and an additional cybersecurity lab facility at the Catalyst Campus, PPCC has the capacity to provide affordable,

hands-on training to 75 qualified students at a time. In addition, PPCC's hands-on, non-credit cybersecurity courses are designed to teach experienced hobbyists and IT professionals all they

need to know to pass the Network+, Security+ and Certified Ethical Hacker (CEH) exams, the industry standards for anyone wanting to work in cybersecurity. Using brand new cybersecurity ranges, students work through realistic scenarios in the lab. With costs far less than most test-prep boot camps, the PPCC fast-track courses do not count toward a college degree but do come with a voucher to take the industry certification exam at no additional charge.

As part of our effort to become an NSA- and DHS-designated Center of Academic Excellence for Cyber Defense, PPCC is now part of both CyberWatch West (CWW), a group of universities and colleges interested in cyber defense and cybersecurity and the National CyberWatch Center, a consortium of higher education institutions, businesses, and government agencies focused on collaborative efforts to advance information security education and research and strengthen the national cybersecurity workforce. PPCC is also a member of the Department of Homeland Security (DHS) Stop. Think.Connect. Campaign.

DESIGNATIONS

- CAE-Cyber Defense

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PPCC Centennial Campus



Humber Building, PCC Main Campus

Pitt Community College (PCC) was founded in 1961 and is the sixth-largest college in the 58-member North Carolina Community College System. PCC educates and empowers people for success. With a culture of excellence and innovation, the college is a vital partner in the economic and workforce development of our community. PCC provides access to dynamic learning opportunities designed to foster personal enrichment, successful career preparation, and higher education transfer.

The College awards associate degrees, diplomas, and certificates for more than 60 programs and provides adult basic education, literacy training and occupational extension courses. The college serves more than 23,000 credit and non-credit students annually. The Associate in Applied Science in Information Technology: Cyber Security degree was designated a National Center of Academic

Excellence in Cybersecurity in 2020.

PCC offers an Associate in Applied Science in Cyber Security, a Cyber Security Certificate, and a Cyber Security Career and Technical Education Pathway for high school juniors and seniors. Faculty also host and lead an Air Force Association (AFA) CyberCamp each summer for rising 8th-12th graders.

The Cyber Security curriculum focuses on planning, implementing, and monitoring appropriate security controls to safeguard and protect computer networks and information. The program provides students with the skills required to implement effective and comprehensive information security controls. The program is supported by an active Advisory Board and academic partnerships with Cisco, Oracle, Microsoft, NDG, Palo Alto, Red Hat, and VMWare.

DESIGNATIONS

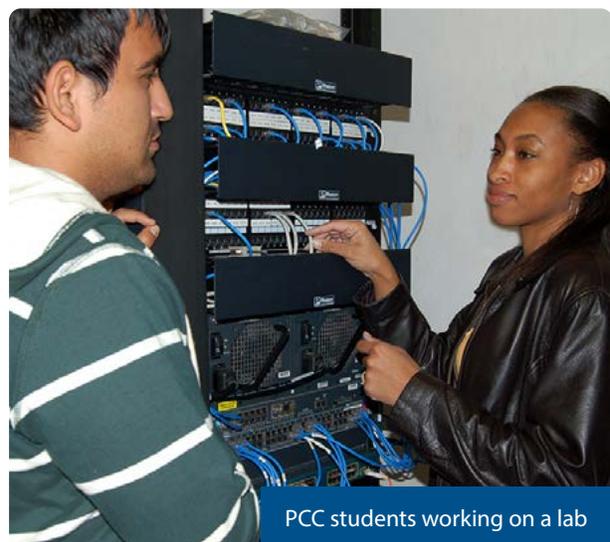
- CAE-Cyber Defense

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PCC students working on a lab



At **Pittsburgh Technical College (PTC)** within the School of Information Systems and Technology, our information technology (IT) associate of science degree students can choose between the Network Administration or Network Security and Computer Forensics concentrations which have earned the Center of Academic Excellence in Cyber Defense designation. You'll gain the rigorous theory and technical know-how employers are seeking as they build their cybersecurity teams. The program starts with faculty who not only know IT inside and out, they live it. PTC's instructors have the kind of experience that only comes from rolling up your sleeves and working in the industry. But just as important as all that knowledge and expertise is how they share it.

PTC's Jarrod Mochnick Center for Cyber Security (CCS) within the School of Information Systems

and Technology works to advance the practice and public awareness of IT and cybersecurity through education, service, and practice.

Our faculty offer guidance to students, members of different academic disciplines across the College, local government, and industry-aligned partners. PTC-CCS is dedicated to bridging education with study, practice, and research to provide an atmosphere that promotes applied hands-on research in IT and cybersecurity, with an emphasis on collaboration, innovation, and long-lasting learning.

Our students use leading forensics tools like FRED systems which set the standard for forensic acquisition and analysis workstations. PTC use of the Internet of Things (IoT) devices has increased rapidly in homes, businesses, factories, and hospitals. We use IoT devices to show how this growth has created an increase in security and cyberattacks. Businesses must address these new threats—and our students need to be prepared to meet those challenges. PTC also works with our community to assist and grow this knowledge.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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POLYTECHNIC UNIVERSITY OF PUERTO RICO



PUPR Campus

Polytechnic University of Puerto Rico (PUPR) is a private, non-profit, four-year co-educational higher education institution located in the Caribbean. It is the largest private Hispanic engineering school in all of the US and Puerto Rico and the only engineering school in the metropolitan area of San Juan. It was founded in 1966, currently offering academic degrees at the Bachelors, Masters, and PhD level. Twenty-three percent (23%) of the student body are female. Students come from diverse backgrounds.

The CAE-CD program at PUPR has helped to increase the number of qualified students entering the fields of information assurance and cybersecurity, protecting and defending cyberspace. Our NSF-SFS students are being placed in government cybersecurity positions with a rate of success close to 100 percent, securing internships and full-time jobs in federal agencies.

We have been able to expand the involvement of underrepresented/minority faculty and students in cybersecurity research that is critical to national security and are engaging students in professional activities such as internships, development of workshops, and other outreach activities that provide synergistic interactions through various activities in IA and security. We have been able to monitor student progress and constantly evaluate the outcomes of the program.

The Graduate School at PUPR offers a Master of Science in Computer Science with an area of interest in Cybersecurity. We also offer two cybersecurity graduate certificates in Digital Forensics and Information Assurance and Security.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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PUPR Capture the Flag "Cyber Fire" winning team, 2018



Home of PCC's Computer Information Systems program

As the largest post-secondary institution in Oregon, **Portland Community College (PCC)** serves nearly 73,000 full-time and part-time students. We offer high-quality education and opportunities for our students, contributing to the vibrancy of Portland's economic community.

Cybersecurity is infused throughout PCC's Computer Information Systems (CIS) programs, where students are encouraged to develop a security mindset. CIS students can earn a Cybersecurity Fundamentals certificate and a Cybersecurity Associate of Applied Science degree, both of which align with the CAE knowledge units. The program encourages students to participate in National Cyber League competitions where they engage in defensive and offensive puzzle-based challenges. A cybersecurity student club affiliated with the National Cybersecurity Student Association conducts monthly meetings

featuring everything from sharing competition experiences and tooltips to guest speakers. Faculty are active in the cybersecurity education community, consistently participating in the annual Community College Cyber Summit (3CS) as well as the CAE Community, where they learn how to best prepare students for jobs in the field.

Recognizing the need for good cyber hygiene throughout the entire campus, PCC uses cyber road maps with accountability measures to help the institution embrace the urgency of cybersecurity. There is an intentional focus on people and education – from engagement of the President, Board of Directors, and executive leadership to campaigns targeted at students, faculty, and staff. The college actively promotes awareness of security issues among students and staff each October during Cybersecurity Awareness Month.

PCC is educating future professionals to mitigate the shortfall of skilled cybersecurity personnel and applying the lessons students learn to its very own institutional practices.

DESIGNATIONS

- CAE-Cyber Defense

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CIS students collaborate to succeed



Portland State University Campus

Portland State University (PSU) is a National Center of Academic Excellence in Cyber Research (NCAE-R) by the National Security Agency (NSA) and the Department of Homeland Security (DHS). We are also an academic partner of the US Cyber command. PSU's excellence in Public Affairs education, workforce training, and community engagement in solving policy challenges, Computer Sciences and Engineering, and Business Administration presents a unique opportunity to build cross-disciplinary collaboration among faculty and students in the Cybersecurity and cyber defense fields.

The Mark O. Hatfield Center for Cybersecurity is a collaborative partnership of PSU Colleges and Schools dedicated to bringing together scholars, industry partners, and policymakers to train students and translate research findings into effective policy for Cybersecurity and cyber defense. PSU faculty

follow the university's motto, "Let Knowledge Serve the City," to pursue scholarship in an applied setting.

The Hatfield Cybersecurity Center strives to contribute to regional and national efforts to further cybersecurity expertise in research and education in ways that complement and enhance national goals and investments. In the interest of our national security, local governments are prepared to defend themselves from cyber-attack. Local governments and utilities represent the soft underbelly of America. They are prime targets for cyberattacks by adversaries of the US to cripple critical infrastructures. Our Center distinguishes itself from other CAE-R centers by shifting the focus from the federal level to prioritizing America's small and regional governments' cyber defense and emphasizes the need to build a bridge between technology (computer sciences and engineering), collaborative governance, public policy, and public awareness. We can better achieve these goals in partnership with our partner higher education institutions, Oregon State University, University of Oregon, and CAE designated Community Colleges in Oregon.

Our emphasis on an interdisciplinary educational and research framework meets current and future requirements in Cybersecurity:

- Follow the Academic Readiness criteria of NICE to meet national standards
- Establish a sustainable, diverse pipeline of students
- Quality, collaboration, and innovation
- Partnership with industry
- Establish a sustainable pipeline of students K12 through universities

DESIGNATIONS

- CAE-Research

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The Center of Advanced Technology host the Cybersecurity program

Prince George's Community College (PGCC), as a premier college in the Washington DC area, has delivered a superior and affordable education since 1958. Our students have become leaders in many career fields, including Cybersecurity. We give students a clear and direct path to their goals, which helps them save money, stay on track, and graduate faster. The Center of Cybersecurity at PGCC is also engaged in cybersecurity research with industry partners and outreach programs. PGCC hosts the National Cyberwatch Center, contributing to improving cybersecurity curricula across the nation. Furthermore, we were the only two-year college among 58 higher education institutions selected for the Protect Our Power Best Practice project, identifying, and recommending best cybersecurity practices to utility companies in North America.

students into highly skilled cybersecurity professionals who are ready for entry-level positions such as data security analysts, systems security administrators, and network security administrators. In this A.A.S program, students master the latest security technologies and examine the issues of information security awareness, network and system security breaches, systems and network security planning and defense, network security organization, as well as legal and ethical issues associated with Cybersecurity. Students also complete a capstone project in which they will design an information security system and implement a security strategy for a network. Importantly, we provide students with the opportunity to stack up credentials while working toward their degrees. In addition to the A.A.S. degree, several professional industry certifications and three certificates – the Network Security Certificate, the Cisco CCNA Preparation Certificate, and the Cybersecurity Certificate - may be earned and applied toward the degree. Moreover, students planning to pursue a bachelor's degree in Cybersecurity or related programs like Information Technology, Computer Science at area four-year institutions can leverage a growing number of articulation agreements.

The Cybersecurity programs at PGCC transform

DESIGNATIONS

- CAE-Cyber Defense

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PGCC Students



Pueblo Community College Main Campus

The National Security Agency and Department of Homeland Security have designated **Pueblo Community College** a Center of Academic Excellence in Cyber Defense (CAE-CD) for its cybersecurity program. The designation makes PCC the lone two-year accredited program in southern Colorado. “This designation is the culmination of years of dedication to training, development, education, and promotion of the cybersecurity discipline at PCC,” said Jennifer Sherman, dean of business and advanced technology. “We are proud to be a leader in this field as we address the workforce demand and talent pipeline for business and industry.”

Tim Gama, director of PCC’s cybersecurity program, spent the past year completing the accreditation process. PCC’s existing program had to meet stringent criteria to be approved.

“I was so pleased when told that the college had been awarded this distinguished accreditation,” said PCC President Patty Erjavec. “I could not be more proud of Tim and his fine efforts to move our cybersecurity program to this level.”

Students who complete PCC’s 60-credit program will receive an Associate of Applied Science degree in Networking Cybersecurity and will be prepared to test for certification in several areas. They will be able to enter the workforce immediately upon graduation or transfer to a four-year program “We’re training today for jobs not yet created,” Gama said. “With this designation, the industry will recognize that our students are trained and ready for the cyber industry.”

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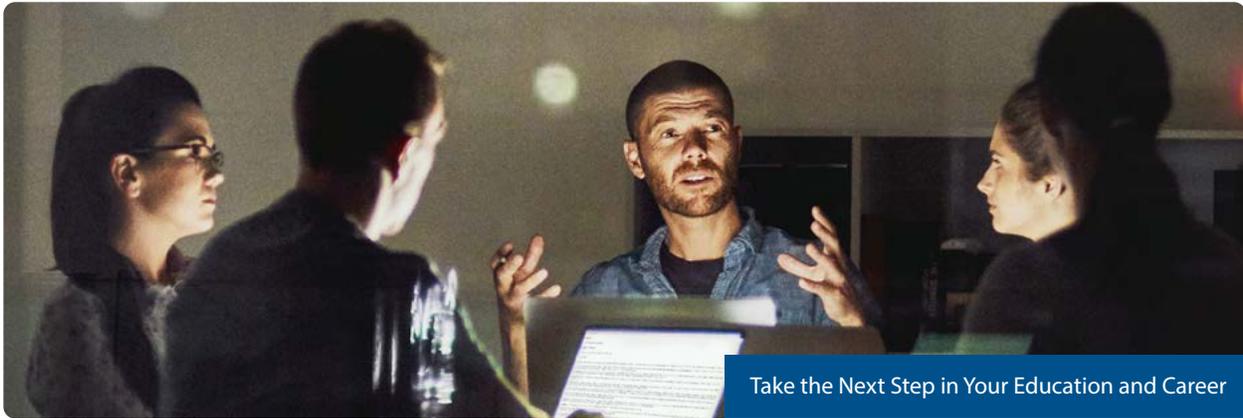
- CAE-Cyber Defense

CONTACT INFORMATION

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Take the Next Step in Your Education and Career

Purdue University Global's School of Business and Information Technology's mission is to develop the competencies of career-focused students to empower them as ethical, insightful, and solution-oriented decision-makers, leaders, and lifelong learners in increasingly complex and diverse global environments. Faculty members are practitioners and scholars, committed to innovation in teaching and intellectual contribution.

Purdue University Global is a public, non-profit institution that delivers personalized, world-class online education tailored to the unique needs of adults who have work or life experience beyond the classroom. The approach taken enables students to develop essential academic and professional skills with the support and flexibility they need to achieve their career goals.

DESIGNATIONS

- CAE-Cyber Defense

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Purdue Global is part of the respected Purdue University system. One of the most prestigious research universities in the world, Purdue University is ranked in the top 10 best public universities in the U.S. by The Wall Street Journal/Times Higher Education. These rankings demonstrate Purdue's commitment to providing higher education at the highest proven value. The Bachelor of Science in Cybersecurity and the Master of Science in Cybersecurity Management are both CAE-CD programs of study. Both programs are completely online and available in our competency-based format as well for students who prefer the flexibility to move at their own pace and accelerate their program with skills and experience, they have achieved.

Our undergraduate students can submit a portfolio of their work experience and accomplishments to earn credit towards their degree as applicable. In addition, while the program prepares students for industry certifications across-the-board, the university also provides transfer credits for certifications earned prior to/during their enrollment. Ideally students can fill in skill gaps while not repeating foundational coursework when they can demonstrate competency via certifications or the portfolio process.

One major benefit for all students is the option to do an internship prior to completing their program. External placement is an option but for those students in geographic locations with limited job availability, they can still complete a virtual internship with our internal company that has been set up to provide students with essential workplace skills, both from a technical and leadership perspective.



Cybersecurity Undergraduate Students at Purdue University Northwest

Purdue University Northwest (PNW) is a student-centered university that values academic excellence, supports growth, and celebrates diversity. Located near Chicago in northwest Indiana, PNW fosters a vibrant academic community through high quality and engaging undergraduate and graduate education. PNW's College of Technology partners with business, industry, and government to bring students opportunities to solve real-world problems, leading to internships and jobs. Most courses are application-oriented and include laboratories with state-of-the-art equipment.

The CAE path, Bachelor of Science in Computer Information Technology (CIT) undergraduate program, is accredited by CAC-ABET. The curriculum is designed to follow IEEE/ACM curriculum guidelines, and courses are implemented with extensive hands-on activities and lab practices.

Students are prepared with knowledge, skills and abilities that can be mapped to multiple NICE Work Role Categories (Protect and Defend, Analyze, Operating and Maintain, Secure Provision). The CIT programs enroll over 200 undergraduate and 30 graduate students. The Cybersecurity concentration was launched in Fall 2019 and currently enrolls over 80 students.

PNW's workforce development is supported through an NSF SFS CyberCorps® Scholarship program, an NSA-sponsored pilot Cybersecurity workforce training program, and a partner of the K12 Cybersecurity Pipeline Ring Coalition. These programs prepare highly qualified cybersecurity professionals to be placed in government agencies, train primarily transitioning military and first responders to join the cybersecurity workforce and develop a K12 cybersecurity pipeline.

DESIGNATIONS

- CAE-Cyber Defense

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Cybersecurity Student Study Session



Main Campus - Lakewood, Colorado

Since 1969, **Red Rocks Community College (RRCC)** assists students in meeting ambitious career and educational goals in an exciting, collaborative environment with multiple pathways to success. Red Rocks Community College delivers career-enhancing courses, certificate programs, and degrees that represent a solid investment in each student's goals and career success. RRCC embraces the leadership role of providing education that is firmly rooted in real-world applicability. RRCC has a diverse palate of courses including hybrid and online that are facilitated by experienced educators.

The National Security Agency and U.S. Department of Homeland Security designated RRCC as a Center of Academic Excellence in Cyber Defense for its Bachelor of Science in Secure Software Development, one of the only degrees of its kind in the nation. This degree completes the cybersecurity

program at RRCC, being able to offer both security in hardware and networking and secure software development. With this degree, RRCC provides a pathway that is true to our local, state, national, and international communities and supports changing trends as they impact the success of our students' career and educational goals.

The mission of the Computer Technology Department is to prepare students for a successful career in computer information systems by offering industry skills that are in demand through our degree and certificate programs. The department's educational, professional, and sustainability objectives include producing graduates that can secure jobs in a variety of areas, providing internal and external training for faculty, and staying up to date with current technology trends.

DESIGNATIONS

- CAE-Cyber Defense

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Cybersecurity Club



Regent University – Home of the Institute for Cybersecurity

The demand for computer and information technology occupations is projected to grow by an astounding 12% through 2028 (U.S. Bureau of Labor Statistics). **Regent University** has expanded its areas of study to meet this need. In addition to offering robust programs on campus in Virginia Beach, Virginia, Regent's leading-edge computer, cyber, and IT programs are offered fully online with eight start times per year. These online degree programs are convenient for balancing coursework, a job, and life.

Regent University is proud to be designated as a Center of Academic Excellence in Cyber Defense for its BS in Cybersecurity.

In 2017, Regent took a cutting-edge leap and launched a state-of-the-art cyber range training center. In January 2020, CertNexus announced that the Institute for Cybersecurity was named the 2019 Most Innovative Authorized Training Partners of

the Year. Regent is also ranked among top national universities (U.S. News & World Report, 2020) and is top-ranked in Virginia for Best Online Bachelor's Programs.

The school's computer and information technology degree programs integrate knowledge and faith and are highly competitive and marketable. Award-winning faculty teach students to solve sophisticated computational problems, improve processing efficiencies, and explore ethical and social challenges connected to tech and computer-related careers. Regent's cyber experts also help develop student expertise in areas such as network security, identity management, strategic planning, and disaster recovery.

Whether beginning a career or ready to advance, Regent University provides a high-quality, affordable degree. Individuals with strong analytical and ethical aptitudes, as well as transitioning military members, are highly desired.

DESIGNATIONS

- CAE-Cyber Defense

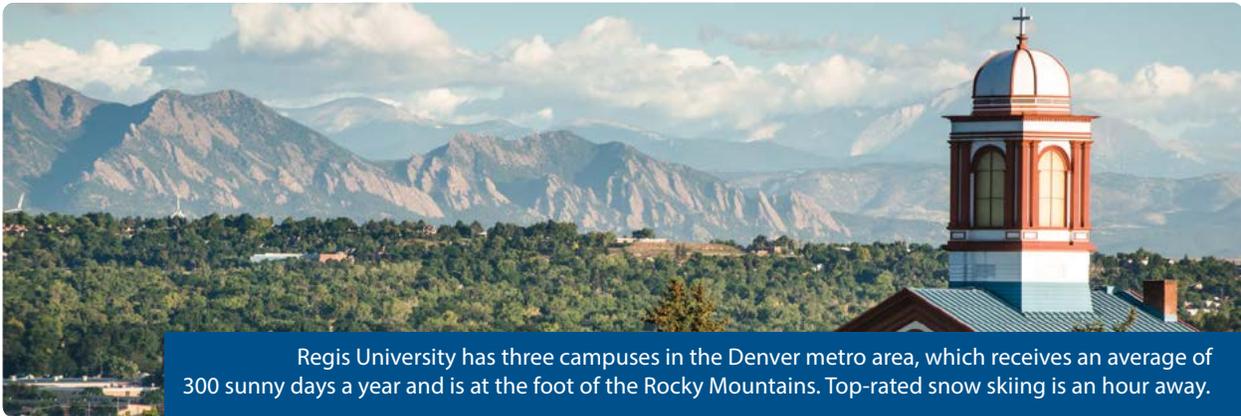
CONTACT INFORMATION

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Regent's immersive learning environment provides live-fire scenarios and advanced theory instruction.



Regis University has three campuses in the Denver metro area, which receives an average of 300 sunny days a year and is at the foot of the Rocky Mountains. Top-rated snow skiing is an hour away.

With cyberattacks on the rise, employers need qualified professionals who can keep their data and technology protected. Data security and integrity are critical, whether in storage, processing, or transit.

Regis University, located in sunny Denver, Colorado, offers a complete approach to information systems and cybersecurity. Students learn how to protect all levels of confidentiality, integrity, and availability of data in their delivery systems. Pursuing an Information and Cybersecurity Master's degree, students choose from a cybersecurity or policy management specialization, with each geared toward a specific career track. The degree also offers three stackable certificates. Upon graduation, Regis students have the foundational skills and knowledge to sit for many in-demand professional certifications. Classes are offered online, on campus, or a combination of both.

Regis' accredited program is designated as a Center of Academic Excellence in Cyber Defense by the National Security Agency and Department of Homeland Security. Our curriculum is modeled on the curricula guidelines of the Committee on National Security Systems' 4000 training standards, the International Information System Security Certification Consortium's Eight Domains of Knowledge, the National Institute of Standards and Technology, and the International Security Audit and Controls Association.

Established in 1877, Regis University is a premier, globally engaged institution of higher learning in the Jesuit Catholic tradition that prepares leaders to live productive lives of faith, meaning, and service. One of 27 Jesuit universities in the nation, Regis has four campuses and extensive online offerings with more than 8,000 students.

DESIGNATIONS

- CAE-Cyber Defense

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Regis University partners with the Colorado Army and Air Force National Guard and the state of Colorado to provide cybersecurity trainings to the public throughout the year.



Our program at **Regent University**, started out with six students, six years ago and now we are 120 strong. Our graduates have been successful in finding jobs and excelling in what they do. We believe that exposing students to the latest in technologies including Virtual and otherwise is key. We pride ourself in physical lab and students learning to create their own virtual lab running kali, mininet, Deft, Onion, etc.

We also participate regularly in 3CS conferences and other activities in our area. We participate in local and national competitions. We provide summer cyber camps to High Schools in our area. We also became a Co-PI with University of TN in SEAMTN grant. We are excited about what we do and our students excel in earning certifications in A+, Net+, Security+, and PenTest+.



DESIGNATIONS

- CAE-Cyber Defense

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Robert Morris University (RMU) is a nationally ranked non-profit private university located in suburban Pittsburgh, Pennsylvania. RMU is accredited by the Middle States Commission on Higher Education to offer bachelor's, master's, and doctorate degrees. The university provides quality education in cybersecurity and currently offers a Bachelor of Science degree program in Cybersecurity and Digital Forensics and a Master of Science degree program in Cybersecurity and Information Assurance. It is for this Bachelor's degree that earned RMU the designation as a Center of Academic Excellence in Cyber Defense in 2019. RMU also holds three ABET computing accreditations.

The cybersecurity programs and courses at RMU provide students with strong knowledge, skills, and abilities in fundamental and more advanced topics

necessary for academic and professional success in the cybersecurity field. The core courses include networking and data communication, computer and network security, information assurance, operating systems, database, intrusion detection, penetration testing, digital forensic analysis, programming such as Python, C, C++, C#, and Java, and a cybersecurity capstone project.

Students in RMU cybersecurity programs have extensive hands-on learning activities for problem solving as well as regular learning activities to develop their skills and competencies in critical thinking, communication, teamwork, and leadership. The coursework also helps students to prepare for professional certifications in cybersecurity, such as Security+, Certified Ethical Hacker (CEH), and Certified Information Systems Security Professional (CISSP).

DESIGNATIONS

- CAE-Cyber Defense

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Bird's-eye View of RIT Cybersecurity Hall

The **RIT Department of Computing Security** advances the state of the art in cybersecurity and provides world-class education by cultivating the knowledge, skills, mindset, and ethics needed for a successful career as a cybersecurity professional. Established in 2012 as one of the first academic units in the nation of its kind, the Computing Security Department currently consists of 16 full-time faculty and 5 staff members, over 500 undergraduate and about 100 graduate students.

Since 2006, CAE designations have propelled the rapid growth of computing security research and education programs. In 2016, RIT designated cybersecurity as one of four signature multidisciplinary research areas with a strategic investment of \$2 million. RIT student teams have won the Collegiate Cyber Defense Competition Northeast regionals many times, and they won the national title

in 2013. RIT established the first National Collegiate Pentesting Competition that has quickly grown to become an international event including 8 regionals in the US, Canada, the Middle East, and Europe.

RIT is one of the primary universities that offer the NSF CyberCorps® Scholarship for Service program since 2014. RIT students are also quite successful in receiving DoD CySP scholarships since 2007.

Computing Security Department has just moved into a state-of-the-art new facility that also hosts the ESL Global Cybersecurity Institute. The new building consists of a cutting-edge cyber range for conducting practical cybersecurity training. There are four instructional labs, one of which is air-gapped. Additionally, the Eaton Cybersecurity SAFE lab enables sponsored collaborations with industrial partners.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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RIT Cyber Range



Rockland Community College (RCC) of the State University of New York (SUNY) system, offers a safe, supportive learning environment for thousands of students from diverse backgrounds. RCC has become the first choice for parents and students. Our award-winning faculty works closely with students to ensure their success plus numerous student services to help students meet their goals. RCC also serves as a unique and important resource for the community and our cultural offerings attract thousands of community members, and the business community turns to RCC for workforce training and development.

Rockland Community College has a longstanding commitment to cybersecurity education. Rockland was the first community college in the SUNY system to have its courses certified as mapping to the Committee on National Security Systems NSTISSI

Standard 4011 in 2008, and was the first to offer a degree in local area networking in 1996. In 2017, RCC became a CAE in Cyber Defense.

Cybersecurity graduates can transfer to a range of four-year institutions and are eligible to apply for the CyberCorps®: Scholarship for Service (SFS). The cybersecurity AAS degree program provides students the technological coursework needed for careers in cybersecurity. RCC cybersecurity courses also prepare students to enter the workforce with many industry-recognized certifications.

Cybersecurity topics are also included in other degree programs. Examples include HIPAA in Nursing and Occupational Therapy Assistant programs, information privacy topics in the Paralegal Studies program, and critical infrastructure protection in the Corporate and Homeland Security program.

The college is a CompTIA Authorized Academy, Cisco Academy, an affiliate school of the National Center for Systems Security and Information Assurance, and a member school of the National CyberWatch Center.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Roosevelt University, located in the heart of downtown Chicago, is a newcomer to the CAE community, having earned CAE-CD status for its Bachelor of Science in Cyber and Information Security in April 2018. Roosevelt was officially designated a Center of Academic Excellence in Cyber Defense (CAE-CD) at a June 2018 ceremony in Huntsville, Alabama.

Through its Center for Cyber Security and Information Assurance (CCSIA), Roosevelt University offers a comprehensive and distinctive range of academic and community activities. The CCSIA hosts a modern cybersecurity research laboratory and an ultra-modern teaching laboratory. The CCSIA sponsors a speaker series, student employment events, and community engagement opportunities for undergraduate and graduate students. CCSIA programs promote professional certifications for

students and sponsor a nationally ranked, award-winning competition cyber team, the RU CyberZ, whose members have won gold at local, state, and national competitions.

The involvement of an industry board and alumni board in the CCSIA ensures that the center and its programs remain at the leading edge of theory, practice, and the needs of the field. Roosevelt's BS in Cyber and Information Security degree distinctly combines comprehensive technical curriculum, application, and experience with a broad contextual and historical perspective on the people involved in cyber defense. Students also have the valuable opportunity to combine a CAE-CD program with studies in other disciplines, such as politics, business, and biotechnology, where cyber defense is practiced.

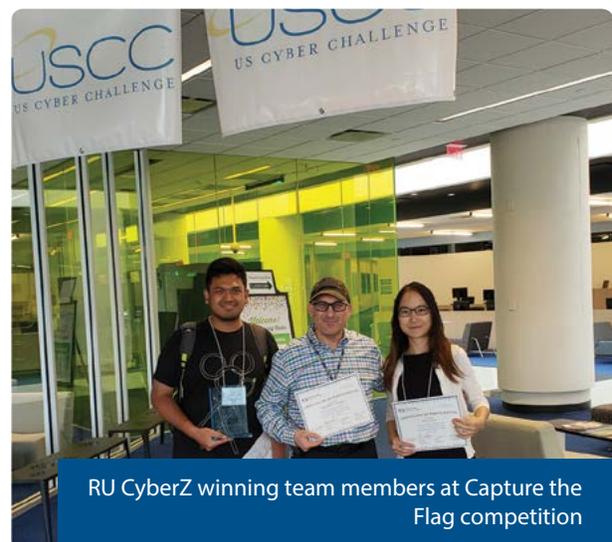
DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Sacred Heart University's West Campus, home to the School of Computer Science & Engineering

With the exponential increase in the complexity and frequency of cyber-attacks and crimes, cybersecurity is at the center of discussion on how to inspire and prepare the future workforce to maintain and improve the security of our national information infrastructure. This is mainly due to its ever-changing landscape, strategic importance, and the acute scarcity of skilled workforce.

Sacred Heart University's unique Master of Science in cybersecurity program is designed for both students from all majors and working professionals, imparting requisite skills to effectively address the constantly changing threat landscape faced by people, companies, and governments today. Sacred Heart's cybersecurity courses are taught using a hands-on learning approach by subject matter experts with extensive experience from the academic and corporate worlds. A dedicated

cybersecurity lab is used for the program, which provides a collaborative learning environment to simulate cyber threats, design responses and defense strategies. The lab is used to support education, research, training and community outreach in cybersecurity and privacy.

Housed in the Jack Welch College of Business & Technology, the master's program is offered by the School of Computer Science & Engineering. The seamless integration of two distinct, yet interrelated worlds of business and technology offers our students a unique experience to acquire a holistic view of the cyberspace from both technical and managerial side.

As the second-largest independent Catholic university in New England, and one of the fastest-growing in the U.S., Sacred Heart University (SHU) is a national leader in shaping higher education for the 21st century. SHU offers nearly 90 undergraduate, graduate, doctoral and certificate programs on its Fairfield, Conn., campus. The university also has satellites in Connecticut, Luxembourg and Ireland and offers online programs.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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SHU Cybersecurity Lab



Saint Leo University is a private, nonprofit university, founded by Catholic educators, and open to people of all backgrounds. Saint Leo mission is to be an inventive global Catholic liberal arts university that fosters a personal and inclusive community which educates, prepares, and develops students for success, and consists of diverse learners who boldly confront the challenges of our world through service to others.

The objectives of our Cybersecurity degrees are to: Enrich cybersecurity education by strengthening the undergraduate and graduate curricula; Create knowledgeable and skilled workforce to supply a steady stream of cybersecurity professionals to serve various sectors including government and private industries; and encourage and support faculty and student engagement in applied cybersecurity research.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Saint Leo University offers traditional-age undergraduates, working adults, and military veterans multiple ways to earn a degree in cybersecurity that will prepare them well for success in the field. Degree programs are available beginning at the associate degree level through the master's degree. Additionally, several degree options are available online or at various regional education centers away from the university's main campus north of Tampa, FL.

Our Cybersecurity programs, Associate, Bachelor & Masters, are supported by a state-of-the-art cybersecurity lab, a cyber-forensic lab, and two traditional computer science labs. Graduates from our programs are equipped with knowledge and experience to pursue careers in the IT industry or advanced research degrees. Faculty and students conduct research on a wide range of topics including cryptography, database security, information systems security, mobile security, and network security. The National Security Agency and the Department of Homeland Security have re-designated Saint Leo University as a National Center of Academic Excellence in Cyber Defense Education (CAE-CDE) through 2027.





Veri Justique Scientia Vindex – Knowledge is the Defender of Truth and Justice – This is the motto of **Saint Vincent College** and also a guiding motivation for our Center of Cybersecurity Studies.

At Saint Vincent, we have developed a cybersecurity program that combines a technically rigorous skill set with a liberal arts foundation while also instilling the values of our Catholic heritage and Benedictine tradition.

Housed in the Computing and Information Systems Department of the Boyer School of Natural Science, Mathematics, and Computing; the Bachelor of Science degree in Cybersecurity includes a core of courses that highlight discipline-specific knowledge areas of computer science fundamentals. All of our courses are based on a hands-on, project-oriented curriculum that allows students to gain experience

alongside theoretical foundations.

The liberal arts core at Saint Vincent supports the mission of our cybersecurity program and the institution to “promote the love of values inherent in the liberal approach to life and learning.” Benedictine colleges are grounded in centuries of Catholic teaching but remain open and hospitable to other intellectual traditions. As charged by Pope John Paul II in *Ex Corde Ecclesiae*, we “search for truth wherever analysis and evidence leads.”

Taken in combination, all of these and more factor in creating an environment unique in forming students prepared to tackle the cybersecurity challenges facing the world today – with technical skills, social consciousness, and a moral and ethical compass firmly directing them to fulfill a calling to serve their community and the common good.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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SHSU Computer Science Faculty and Students

Sam Houston State University (SHSU) is one of the most innovative and fastest-growing public universities in the state of Texas. Founded in 1879 as the first teacher-training school in the Southwest United States, SHSU currently serves over 21,500 students involved in over 90 bachelor's degree programs, more than 55 master's degree programs, and 10 doctoral programs through eight colleges. SHSU, a "Community-Engaged" institution, is classified as a Doctoral Research University by the Carnegie Commission on Higher Education and was recently recognized by U.S. News and World Report for being among the best in the country for online graduate programs, with a strong focus on STEM.

The Department of Computer Science at SHSU is a community of faculty, staff, and students centered in the computing science disciplines. The department is dedicated to providing the highest quality education

possible to its graduate and undergraduate students through excellence in teaching and excellence in research. The department is committed to furthering the pursuit of knowledge and meeting the needs of a diverse society.

The department is a research- and teaching-oriented department with curricula offerings at the Baccalaureate, Master's, and Doctoral level. While the department offers traditional, general Computer Science programs, it emphasizes Digital Forensics, Information Assurance, and Cybersecurity. The B.S. Degree in Computer Science, concentration in Information Assurance (IA) program is designated as a Center of Academic Excellence by the National Security Agency through 2025. In support of this program, the department provides a research center, the Cyber Forensics Intelligence Center (CFIC).

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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SHSU Clocktower on Main Campus



SAC Moody Learning Center

San Antonio College (SAC), part of the Alamo Colleges District, is among the largest, single-campus community colleges in Texas and the nation.

SAC has been designated as an official Hispanic Serving Institution and also serves the largest student veteran population in Texas and has earned a partnership with the Department of Veterans Affairs. Founded in 1925, SAC offers courses in the Arts and Sciences and Professional/Technical Fields. SAC is also a leader in the field of online education.

The Aspen Institute’s College Excellence Program recently announced that San Antonio College is the winner of the 2021 Aspen Prize for Community College Excellence, the nation’s signature recognition of high achievement and performance among America’s community colleges.

The National Security Agency (NSA) and the Department of Homeland Security (DHS) has designated San Antonio College as a National Center of Academic Excellence in Information Assurance Cyber Defense Education.

The CIS department courseware has been reviewed by national-level information assurance subject matter experts as part of the Information Assurance Courseware Evaluation (IACE) Program and determined to meet all of the elements of the Committee on National Security Systems (CNSS) National Training Standard for Information Systems Security (INFOSEC) Professionals, NSTISSI No. 4011 and Senior Systems Managers, CNSSI No. 4012.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

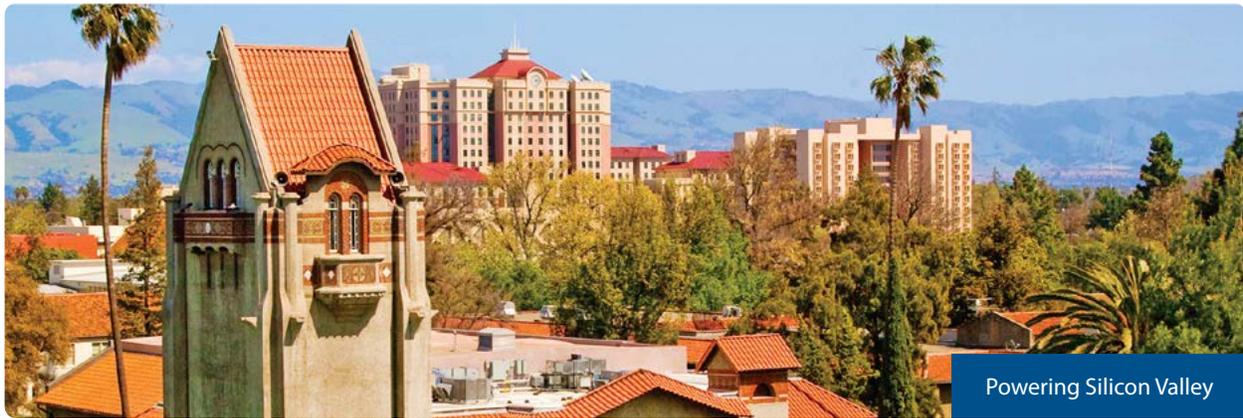
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San Antonio College Entrance



San José State University (SJSU) is dedicated to training cybersecurity professionals to serve the industry throughout Silicon Valley. Our goal is to grow cybersecurity capacity to match economic development in the San Francisco Bay Area.

In 2014, SJSU and Cisco Systems, Inc. jointly developed and launched a Master of Science in Software Engineering with Specialization in Cybersecurity degree. Since Fall 2017, the program has been made available to professionals and organizations throughout Silicon Valley. As of March 2019, we have enrolled 115 students in this program. Students gain hands-on experience in design, development, testing, and deployment of secure systems, as well as a solid understanding of organizational risk management and records integrity.

SJSU also provides training courses for professional cybersecurity certificates such as Certified Information Systems Security Professional, Certified Information Security Manager, and Certified Information Systems Auditor through cybersecurity training partners.

SJSU has hosted CyberAware Day in collaboration with UC Merced and industry partners for the past two years. This event is intended to increase awareness in the cybersecurity sector and related opportunities for all students, especially those from a diverse background. Industry experts with first-hand knowledge share stories of how they found their way into cybersecurity. In addition to partnering with the City of San Jose and local non-profits, SJSU engages globally with cybersecurity professionals through collaborations with Peerlyst and academic partners such as Zurich University of Applied Science.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Expanding cybersecurity awareness to a broadly diverse student body



Sinclair Dayton Campus

Sinclair Community College is an urban community college located in downtown Dayton, Ohio. Founded in 1887, it is one of the oldest community colleges in America, and the region's choice for post-secondary education. Sinclair Community College was first designated as a Center of Academic Excellence in Cyber Defense in 2011. Sinclair has maintained that CAE-CD designation while continually growing in the cyber field. Cyber defense is a major focus in the Miami Valley region due to proximity of Wright Patterson Air Force Base, defense contractors, and strong local healthcare providers. The college offers classes in many formats including traditional classroom and competency based online to serve our diverse student population. Sinclair utilizes a sandbox learning environment to train students in defending against popular cyber-attacks.

In 2019, Sinclair was awarded the first Scholarship

for Service grant ever awarded to a community college to train students in cyber defense. Similarly, in 2017, Sinclair was awarded a grant from the NSA to help build hands on learning environments. Students now can use current enterprise level IT equipment in the classroom. The college has a new state of the art facility to teach cyber defense. Sinclair faculty has developed in-demand curriculum influenced by employer input and industry certifications such as CompTIA, Cisco, TestOut, and Microsoft.

Many graduates of Sinclair continue their education at one of our partner universities or they enter the local cyber defense workforce. The CAE-CD designation adds credibility to our program and is highly valued in the Miami Valley region.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Sinclair Cybersecurity Course



SNEAD STATE COMMUNITY COLLEGE



Snead State Community College

Snead State Community College, a member of the Alabama Community College System, is dedicated to excellence in meeting the educational needs of those we serve through the completion of degree and certificate programs, workforce development, and community engagement. Founded in 1898, Snead State is the oldest community college in the state of Alabama to award the associate degree.

Snead State Community College is recognized as an outstanding comprehensive college of distinction where caring faculty and staff serve to awaken students' passion for learning. Through immersion in a welcoming learning environment that values diversity, experiential learning, and leadership development, our graduates become productive and engaged citizens who make a positive difference in their community.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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The Computer Information Systems program at Snead State Community College is designated as a Center of Academic Excellence in Cyber Defense through the Department of Homeland Security and the National Security Agency. The Computer Information Systems degree program is also an EC Council Accredited Training Center and Testing Center.

Students can earn a two-year Associate in Applied Science degree or a certificate after five semesters in one of the following areas: cybersecurity, network security, server administration, computer virtualization, and network infrastructure. Short-term certificates are available in IT administration and cybersecurity.

Students will be trained to earn industry certifications in the following areas: CompTIA A+, CompTIA Net+, CompTIA Security+, EC Council Certified Ethical Hacker (CEH), Microsoft Certified Systems Administrators, Linux+, and VMware Enterprise Virtualization.



Members of Snead State's Cyber Team



SOUTH CAROLINA STATE UNIVERSITY



Engineering and Computer Science Complex

South Carolina State University is the first Historically Black College and University (HBCU) in South Carolina to hold the Center of Academic Excellence in Cyber Defense through its Bachelor of Science in Computer Science with cybersecurity curriculum. This curriculum is primarily designed for our computer science majors and is housed in the Computer Science and Mathematics Department. Students in this curriculum complete all required computer science courses along with seven cybersecurity courses (18 credit hours). The courses in cybersecurity are designed to introduce majors to the important field of cybersecurity.

Most of the courses, especially the cybersecurity courses, include hands-on and virtual laboratory experiences. The curriculum covers programming, data structures and algorithms, programming language, social implications of computing,

digital logic and computer architecture, database management, computer networks, software engineering, operating systems, computer forensics, cryptography and network security, application and data security with privacy, and a senior design/capstone.

The goal of South Carolina State University's Center of Excellence in Cybersecurity is to address the problem of the lack of awareness and participation in cybersecurity using a multi-tier approach to Cybersecurity Education, Training, and Awareness in the undergraduate curriculum (CSETA). South Carolina State University's Center of Excellence in Cybersecurity located in the Department of Computer Science and Mathematics serves as the focal point for all cybersecurity academic activities. The computer science program at SC State University is accredited by the Computing Accreditation Commission of ABET.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Program Students, Faculty, and Staff



Founded in 1993, **South Texas College (STC)** offers more than 120 degree and certificate options, including associate degrees in a variety of liberal art, social science, business, math, science, technology, advanced manufacturing, and allied health fields of study.

Additionally, STC is the only community college in the state of Texas to offer five baccalaureate degrees. South Texas College has a faculty and staff of more than 2,700 to serve the college's five campuses, two higher education centers, and one virtual campus.

The cybersecurity degree at STC is designed for students interested in entering the field of cybersecurity technologies. The program prepares students to learn practices that are designed to protect networks, computers, programs, and data

from attack, damage, or unauthorized access. Our students learn about computer security, installing security software, network monitoring for security breaches, and responding to cyber-attacks.

Our students have the opportunity to obtain industry certifications in the areas of networking, security, and digital forensics. Our academic partnerships with organizations like EC-Council, Cellebrite, CompTIA, Microsoft, and Cisco, allow us to provide better opportunities to our students at South Texas College.

We are proud to support our community and our local law enforcement agencies in different ways. At South Texas College, we support our K-12 schools by conducting multiple events that will create security awareness. We recently started cybersecurity academies at some of the high schools in the Rio Grande Valley to support those students who would like to pursue a career in this rewarding in-demand field. We are always innovating to make sure our students obtain the highest quality education they deserve.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Southeast Missouri State University (SEMO) provides student-centered education and experiential learning, embracing a tradition of access, exceptional teaching, and commitment to student success that significantly contributes to the development of the region and beyond. Cybersecurity students will learn the theory and practice needed to solve the Cybersecurity needs of industry, business, and government agencies.

SEMO's state of the art Cyber Range is an interactive, remote accessible computational platform of virtualized digital resources which aid and solve experimental, research, educational, and operational challenges of cyber enabled systems. Openstack is used to open and run flexible virtual environments for all its students and staff. The infrastructure's pool of shared resources allows for complex operations for research, simulation, and more.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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At SEMO, undergraduate computer science and cybersecurity majors complete a senior-level capstone experience course, for which students complete a real-world, industry-based project. The department partners with local and regional companies to serve as project hosts and provide working professionals as mentors to the student groups.

For the 10th consecutive year, the SEMO Cyber Defense team won the state Collegiate Cyber Defense Competition (CCDC) against 14 other competitors and the team advanced to the regional competition. The winner of the regional phase will compete in the national competition. The ten-year winning streak is a demonstration of the quality of SEMO students and faculty. The publicity generated by this tremendous accomplishment is one of the most powerful recruiting tools available to the department. Their notable achievements open many job opportunities for all cybersecurity graduates to fill high-demand positions to secure and defend national interests among government and industry.

Other notable student organizations include the Collegiate Penetration Testing Competition (CPTC) Team that compete in Capture the Flag (CTF) events and collaboration on Bug Bounty targets through regional and national level competitions and events. The Hacking Guild is an offensive-based cybersecurity club focused on bringing a more competitive cyber scene to Southeast with its involvement in a range of competitions. Outside of the competition sector, the Hacking Guild works to create our own cybersecurity tools and inter-collegiate events.



Southern Maine Community College sits on a peninsula of land that was Fort Prebble built in 1808. SMCC has a lighthouse and its very own beach along with two residence halls which can accommodate about 450 students.

Southern Maine Community College's Cyber Security program has been designated as a Center of Academic Excellence in Cyber Defense, through academic year 2024.

The Cyber Security Program is an Applied Associate of Science two-year degree which can be taken all online or in person utilizing many of our cloud learning environments.

The Cyber Security program gives students an opportunity to train in one of the fastest-growing areas in Information Technology, known as Information Security and Security Assurance. Career opportunities for graduates include: Information Security Analyst, Incident Responder, Network Security Engineer, Chief Information Security Officer, Information Security Architect, and Forensics Analyst.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

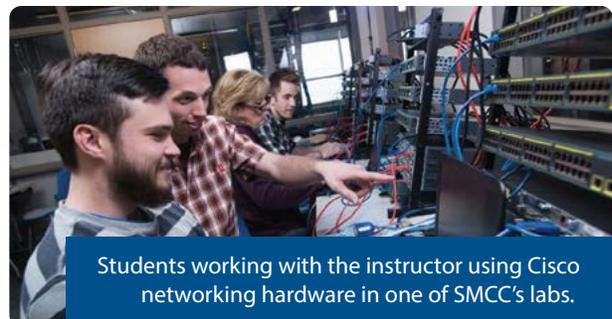
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The program covers a wide range of topics including computer forensics, ethical hacking, laws, policies, network security, and physically securing systems in a data center. The curriculum is designed to aid students in preparing for many of the certification exams in the field. The curriculum will include hands-on experience using many cloud environments along with simulation training and group/team-based learning to simulate a professional work environment.

The curriculum is designed to prepare students for the most popular certification exams, which include:

- CCENT
- CCNA
- CISSP
- CompTIA Network+ Computing Technology Industry Association
- CompTIA Security+ Computing Technology Industry Association
- EC-Council Certified Computer Forensics Examiner
- EC-Council Certified Ethical Hacker



Students working with the instructor using Cisco networking hardware in one of SMCC's labs.



Southern Methodist University Campus

The **Department of Computer Science at Southern Methodist University (SMU)** offers academic programs related to security. The BS in Computer Science offers a security track option, which facilitates a more in-depth study of computer and network security issues. Students in this track cover core computer science topics, then take advanced courses that focus on security-related topics.

The MS in Cybersecurity covers the design and development of secure systems and applications, including security of computer networks and systems as well as physical security. In addition to the technical aspects such as cryptography, protocols, and access control, the curriculum deals with policy and management issues, integration and logistics, and budgeting. Centering on the problems of working professionals in the critical

field of security, the program in security engineering serves the needs of both full-time and part-time students.

In addition to academic programs in security, SMU also houses the Darwin Deason Institute for Cyber Security. The mission of the Institute is to advance the science, policy, application, and education of cybersecurity through basic and problem-driven, interdisciplinary research. The Institute is committed to the goal of emerging as a world-class cybersecurity research center that innovates, develops, and delivers solutions to the nation's most challenging cybersecurity problems. The underlying philosophy guiding institute activities is based on establishing a foundational science of cybersecurity through adoption of a broad, interdisciplinary approach for solving cybersecurity problems.

DESIGNATIONS

- CAE-Cyber Defense

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The Darwin Deason Institute for Cyber Security



Southwest Virginia Community College (SWCC)

is a comprehensive two-year institution, providing quality education and cultural enrichment opportunities for lifelong learners, workforce, and community. The college began serving the region in 1967 and was designated as a Center of Academic Excellence in Cyber Defense in 2019. The Career Studies Certificate in Cybersecurity at SWCC is designed to introduce students at the basic level of study by beginning with the fundamentals. In fall 2020, students will have the opportunity to work in the newly redesigned onsite SWCC cybersecurity lab on the main campus.

Our continued mission is to provide information technology and cybersecurity education supporting the local, regional, and national workforce with training excellence. Students have the opportunity to complete the program 100% online or complete

some coursework on the main campus. The program begins with CompTIA IT Fundamentals and continues with A+, Security+, and Network+. The coursework includes in-depth study of topics such as incident response, cyber laws, and system architecture. In completion of the courses, students experience virtual labs which allow the practice and development of skill sets with the cybersecurity focus. The program also provides additional community outreach such as K-12 cybersecurity and STEM camps and a cybersecurity event within the annual SWCC Business Contest.

Students planning to transfer are advised to also complete the Associate of Applied Science in Information Systems Technology degree which shares some of the same courses as the career certificate program.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Spokane Falls Community College (SFCC) is an urban community college west of downtown Spokane, Washington overlooking the bucolic Spokane River. Founded in 1964 as an extension of Spokane Community College, SFCC has become a destination for post-secondary education in eastern Washington, particularly in the fields of science, technology, math, engineering, and liberal arts. As a leader in cybersecurity education in the Spokane region, the Falls campus began offering cybersecurity classes in 2005.

Today, students have a choice between a two-year Associate of Applied Science degree in information technology with an emphasis in cybersecurity and a four-year Bachelor of Applied Science degree in cybersecurity. Additionally, students have access to three separate one-quarter certificate programs in cyber defense, and a year-long certificate program in

computer forensics/network security. In 2019, SFCC was officially designated by the National Security Agency and the Department of Homeland Security as a Center of Academic Excellence in Cyber Defense. This official designation has allowed faculty and staff to offer additional classes and degrees.

SFCC is one of only eight colleges in Washington state and one of two east of the Cascades in Washington to have received this federal designation. Many SFCC graduates continue their education at one of the multiple universities in the Spokane area, including Eastern Washington University, Gonzaga University, Whitworth University, and Washington State University in Pullman.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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St. Cloud State is one of the largest public universities in Minnesota with more than 14,000 students. The university is located northwest of Minneapolis between downtown St. Cloud and the Beaver Islands, a group of more than 30 islands that form a natural maze for a two-mile stretch of the river. The St. Cloud metropolitan area is 24th on Forbes magazine's "Best Small Places for Businesses and Careers." St. Cloud State is ranked in Forbes magazine's "America's Top Colleges." Students can choose from more than 200 majors, minors, and pre-professional programs.

The School of Graduate Studies offers more than 60 programs, including doctoral degrees in Higher Education Administration and Educational Administration and Leadership, as well as a Master of Business Administration from the acclaimed Herberger Business School.

DESIGNATIONS

- CAE-Cyber Defense

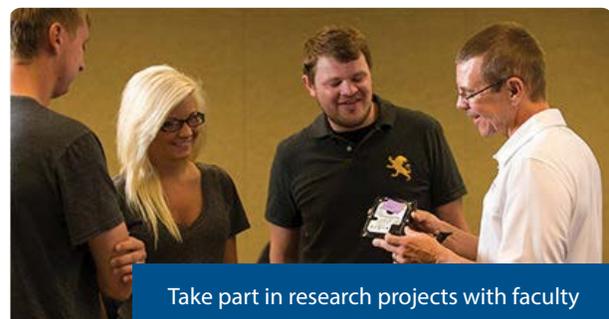
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The comprehensive **Master of Science Information Assurance (MSIA)** program prepares students to be experts in information assurance. They are equipped with information security technologies and knowledge to protect the nation's information infrastructure, conduct advanced research, and develop skills in both management and technical areas. Students can choose the **5-Year Track Information Systems and MSIA**, completing both the Information Systems undergraduate major and Master of Science in Information Assurance in five years.

Students who major in cybersecurity will find themselves working on issues with global impact in a field that continuously evolves. They'll learn to assess the security needs of a computer and network system, recommend safeguards and manage the implementation and maintenance of security devices, systems and procedures to protect it. They'll study databases and programming and the theories on computer networks and security and how to apply them to real-world problem solving. And, they'll learn to think critically and be creative and innovative in solving problems that arise in this ever-changing field.





St. John's University Division of Math, Computer Science, and Science where the Cyber Security Systems program is housed consists of 15 full time faculty members. The Division serves nearly 300 full time students pursuing B.S. degrees in Computer Science, Cyber Security Systems, and Information Technology.

The B.S. degree in Cyber Security Systems is accredited by the Middle States Commission on Higher Education, New York State, and ABET (2023). Furthermore, the Cyber Security Systems B.S. degree is designated by NSA as a Program of Study (PoS) under St. John's University Center of Academic Excellence in Cyber Defense (CAE-CD) which is the central point of information with respect to the multidisciplinary research, education, training, and practice in the field of Cybersecurity. This university-wide center has been created with the vision to

promote collaboration and interaction with other students, faculty, and programs within St. John's University and the Cybersecurity community as a whole.

St. John's B.S. in Cyber Security Systems prepares students with a highly-technical, in-depth, and hands-on Cybersecurity curriculum which is facilitated in our state-of-the-art Cybersecurity lab and other supporting labs. Our B.S. in Cyber Security Systems allows students to concurrently (without any time extension) pursue minors which are in high demand by Cybersecurity employers such as Data Science, Digital & Mobile Forensics, Homeland Security, and Criminal Justice. Cyber Security Systems graduates enjoy, within 6 months of graduation, a 94.7 advancement rate in either a Cybersecurity related job or a graduate program in Cybersecurity or similar discipline.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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St. Mary's University Professor of Computer Science Ayad Barsoum leads a Cybersecurity class

St. Mary's University, as a Catholic Marianist University, fosters the formation of people in faith and educates leaders for the common good through community, integrated liberal arts and professional education, and academic excellence. The School of Science, Engineering and Technology at St. Mary's University seeks to develop ethical and service-minded scientists, engineers, and technology leaders through experiential learning in a student-centered environment committed to success.

A Master of Science in Cybersecurity from St. Mary's provides students with knowledge, skills, and best practices on how to monitor, secure and safeguard an organization's digital assets. This uniquely St. Mary's program combines technical rigor with sound ethics and implications to the law. Students take courses in network security, digital forensics and cybercrime, cybersecurity risk management,

cryptography, software security, cloud computing security and cyber law. These courses enable students to get hands-on experience with protecting networks, computers, programs and institutional data from attack, damage, or unauthorized access.

Graduates from the Master of Science in Cybersecurity program at St. Mary's University should be able to:

- Demonstrate cybersecurity principles, design approaches, standards, and new technologies
- Show knowledge, skills, and best practices on how to monitor, secure and safeguard cyber assets
- Apply hands-on skills for protecting networks, computers, programs and institutional data from attacks, damage, or unauthorized access
- Demonstrate sound digital forensic methodology in the examination of different operating systems
- Explain software defects and vulnerabilities, and how to mitigate defects through software design process

Graduates with a Cybersecurity degree can provide expertise in public and private sectors. They can meet the needs of large and small businesses, the U.S. government and military, contractors, and research organizations. In San Antonio alone, the cybersecurity field is rapidly growing. Employers located in the region include NSA/CSS Texas; the 16th Air Force; the U.S. Air Force Cryptologic and Cyber Systems Division; and numerous military contractors, such as General Dynamics, Raytheon, and Booz Allen Hamilton.

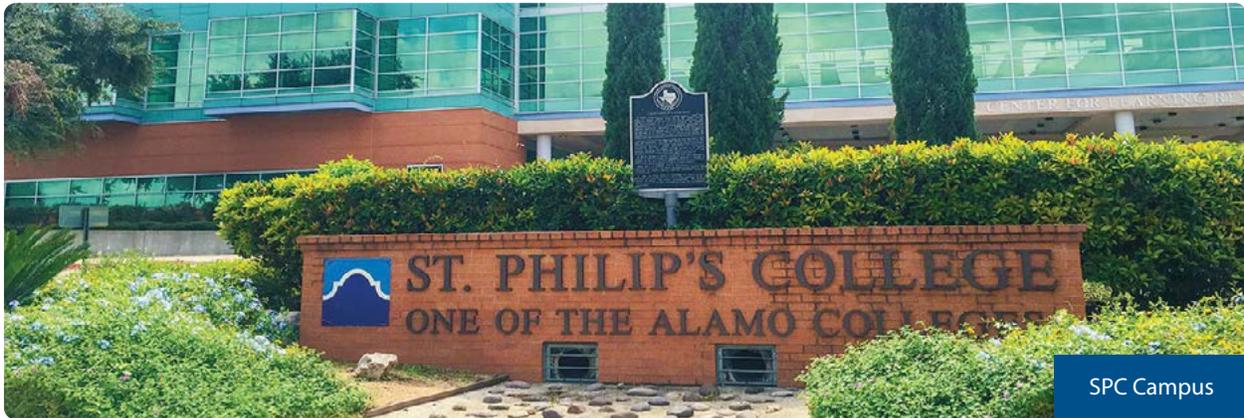
DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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SPC Campus

Founded in 1898, **St. Philip's College** is a comprehensive public community college whose mission is to empower our diverse student population through educational achievement and career readiness. As a Historically Black College and Hispanic Serving Institution, St. Philip's College is a vital facet of the community, responding to the needs of a population rich in ethnic, cultural, and socio-economic diversity.

St. Philip's College is designated as a Center of Academic Excellence in Cyber Defense through academic year 2020 for its Associate of Applied Science in Information Technology Cybersecurity Specialist. This degree prepares students to design, implement, and secure computer networks. Students with this degree will be able to install security software, monitor networks for security breaches, respond to cyber-attacks, and gather data and

evidence to be used in prosecuting cybercrime. Completion in this program prepares a student for industry certifications such as CompTIA Security+, Certified Security Professional (CSP), and Certified Ethical Hacker (CEH).

St. Philip's College seeks to engage its students in unique ways; one of these is through their Cyber Tigers Club. This club is a group of students who are interested in all things technology. The Cyber Tigers activities complement courses in networking, Microsoft applications, Linux, and security to form a unique club that helps channel schoolwork into real-world scenarios and experiences. The Cyber Tigers take part in IT conferences and inter-collegiate competitions, and help spread the word about the wonderful opportunities available in IT through STEM events.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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SPC GenCyber Camp



Founded in 1927, **St. Petersburg College** is Florida's first two-year college and the first to offer bachelor's degrees. SPC offers more than 187 degree and certificate programs, including many high-demand, high-skill industry - recognized workforce certifications. The college's career-focused curriculum is created with input from industry experts to give students the skills they need to meet the needs of today's employers. SPC's Guided Pathways Program gives students a clear roadmap to success to ensure they are taking the right courses, in the right sequence, with wrap-around supports to help them achieve their goals. The college's mission is to "empower our students and community to achieve success and economic mobility through academic excellence and engagement.

Located in Tampa Bay, SPC strives to remain on the forefront of cutting-edge curriculum and technology

to meet workforce demand. SPC's College of Computer Information and Technology (CCIT) offers a Certificate and A.S. Degree in Cybersecurity, and two Bachelor's in Applied Science, Technology Management, with a Cybersecurity (ISA) Sub-plan, and in Cybersecurity. Enrollment in the Cybersecurity programs available through the College of Computer and Information Systems at St. Petersburg College continues to grow. Over 700 students are enrolled in lower division programs. This includes the Associates Degree program and the Certificate program in cybersecurity. The college now offers a Bachelor of Applied Science Degree in Cybersecurity. This program has grown to 178 students in just over one year. There are also over 150 students enrolled in Cybersecurity related subplans in the Bachelor of Applied Science Degree program in Technology Development and Management. Taken together, there are over 1,000 students enrolled in Cybersecurity programs at St. Petersburg College. These offerings are among the most rapidly growing programs at the St. Petersburg College.

SPC received its designation as a National Center of Academic Excellence (CAE) in Cybersecurity in 2019. SPC's Cybersecurity graduates meet the growing need for college-educated specialists who can tackle increasingly complex information technology security concerns. Demand will remain high for information security analysts who can stay a step ahead of hackers. The SPC Cybersecurity Club, TitanSec participates in local, regional, and online Capture the Flag competitions, including the National Cyber League, Hack the Port, and the Raymond James CTF.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Stevens Institute of Technology Campus

Stevens Institute of Technology is a premier, private research university situated in Hoboken, New Jersey. Since its founding in 1870, technological innovation has been the hallmark of Stevens' education and research. Within the university's three schools and one college, 8,000 undergraduate and graduate students collaborate closely with faculty in an interdisciplinary, student-centric, entrepreneurial environment.

Academic and research programs spanning business, computing, engineering, the arts and other disciplines actively advance the frontiers of science and leverage technology to confront our most pressing global challenges. The university continues to be consistently ranked among the nation's leaders in career services, post-graduation salaries of alumni, and return on tuition investment.

Stevens offers a wide range of Cybersecurity-focused degree programs (at the bachelor, master's, and PhD levels) across all three schools. Stevens has held the designation as National Center of Academic Excellence in Cyber Defense Education (formerly Information Assurance Education) since 2003. The validated program of study is the Bachelor of Science in Cybersecurity.

This program is geared to provide students with comprehensive expertise in Cybersecurity within the context of the university's traditional broad education. Stevens was one of the first institutions in the nation to offer a dedicated degree program in Cybersecurity at the undergraduate level. The program graduated its first class in 2011. In 2008, Stevens was one of the first institutions to also receive the designation as National Center of Academic Excellence in Cyber Research.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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With a gorgeous campus in the heart of New York State, a global footprint and 150 years of history, **Syracuse University** is made for those who want a quintessential college experience. From its founding as a private university in 1870, Syracuse University has had an illustrious history of research and educational excellence. With 13 schools and colleges, 200 customizable majors, 100 minors, and online degrees and certificates, Syracuse University provides limitless educational pathways.

Syracuse is recognized as a student-focused global research university renowned for its academic rigor, richly diverse learning experiences and spirit of discovery. Syracuse University's total enrollment for Fall 2020 was 21,322, including both full- and part-time students in undergraduate, graduate and law programs. This student population represented all 50 U.S. states and 120 countries. Being Orange is

about more than just a color, a place or a degree. It embodies a lifelong connection to a global network of innovators, thinkers and creative solution finders.

Syracuse University is a top-tier international research university, where academic inquiry spans and unites a full range of disciplines. Faculty and students collaborate to produce research, scholarship and creative work that advances our fundamental understanding of issues facing society and innovative solutions that have an impact at the community, state, national and global level.

Syracuse University is home to the Center for Information & Systems Assurance and Trust (CISAT), which comprises several schools and their IA faculty members across campus. The CISAT members share a common vision of improving society through IA research and education. Syracuse University was originally designated as a Center of Academic Excellence in Information Assurance – Education (CAE) in 2001 and was re-designated in 2004, 2007, 2012, and 2014.

Syracuse was also designated as a National Center of Academic Excellence in Information Assurance – Research (CAE-R) in 2009 and was re-designated in 2014. We are proud to be part of national efforts to reduce vulnerabilities in our nation's information infrastructure by educating a growing number of professionals with cyber/homeland security expertise, and through innovative research.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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The **Cybersecurity Education, Research & Outreach Center (CEROC)**, virtually established in October 2015 and physically established in January 2016, is a NCAE-C center of academic excellence in cyber defense with the designation being re-affirmed in 2021. The center was established by the Department of Computer Science and the College of Engineering to integrate university-wide activities and initiatives in cybersecurity education, research and outreach, the emphasis of which makes it unique in the state.

CEROC was awarded the CyberCorps SFS scholarship grant in December 2015 (NSF Award# 1565562) with the title of “Tennessee CyberCorps: A Hybrid Program in Cybersecurity.” Tennessee Tech was the first university in the State of Tennessee to be awarded the opportunity to manage this prestigious scholarship and remains the largest such program in the state. The center received its

second SFS award in 2021. CEROC is also the home of the CyberCorps SFS New Scholar Seminar Series (the successor to the CyberCorps SFS Bootcamp) providing orientation and training for new SFS students nationwide.

The primary focus of the program is to graduate cyber workforce ready candidates with integrated experiences in education, research, and outreach. Tennessee Tech was one of ten institutions in the nation to participate in the SFS community college pilot. As of 2018, CEROC also participates in the DoD Cyber Scholarship program. Additionally, the center has participated in the NSA GenCyber program since 2016 providing summer cybersecurity camps for middle and high school students.

CEROC supports several professional developments, mentoring and leadership-building opportunities through the CyberEagles student cyber club, the Women in Cybersecurity student chapter, and the affiliated CTF, defense, and offense cyber interest (competition) groups. The CEROC Cyber Range plays a key role in all competition, educational, outreach, and research programs facilitating dynamic creation of viable cyber environments for experimentation, outreach, research, and training.

Tennessee Tech, located in Cookeville, TN, is the #1 public university in Tennessee in “Best Colleges for Your Money” by Money Magazine for the past two years. Tennessee Tech has a R2 doctoral Carnegie classification.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Terra State Community College Campus

Terra State Community College's mission is to provide the highest quality education and training to our students, faculty, staff and community. Terra State offers two Associates of Applied Science Degrees, Computer Information Systems and Systems Networking and Support. Terra State is proud to have a knowledgeable advisory board to keep the curriculum current with industry standards and offers courses which meet industry level certifications to give our students an advantage over other graduates. Some the certifications offered are the CCNA, Security+, A+, Certified Ethical Hacking, Fiber and Premises Cabling Association and more.

As a Champion of Cybersecurity, Terra State has not let this topic go unnoticed to for all students, staff and community members. Many of our courses highlight cybersecurity issues including: Office Administration courses highlight identity

theft and privacy and security issues online, Health Information Technology courses highlight privacy and security in regard to medical records and HIPPA, American Government courses discuss electronic surveillance used in the intelligence community, and Criminal Justice courses discuss technology and cybercrime in law enforcement.

Terra's CAE designation has provided a great tool and accreditation to provide training to all members of the community. Terra State provided a Kids Cyber Camp with our local Vocational School to educate students on cyber topics, play games and build a future Hacker workforce. Students in the CIT program offered free cyber training seminars to our ElderCollege community members. They educated them on topics such as setting a strong password, banking online and searching the web safely.

In Fall of 2020 students at Terra State competed in the NSA Code Breaker Challenge and placed 14th overall out of 452 schools. In Fall of 2021, students placed 38th overall out of 466 schools. Terra was extremely proud of the hard work our students put in and are excited for their future in the Cyber World.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Terra State Graduation Celebration



Texas A&M University Campus

Texas A&M University pursues teaching, research, and service at the exceptionally high levels expected of America’s great universities. Seeking to advance the collective cybersecurity knowledge, capabilities, and practices, through ground-breaking research, high-impact education, and mutually beneficial partnerships, our mission is to enhance national security through research and education. Texas A&M University stands committed to making significant contributions through the development of transformational cybersecurity advancements.

Education:

Texas A&M University has a long history of providing information assurance and cybersecurity education, dating back to the mid-1990s. Today, in our undergraduate and graduate programs, students have an increasing number of interdisciplinary, high impact, and innovative opportunities available to

expand their cybersecurity knowledge and skills. Our students upon graduation are prepared for the challenges they will face in their personal and professional lives.

Research:

As one of the world’s leading research institutions, and one of only 17 institutions to hold the triple designation as a land-grant, sea-grant, and space-grant institution, Texas A&M is at the forefront in making significant contributions to scholarship and discovery, including that of science and technology. With world-class researchers and state-of-the art facilities, we are leaders in cybersecurity innovation. The combination of great faculty, great facilities, and great students ensures that A&M is moving to the forefront of cybersecurity research and education.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations
- CAE-Research

CONTACT INFORMATION

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Texas A&M Cyber Students



Texas A&M University-Corpus Christi Campus, "The Island University"

Texas A&M University-Corpus Christi is an expanding, doctoral-granting institution committed to preparing graduates for lifelong learning and responsible citizenship in the global community. We are dedicated to excellence in teaching, research, creative activity, and service, offering more than 80 of the most popular degree programs in the state.

Texas A&M University-Corpus Christi has been ranked among the Top 50 Colleges for Hispanics Students by Best Colleges (www.bestcolleges.com). The University ranked 10th in the state of Texas and 37th in the nation the best university for Hispanic students. These rankings were based on academic quality, affordability, and online competency in 2018. The Department of Computing Sciences offers Bachelor in Computer Science, Master in Computer Science and Geographic Information Science, and Doctor of Philosophy in Geospatial Computing.

To complete a Bachelor of Computer Science degree with the Cybersecurity and Infrastructure concentration, students must complete 40 credit hours of Computer Science courses and 39 credit hours of Cybersecurity related courses. The majority of the cybersecurity courses emphasize hands-on activities, where students learn to use open source and commercial applications. The program prepares students to obtain industrial certificates in cybersecurity and internship program helps students to gain valuable experience in the real world. The Cyber Defense Team (student organization) teaches its members offensive and defensive security tactics from beginner to expert level. The team prepares and recruits students to participate in cybersecurity competitions. In the past, students have participated in the National Cyber League, Panoply, MITRE Cyber Challenge, and CAHSI Hackathon.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Texas State Technical College (TSTC) is a public institution of higher education and a state agency, established through Chapter 135 of the Texas Education Code. Prior to the consolidation into a single SACSCOC accreditation in 2015, TSTC was organized into four vertically integrated colleges with a governing system office. Today, it operates as a single state-wide college with 10 campuses across Texas.

TSTC offers courses of study in technical-vocational education for which there is demand within the state of Texas to include cybersecurity. The Cybersecurity Associate of Applied Science degree program (formerly the Computer Networking & Security Technology program) in Harlingen is located in Texas' lower Rio Grande Valley, and is designated as an NSA/DHS Center of Academic Excellence in Cyber Defense.

In fall 2019, the Harlingen cybersecurity program was aligned with five other state-wide campuses, located across the state at Ft. Bend County (Rosenburg), Waco, East Williamson County (Hutto), North Texas (Red Oak), and Marshall, expanding the CAE recognized curriculum across the state. Plans for gaining CAE recognition state-wide are underway. The cybersecurity program at TSTC prepares students for employment in a variety of entry level careers in cybersecurity with a strong emphasis on practical hands-on training necessary to equip students with the skills employers expect. Students in the program gain the skills and knowledge required to prevent, defend, detect, and respond to cyberattacks and threats. They are trained to install and configure network devices, end-user workstations and devices, use cybersecurity tools, analyze security events, and implement security measures.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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The Citadel: Achieving Excellence in the Education and Development of Principled Leaders

The Citadel, The Military College of South Carolina is a landmark in Charleston, South Carolina that is noted for its educational reputation and its rich history. Our mission is to educate and develop students to become principled leaders in all walks of life by instilling the core values of The Citadel in a disciplined and intellectually challenging environment. Founded in 1842, The Citadel has an undergraduate student body of about 2,300 students who make up the South Carolina Corps of Cadets. Another 1,000 students attend The Citadel Graduate College, a civilian evening and online program that offers graduate and professional degrees and undergraduate programs.

The Citadel has been re-designated as a National Center of Academic Excellence in Cyber Defense (CAE-CD) in 2021. We offer B. S. in Computer Science with a minor in Cybersecurity which is the

Program of Study for CAE-CD. From Fall 2020, a B.S. in Cyber Operations has been offered. The B.S. in Cyber Operations program has been designed based on NSA CAE-CO Academic Requirements.

The Center for Cyber, Intelligence and Security Studies was established to promote education, research and outreach in cybersecurity, intelligence, and national security. We also offer an undergraduate minor in cyber inter-disciplinary studies and a graduate certificate in cybersecurity (jointly with College of Charleston). We host GenCyber Camps for Middle/High School Teachers in 2016, for Middle/High School Students in 2018, 2019 (Girls Camp), and 2021 (Boys Camp and Girls Camp). The Citadel Cybersecurity Club Members participate in different Cyber Contests.

The Citadel was awarded DoD Cybersecurity Scholarship for seven students in AY2021-22 and awarded NSF CyberCorps® SFS 2020 – 2024 for “Citadel CyberCorps® SFS: Principled Leaders with Multi-Disciplinary Cybersecurity Expertise”. We are working with other Senior Military Colleges (SMC) on SMC Cyber Institute Grant. Citadel DoD Cyber Institute (CDCI) was established in Fall 2020 with a mission to prepare students for DoD Cyber Workforce. CDCI hosted Cyber Bootcamp for SC Army National Guard in Summer of 2021. We are also working with University of Memphis, University of West Florida, and North Carolina A&T State University on a NCAE-C Grant for Cyber Education of Critical Infrastructure. Furthermore, we are working with University of South Carolina on NCAE-C Research Grant on Context-Aware Data Security for IoT Network.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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CW Campus

The College of Westchester (CW) graduates' individuals who have completed transformative and purposeful educational experiences leading to careers that foster economic advancement. As an academically student-centered, culturally diverse college, CW is committed to providing the highest quality of education for all career and entrepreneurial-minded students through the delivery of a carefully constructed and focused curriculum, with input from regional employers and other institutional stakeholders. The College supports and encourages academic excellence, career advancement, professional integrity, financial responsibility and good citizenship through a distinctive and highly personal learning environment leading to upward economic mobility.

CW ensures that students learn through a continuously enhanced, employer informed and

career-relevant curriculum, effectively delivered through various modalities by fully qualified and student-centered faculty, engaged through continuous assessment and improvement.

The School of Information Technology offers degrees that prepare students for a dynamic career in the diverse field of Information Technology (IT), as well as satisfy the industry's demand for IT professionals in network technologies, administration, service and support of systems and users, and cyber security. Through practical application of classroom theory in lab environments, students learn the technical skills and gain the theoretical knowledge necessary to understand current computer and network technologies and interpret emerging technologies while developing problem solving, critical thinking, communication, and teamwork skills.

In addition, CW is one of 12,000 Cisco Networking Academies in 185 countries. The Cisco Networking Academy delivers a comprehensive, 21st century learning experience to help students develop the foundational information and communication technology (ICT) skills needed to design, build, and manage networks.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Staff & Student Lifestyle



The Ohio State University Campus

The Ohio State University became a CAE in 2014. The program is tied to the Bachelor of Science in Computer Science and Engineering (CSE) with a specialization in Information and Computation Assurance. This program has persisted by continuing to grow and refine curriculum for today’s needs.

Ohio State’s College of Engineering is a large establishment, with enrollment over 8,000 students and graduating over 2,000 per year. The Department of Computer Science and Engineering is a major institution within the college, enrolling over 2,500 and graduating nearly 500 each year.

Ohio State boasts many student organizations, including the Cybersecurity Club, the Cyber Defense Team, and a chapter of WiCyS active in regional and national events. The university is also home to OHI/O, one of the most innovative informal learning

programs. In addition to regional hackathon events, OHI/O also partners with cybersecurity students to host capture the flag events and workshops. In these organizations, students hone their applied skills, develop their professional networks, and receive mentorship from alumni, corporate and research partners. CSE students work closely with Engineering Career Services for internship placement opportunities and full-time work offers at companies including Microsoft, Battelle, Intel, Northrup Grumman, Amazon, and a vibrant range of local startups in the security sector.

The focus on cybersecurity is rapidly growing at Ohio State, with a new Masters in Cybersecurity launching next year, stackable certificates, the Institute of Cybersecurity and Digital Trust (home to the Cybersecurity Canon), and an increase in faculty specializing in cybersecurity research.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Students at an Ohio State hackathon



Thomas Nelson Community College Campus

Thomas Nelson Community College is an accredited, two-year institution of higher education established as a part of a statewide system of community colleges. We primarily serve the residents of the cities of Hampton, Newport News, Poquoson, and Williamsburg, and the counties of James City and York.

Since 2002, Thomas Nelson has proudly provided cybersecurity training to the Virginia Peninsula. From certificate attainment to degree alignment, we provide career pathways for the Peninsula's cybersecurity professionals. Thomas Nelson strives to enable students to graduate with high-demand skills and content knowledge and establish additional cyber business-education partnerships. In order to accomplish this, we host cybersecurity conferences addressing cyber threats, malware, forensics, mitigation, industrial control systems, new technologies, governance, regulations, and

compliance and business/higher education issues, as well as maintain strategic partnerships with Cyber Watch, InfraGard, Armed Forces Communications Electronics Association, International Information Systems Security Certifications Consortium, Information Systems Security Association, and the HR Cyber Alliance.

Thomas Nelson's Cybersecurity program consists of two components: a career studies certificate for those who already have a degree and are seeking specialization, and an Associate of Applied Science (AAS) program for incoming freshmen seeking a career in cybersecurity, and industry certifications for those currently in the industry. Our AAS in IST degree with the cybersecurity focus is transferable to many four-year institutions and offers students the opportunity to participate in cybersecurity competitions and conferences.

DESIGNATIONS

- CAE-Cyber Defense

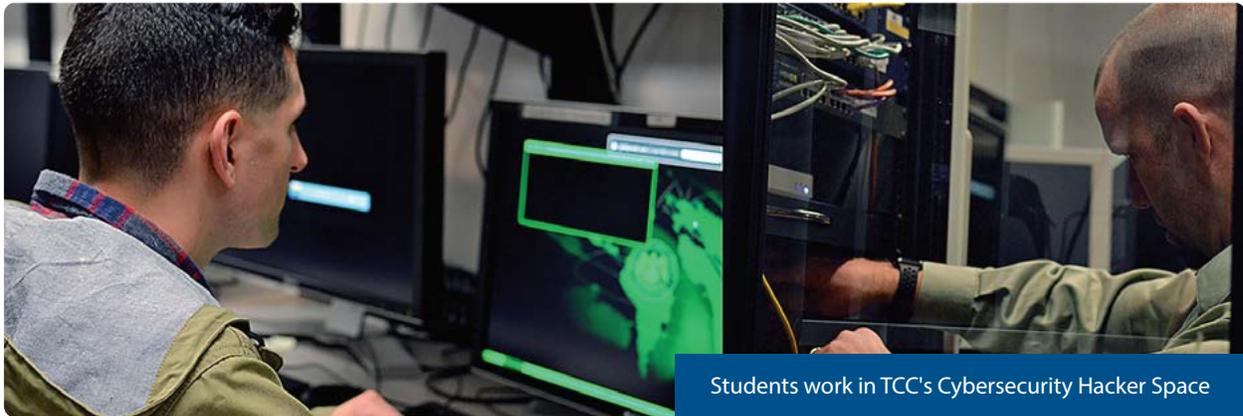
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TNCC Cybersecurity Course



Students work in TCC's Cybersecurity Hacker Space

Tidewater Community College of Virginia has been designated a Center of Academic Excellence in Cyber Defense (CAE-CD) by the National Security Agency and the Department of Homeland Security.

TCC's Cybersecurity program is designed to promote higher education in Cyber Defense (CD) and prepare a growing number of cybersecurity professionals to meet the national demand for cyber defense education and to protect the national information infrastructure to reduce vulnerabilities in the Nation's networks.

Since its inception, TCC's network security/cybersecurity curriculum has been aligned with national standards for cybersecurity established and maintained by National Institute for Standards and Technology (NIST) and the NSA. Our A.A.S degree is transferable and offers students the opportunity

to participate in competitions and extracurricular activities that sharpen skills and knowledge and provide networking opportunities.

TCC hosts a Hacker Space which is a full penetration testing lab designed to facilitate learning about the practical side of vulnerability assessments and penetration testing in a safe environment. The lab utilizes a virtualized platform to provide vulnerable and mis-configured hosts, domain controllers, web servers, mail servers, firewalls, web applications, and many more systems, services, and applications. Students are able to practice their offensive and defensive cybersecurity skills in a safe, isolated, sandbox environment that encourages freedom to experiment.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Student Beth Quesada participates in a face-to-face class lecture



Tiffin University Cyber Security program

In **Tiffin University's (TU)** cyber security program, you'll study with faculty who bring vast industry experience. Our instructors bring years of both technical and managerial experience, having worked in the development and testing of security systems and technologies. Their sharing of real-world experience will greatly enhance your learning, as these experienced practitioners bring real-life examples of cyber security concepts and technologies to classroom discussions.

All students in the program complete an internship of at least 150 hours at a security-related job. TU cyber security majors have interned at the FBI, United States Coast Guard Research & Development Center, Department of Homeland Security, Maritime Security Center, Maritime Transportation System Information Sharing Analysis Center, Arctic Domain Awareness Center in Alaska, Seneca County Drug

Task Force, Cooper Tire, First Energy, District Attorney Offices, law enforcement agencies, major healthcare organizations, and financial institutions.

One of the hallmarks of our program is the focus on helping students develop a "security mindset." Students learn to view cyber threats as one component of a larger security landscape, rather than isolated technical issues. Therefore, students learn to perform holistic threat analysis, including considering the actor(s) involved, assessing their intent, and developing comprehensive security plans for organizations. TU's Student Cyber Security teams have routinely won capture the flag events and placed third out of 20 teams in a regional competition that included 15 professional cybersecurity teams from Fortune 500 companies.

In 2017, TU hosted the 8th Annual Maritime Risk Symposium, bringing together 225 attendees to discuss the threats and challenges to maritime cyber security and the marine transportation system. The attendees of the symposium represented 29 different educational institutions, five foreign nations, the United States' military services, multiple private-sector organizations, federal law enforcement and homeland security agencies. TU was the smallest university to ever host the Maritime Risk Symposium, which highlighted the quality and growing reputation of our cyber defense programs.

In addition to the CAE-designated Bachelor of Arts program in Cyber Security, TU also offers a Master of Science in Cyber Security and a Bachelor of Criminal Justice degree in Digital Forensics.

DESIGNATIONS

- CAE-Cyber Defense

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Stephens Hall at Towson University

The **Department of Computer and Information Sciences at Towson University** started one of the first undergraduate cybersecurity programs in the nation and the first in Maryland.

The National Security Agency and Department of Homeland Security designated Towson University as a Center of Academic Excellence in Cyber Defense in 2002 and in Cyber Operations in 2013. TU is one of the few institutions in the nation to receive the NSA/DHS Cyber Operations designation. The Accreditation Board for Engineering and Technology (ABET) has accredited Towson University's cyber operations track in the computer science B.S. degree program until 2024. This makes our program one of the first four ABET accredited cybersecurity programs.

The department has received cybersecurity grants

from the National Science Foundation, Department of Defense, Army Research Lab, and several other federal and state agencies. From our award-winning Cyber Defense team to our CyberCorps® scholarships for cybersecurity students and our cybersecurity programs available at the undergraduate and graduate levels, Towson University allows you to receive the education you need to succeed in the field.

All students in the department are in an environment that provides extra-curricular opportunities in cybersecurity. We have monthly cybersecurity seminars with invited speakers from industry and government, an active Cyber Defense Club, and a Cyber Defense Team that has been ranked first in mid-atlantic Collegiate Cyber Defense Competitions and ranked at the national CCDC.

Faculty at Towson are working on cutting-edge federally funded cybersecurity research on the smart grid, wireless networks, cyber-physical systems, and social networks.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations

CONTACT INFORMATION

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Students competing in a practice cyber defense competition.



Located in South Carolina, **Trident Technical College (TTC)** offers associate degrees, diplomas, and certificates covering 10 areas of interest that cover a wide variety of career fields and academic pursuits. It was the first two-year college in South Carolina to be designated as a Center of Academic Excellence in Cyber Defense by the National Security Agency and the Department of Homeland Security.

Students at TTC have access to the latest hardware and software necessary to provide comprehensive hands-on training. This experience enables individuals to gain the required knowledge and skills to be successful in cybersecurity related fields. Training includes, but is not limited to, the following technical areas of study: networking, Windows and Linux server administration, digital and network forensics, and ethical hacking. The Associate of Applied Science (A.A.S.) in cybersecurity is a career

degree because it provides the skills required to enter the workforce. The program allows students to implement real-world tools and scenarios to prepare for a career in cybersecurity, and the many facets of cyberspace.

TTC has developed articulation agreements allowing students to transfer to select colleges. Backing up TTC's reputation and ability to offer a robust program are multiple grants awarded over the past years. The latest, Cyber SECURE, was awarded by the Office of Naval Research and the National Science Foundation CLOUDTech grant with the goal of strengthening the talent pipeline and the demand for cybersecurity professionals. TTC is a Cisco Networking Academy, Red Hat Academy, CompTIA Authorized Academy, and a Microsoft and VMware IT Academy.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Tuskegee University Campus

Tuskegee University is a private, historically black university (HBCU) located in Tuskegee, Alabama. Over the past 138 years since it was founded by Booker T. Washington in 1881, Tuskegee University has become one of our nation's most outstanding institutions of higher learning. The Brimmer College of Business and Information Science is deeply rooted in Tuskegee University's historical mission.

The Center of Information Assurance Education (CIAE) at Tuskegee University (TU) is housed within the Computer Science Department at the College of Business and Information Science. The CIAE at TU was initially designated as a National Center of Academic Excellence in Information Assurance Education (CAE-IAE) by NSA/DHS in 2012 and was re-designated as National Center of Academic Excellence in Cyber Defense (CAE-CD) by DHS/NSA in 2017.

CIAE at TU serves as the organizing body to offer resources and assistance for faculty, students, and community in conducting teaching, research, and other activities in Information Assurance. The major accomplishments include: the computer science department launch of an inter-disciplinary master program in Information Systems and Computer Security (MS-ISCS) with two options, cybersecurity and data science, which is designed to fill current and future national needs for Information Assurance and Cyber Defense professionals; and with the efforts of CIAE, the university being awarded the CyberCorps: Scholarship for Service (SFS) funded by NSF to strengthen the national cybersecurity workforce.

Tuskegee University is very committed to Information Assurance/Cyber Defense program of education, research, and outreach because of the crucial nature of cyber security for the nation.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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CAE Designation Acceptance



USAFA Graduation

The **United States Air Force Academy** is not just a premier higher-education establishment. It is an unparalleled academic and military institute that provides cadets with rewarding opportunities to transform into the leaders of tomorrow. Our mission is to educate, train, and inspire men and women to become leaders of character, motivated to lead the United States Air Force in service to our nation. From day one, cadets undertake a rigorous but rewarding program of academic, military, athletic, and character development. The academic experience balances science, technology, engineering, and mathematics (STEM) with arts and humanities. Our robust core curriculum places cadets at the intersection of these disciplines, generating opportunities to cultivate and apply creative and complex problem-solving abilities and offering opportunities to complete cutting-edge research. It is life at a different altitude.

The Department of Computer and Cyber Sciences offers two ABET-accredited undergraduate majors - computer science and cyber science. Computer science emphasizes computing theory and software engineering; cyber science focuses on networks, computer forensics and cyber operations. Integrated throughout the curriculum is the Critical Infrastructure Cyber Range, a 1:87 scale city with SCADA-controlled residential, industrial, and military infrastructure, allowing cadets to experience the kinetic impacts of cyber operations. The USAFA cyber science major was the first in the world to achieve ABET accreditation. Supporting the academic program is the Academy Center for Cyberspace Research, which conducts customer focused research and development in conjunction with industry partners in systems security, artificial intelligence and autonomous systems, immersive environments, and process automation.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations

CONTACT INFORMATION

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Critical Infrastructure Cyber Range



UNITED STATES NAVAL ACADEMY



USNA Bancroft Hall

The **United States Naval Academy (USNA)** Cyber Operations program was recently granted the National Security Agency (NSA) designation as a Center of Academic Excellence in Cyber Operations (CAE-CO). The Naval Academy's cyber operations program is the only program to receive this designation for 2020 and is the 22nd program in the United States to hold such a designation since the program was created in 2012. The BS in Cyber Operations program is accredited by the Computing Accreditation Commission of ABET.

Cyber Operations is an interdisciplinary major that covers the entire scope of cyberspace operations, both technical and non-technical. As such, the Cyber Operations major provides a basic foundation in computer architecture, programming, data structures, networks, internet, database systems, information assurance, cryptography, and forensics.

The technical aspects of the program are balanced with additional courses and electives emphasizing applications in areas such as policy, law, ethics, and social engineering. After completing the Cyber Operations program at the Naval Academy, future officers can go on to advanced study or possibly assignments with the various military cyber-related cyber forces in support of national security.

Cyber Operations majors may engage in independent study or participate in summer internships with the National Security Agency, the Defense Information Systems Agency, Defense Intelligence Agency, or the Naval Research Labs.

Annually, a select group of Cyber Operations majors participates in the Service Academy Cyber Defense Exercise. Cyber Operations graduates may be selected, depending on billet availability and competitiveness, into the Information Professional (IP) and Cryptologic Warfare Officer (CW) career options.

DESIGNATIONS

- CAE-Cyber Operations

CONTACT INFORMATION

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USNA Hopper Hall



UB Institution - School of Engineering Building, Davis Hall

The mission of **University at Buffalo (UB)**'s center of excellence in cybersecurity is graduate education and coordinated research in computer security and information assurance (IA) by faculty members from several schools and departments at the university. This center has been conducting research in the area of intrusion detection, cyber situation awareness, insider threat assessment and mitigation, continuous authentication using behavioral biometrics, software security, and privacy.

Since the establishment of the center of excellence, it received over \$10 million in research and education grants from agencies such as NSF, NSA, DARPA and AFRL and companies such as Intel Corporation and Harris Communication. This center has been running the NSF CyberCorps scholarship for service (SFS) program since 2008 and produced more than 50 cybersecurity experts. Through the DoD's

Information Assurance Scholarship Program (IASP), it produced nine scholars between 2004 and 2008.

The center has been running middle school and high school camps under the GenCyber program pioneered by NSA since 2015 and has run the International Program in Information Assurance and Management (IPIAM) for banking executives during 2012-2019. It has run more than 100 cybersecurity awareness workshops in the Western New York region and more than 3,500 middle school and high school students have taken part. The center offers an advanced graduate certificate in cybersecurity with both technical and managerial tracks and more than 165 students received the certificate since its inception. The center routinely conducts cybersecurity competitions, instilling interest among the participating students.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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UB's GenCyber Camp educates middle and high school students about cybersecurity principles and career opportunities



UNIVERSITY OF ADVANCING TECHNOLOGY



University of Advancing Technology's Tempe, Arizona campus

University of Advancing Technology (UAT)

cybersecurity majors and cyber warfare range are recognized by industry and government entities alike. UAT's esteemed faculty and real-world curriculum combine to generate future innovators of the cybersecurity industry. UAT focuses on creating leaders who will have mastery in ethical hacking and uphold the highest industry standard of integrity in the quickly evolving world of cybersecurity technology and digital security.

Leading cybersecurity education in the southwest, UAT has seen more than 20 years of success since the inception of its elite Network Security degree program in the late 1990s. As one of the longest-running cybersecurity degree programs and one of the first CAE-CD designated institutions in the nation, the continuum of undergraduate and graduate cybersecurity degrees has prepared

thousands of ethical hackers, network security, and cybersecurity graduates for the field.

The University of Advancing Technology provides students with the opportunity to synthesize and apply the vital skills and knowledge necessary to succeed in the workforce. Graduates from the cybersecurity program will have developed the essential knowledge and tools to automate their own security processes through extensive training in network security programs and scripts. UAT's Network Security bachelor's degree students are taught to use critical thinking skills to research current and evolving cybersecurity trends. Students also become experts in industry standards and regulations. Within UAT's graduate cybersecurity degree program, students have access to some of the most current tools and skills that redefine security information technology.

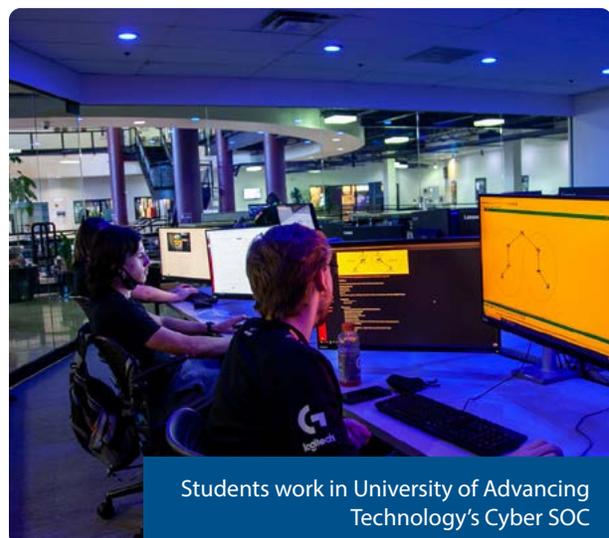
DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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www.uat.edu/center-for-cybersecurity



Students work in University of Advancing Technology's Cyber SOC



Founded in 1831 as the state's first public college, **The University of Alabama (UA)** is dedicated to excellence in teaching, research, and service. Known as the Capstone of Higher Education, UA students are provided the opportunity to learn from exceptional faculty members and to enhance their education through both classroom and research lab experiences. The University of Alabama has been recognized as a National Center of Academic Excellence in Cyber Defense Research (CAE-R) since 2014.

At UA, cyber is identified as one of the four main thrusts of the University. To that end, the University offers numerous degrees, minors, and concentrations to provide students with a well-rounded knowledge and skillset in cyber-related fields. Students can obtain technical knowledge from the Computer Science program, behavioral knowledge from the Criminology and Criminal Justice program, and organizational

knowledge from the Management Information Systems program. This is a unique set of knowledge skills from complementary aspects of cybersecurity.

The most recent addition is a Bachelor of Science in Cyber Security offered by the Department of Computer Science that began Fall 2020. This program is designed to provide a rigorous, technical degree that imparts the necessary knowledge, skills, and motivations to protect and defend digital information from attacks.

In addition, the University provides opportunities in cyber-related fields on many levels including CyberCorps Scholarship for Service (SFS), Graduate Assistance in Areas of National Need (GAANN), multiple student-led cybersecurity clubs, and K-12 outreach with our annual Capture the Flag (CTF) competition.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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UNIVERSITY OF ALABAMA AT BIRMINGHAM



University of Alabama at Birmingham (UAB) takes a holistic approach to studying the nuts and bolts of cyber attacks and building transformative solutions that can prevent, detect, and recover from these attacks. Our research focuses on technologies, applications, and theoretical foundations of cybersecurity, with focus on network security, mobile device security, wireless security, applied cryptography, cryptocurrency, cloud security, user-centered security, quantum resistant cryptography, software security, digital forensics, and criminal investigations.

We make a multi-disciplinary perspective of solving security problems, exemplified by our ongoing collaboration between Computer Science, Criminal Justice, Psychology, School of Medicine and School of Health professions. Our faculty plays a leadership role in University-wide cybersecurity initiatives, and has a history of transitioning its research into

practice through start-ups. Our research is well-integrated with UAB's other disciplines and with our many academic programs, including BS in Computer Science, BS in Digital Forensics, MS in Cyber Security, MS in Data Science and PhD in Computer Science. Our research has been funded by federal agencies and industry partners alike and has been widely recognized by international peers as well as industries. Because of this recognition, we have been invited to serve on the organizing and technical program committees of top tier conferences, advisory boards of industries, and government agencies. Some of our research outcomes have been incorporated into international standards for cybersecurity, while others are mentioned in widely used textbooks in cybersecurity.

We are a recipient of NSF CyberCorps®: Scholarship for Service grants to train highly skilled cybersecurity professionals for federal and state governments. Graduates from our academic programs, especially our Masters and PhD programs, have been contributing significantly to the cybersecurity of government agencies at all levels and private businesses including Visa, Microsoft, and Google.

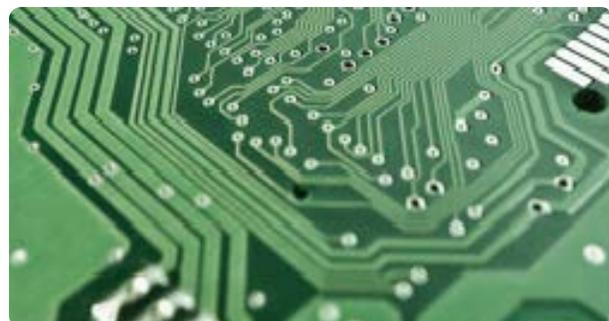
DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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Since 2007, the **University of Alabama in Huntsville (UAH)** has been designated as a National Center for Academic Excellence (CAE), receiving the designation in the area of Information Assurance Education. Currently a CAE both in Cyber Defense and in Research, the university offers numerous cybersecurity-related degrees on the undergraduate and graduate levels in the fields of computer science (B.S., M.S., and PhD), computer engineering (B.S., M.S., and PhD), and information systems (B.S. and M.S.).

In 2019, UAH expanded its offerings to include the state's first Bachelor of Science in Cybersecurity Engineering. Students in this program learn to identify and mitigate computing system vulnerabilities and apply security principles and practices as well as the implementation of the physical, software, and human component of

systems. This interdisciplinary approach provides students with a thorough understanding of modern computing systems from a hardware and software perspective.

The UAH Center for Cybersecurity Research and Education (CCRE) offers an interdisciplinary approach to defending cyber physical systems, embedded weapon systems, SCADA, networks, data, and computer operating systems from adversarial attacks. In addition to providing educational opportunities such as scholarships, curriculum development projects, GenCyber camps, and its Cyber Force Incubator (CFI), the CCRE also engages in cutting-edge research on a wide variety of cybersecurity topics, including identity management, supply chain security, intrusion detection, vulnerability analysis, medical device security, and digital forensics.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

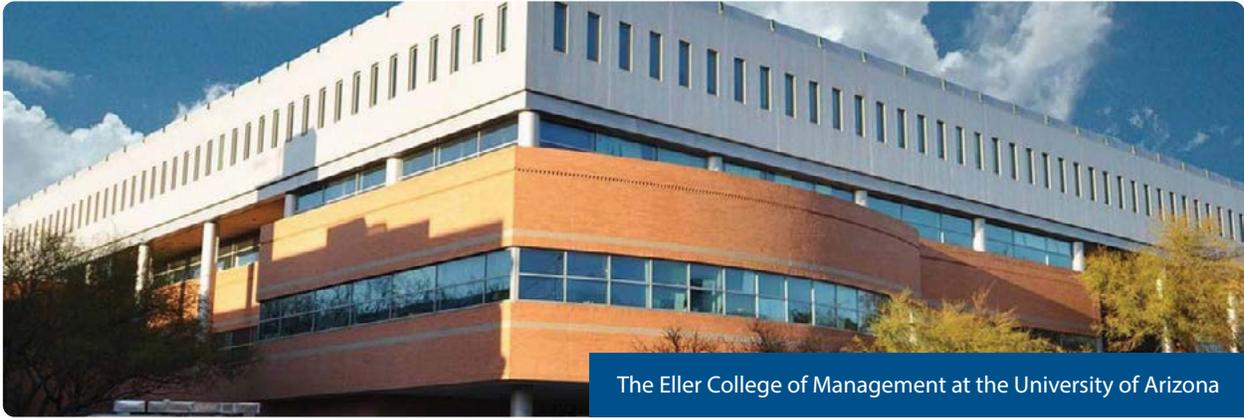
CONTACT INFORMATION

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The Eller College of Management at the University of Arizona

The Information Assurance and Security Education Center (IASEC) in the Eller College of Management at the **University of Arizona** promotes cybersecurity through education, training, and research. Designated as a National Center of Academic Excellence in Cyber Defense Research and Education, IASEC offers faculty, students, and the community resources to study and address the cyber vulnerabilities of our nation's information infrastructure. The IASEC team works collaboratively to promote responsible information and cybersecurity practice through curriculum development, industry partnerships, cutting-edge research, and outreach.

One component of the IASEC is AZSecure Cybersecurity Scholarship Program, a cutting-edge, research-intensive program for graduate students designed to train the next generation of cybersecurity professionals. AZSecure produces highly skilled

graduates by engaging them in rigorous, multidisciplinary coursework and experiential learning through research in MIS, electrical and computer engineering, and computer science.

As a result of the program, students will understand and apply principles for assessing, preventing, and managing information or systems security-related threats. Additionally, they utilize data analytics tools to develop threat intelligence for current and future security endeavors and apply procedures for researching and recommending solutions to cybersecurity problems. Students choose one of two employment tracks: the Government Scholarship for Service track, which offers full scholarships to U.S. citizens in exchange for public service following graduation, or the Scholarship for Industry track, which mirrors the Scholarship for Service track but does not require graduates to work for the government following graduation.

The IASEC also encompasses the online Master's in Cybersecurity program, which focuses on how to prevent, monitor, and respond to data breaches and cyberattacks. Designed for working IT, engineering and other professionals, the degree focuses on effectively applying analytical and critical thinking to plan and execute security measures to shield an organization's computer systems, networks and network devices from infiltration and cyberattacks. Courses cover topics such as business analytics, cyber threat intelligence, risk management, systems security management, penetration testing and system cybersecurity engineering. The program is ranked #2 public and #5 overall in the 2022 Online Computer Information Technology U.S. News & World Report rankings.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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The University of Arkansas Campus

The University of Arkansas was designated as a National Centers of Academic Excellence in Information Assurance Research in 2012 and again in 2014 when the designation was modified to National Centers of Academic Excellence in Research. The mission of the center is to promote education and research in the field of computer security and information assurance at the University of Arkansas.

The activities of this center include, but are not limited to, fostering multidisciplinary research, securing large-scale funding from federal, state, and other funding agencies, providing education and training to the future workforce, and increasing awareness in the field of information security and reliability by offering appropriate seminars and workshops.

The following faculty members are part of the center:

- **Brajendra Panda**, Center Director (cybersecurity/database security)
- **David Andrews** (architecture security)
- **Paul Cronan** (ethical behavior/academic integrity)
- **Jia Di** (asynchronous integrated circuit design and hardware security)
- **Miaoqing Huang** (cloud security)
- **Qinghua LI** (cybersecurity and privacy)
- **Dale Thompson** (wireless systems security and network security)
- **Xintao Wu** (cybersecurity and privacy)

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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Student Technology Center



Kemper Hall at UC Davis

Professor Karl Levitt founded the **University of California Davis (UC Davis) Computer Security Laboratory ("Seclab")** in 1986. The members of the "Seclab" have pioneered many areas of computer security including:

- First network Intrusion Detection Systems (NSM)
- First distributed Intrusion Detection Systems (DIDS)
- Modeling large scale attacks for IDS (GrIDS)
- First modeling of scenario attacks
- (Requires/Provides)
- Property-based testing and property-based
- models of vulnerability analysis

The research conducted by the members of Seclab crosses not only computer science boundaries, but also disciplinary boundaries, including work with political science, government policy, and law. Members of Seclab have entered industry, academia,

and government, and made many contributions to those sectors. Research projects span the entire field, including the use of argumentation in system security analysis, social network and "fake news" security to analyzing e-voting systems and the process of how an election is run.

We teach many computer security-related courses (for graduate students, undergraduate CS students, and non-CS majors), and are doing research in computer security and information assurance education. One such grant is looking at a way to teach secure programming (funded by the National Science Foundation). One of our faculty members co-led an Association for Computing Machinery/The Institute of Electrical and Electronics Engineers Joint Task Force on Cybersecurity Curricular guidelines, resulting in the release of the "Cybersecurity Curricula 2017: Curriculum Guidelines for Post-Secondary Degree Programs in Cybersecurity".

Finally, Professor Matt Bishop published the second edition of his widely-used textbook "Computer Security: Art and Science". It was one of the first textbooks to provide rigor for the field of cybersecurity.

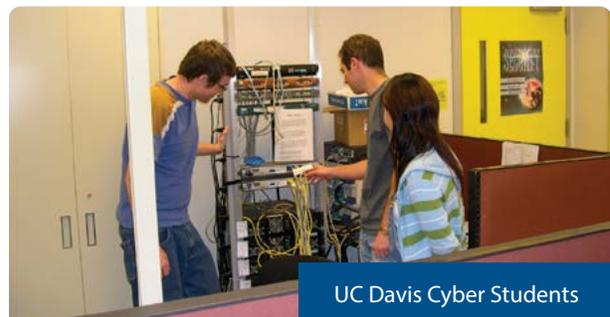
DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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UC Davis Cyber Students



UC Irvine’s Donald Bren School of Information and Computer Sciences (ICS) is proud to celebrate 10 years as an NSA/DHS Center of Academic Excellence in Research. As one of the few computing-focused schools in the nation—and the only in the UC system after 50 years—ICS is uniquely positioned to advance cybersecurity research. UCI is centrally located in Irvine, known as the “City of Innovation,” which has quickly become one of Southern California’s fast-growing tech and security hubs—home to numerous tech Fortune 1,000 companies, fast-growing startups, and a collaborative community of highly innovative people.

ICS has long been at the forefront of cybersecurity in education, housing over a dozen internationally renowned professors, including senior faculty members Michael Franz, Ian Harris, Scott Jordan, Sam Malek, Sharad Mehrotra, and Gene Tsudik, as

well as new ICS faculty members Alfred Chan and Josh Garcia, whose research examines both technical and nontechnical dimensions of cybersecurity.

Over the last decade, ICS has also graduated over 30 Ph.D. students, and many more master’s students, with a cybersecurity focus who have gone on to work in academia and industry at organizations such as IBM, Xerox PARC and SPAWAR. In 2016, UCI deepened its commitment to cybersecurity research by opening the Cybersecurity Policy and Research Institute (CPRI), with the goal of finding multidisciplinary legal, policy and technological solutions to combat cyber threats while protecting and enhancing individual privacy and civil liberties. CPRI is led by Executive Director Bryan Cunningham, an international expert on cybersecurity law and policy who formerly served as a White House lawyer and CIA officer and helped draft the first National Strategy to Secure Cyberspace.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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UCF Library and Pond

University of Central Florida (UCF) is accredited with both the CAE-CD (since 2016) and CAE-R (since 2017). The UCF CAE-C programs are uniquely positioned to supply the future cybersecurity workforce to meet the great need of cybersecurity professionals by US government and industries.

First, UCF is one of the largest universities in the US with more than 69,000 students of which 47.8% are minorities and 26.7% are Hispanic. Thus, it has a large and diverse pool of talented undergraduate and graduate students from which to attract into our CAE-C programs (more than 4,000 UCF undergrad students were enrolled in CS, IT, and CpE programs in Spring 2020).

Second, UCF offers rich and comprehensive cybersecurity educational programs in both undergraduate and graduate levels, including

undergraduate Secure Computing and Networks (SCAN) Minor degree, undergraduate Cyber Operations Certificate, Cyber Defense Professional Certificate from UCF Continuing Education, MS degree in Digital Forensics (MSDF) and MS degree in Cybersecurity and Privacy (MSCSP), Cyber Risk Management Graduate Certificate, and Modeling and Simulation of Behavioral Cybersecurity Graduate Certificate.

Third, UCF has created a Cybersecurity and Privacy (CyberSP) faculty cluster since 2015 that has many faculty across multiple disciplines to conduct cybersecurity research and education. The intensive collaboration and interdisciplinary nature of this cluster tremendously boosts UCF in both the research and education focus and emphasis on cybersecurity.

Fourth, UCF has strong extracurricular activities on cybersecurity education and outreach. With more than 350 student members in the Hack@UCF Student Club, UCF competition teams are well-known in college cyber competition field where they won the National Collegiate Cyber Defense Competition (CCDC) in 2014, 2015, 2016 and 2021; won the Department of Energy CyberForce Competition national championship in both 2018 and 2021. UCF programming team is the best team in the Southeast region in the last 30 years and was the first-ranked U.S. programming team in the 2017 ACM International Collegiate Programming Contest. UCF Cyber Camp provides a 4-day introduction of cybersecurity to high school students; UCF Junior Knights offers 15 Saturday classes for free to regional middle/high school students introducing computer programming.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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Since its humble beginnings as the State Normal School No. 2 in 1871, the **University of Central Missouri** has remained consistent in its mission – transforming students into lifelong learners who use their education to serve their communities. The heritage of UCM and the value of its meaningful degrees has and will continue to be passed from generation to generation. Opening its doors in a rented building with only 30 students, UCM is now home to nearly 10,000 students that represent 43 states and 32 countries.

The UCM Cybersecurity program is a leader in the state and nation. Our Cybersecurity program is one of the first two ABET accredited programs in Missouri, and one of only a handful of accredited Cybersecurity programs in the nation. Achievement of ABET accreditation is an indicator that our program exhibits the level of quality demanded by

industry and that we are able to produce graduates that are workforce ready. UCM's Cybersecurity department has been designated as a National Centers of Academic Excellence in Cyber Defense sponsored by the National Security Agency (NSA) since 2022. Our program is also managing and running the Center of Cybersecurity at the University of Central Missouri.

The program curricula provide foundational and hands-on training in technical, systems, human, organizational, and societal aspects of cybersecurity. The program includes courses like cryptography, secure programming, network security, cloud security, web applications security, cyber-physical systems security, information assurance, ethical hacking, usable security, and computer forensics. The curricula are designed according to the National Centers of Academic Excellence in Cyber Defense (CAE-CDE) Education Program Knowledge Units jointly sponsored by the National Security Agency (NSA) and the Department of Homeland Security (DHS). We provide an unmatched education to students in the region, and we're proud of it. With the demand for qualified technical personnel far exceeding the available supply, the opportunities awaiting Cybersecurity graduates are nearly limitless.

We have highly qualified and dedicated faculty members who have extensive experiences in research and/or industry. Seven of them received specialized information security training through the SANS Institute. In addition, seven faculty hold highly regarded cybersecurity industry certificates.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Since 2014, the **University of Cincinnati's** main goal is to strengthen the cyber workforce in quality and quantity for the NSA, DoD, and Defense Contractors. Ours is a Graduate Certificate Program but, given ambitious course requirements, the curriculum is more easily managed by ACCEND students who complete a BS after 4 years then an MS after another year. There has always been a strong partnership between Political Science (now School of Public and International Affairs), the College of Engineering and the School of Information Technology.

Creation of the program has inspired state funding and the rise of a cyber student group at UC. Thus, we have created a cyber lab (a mini cloud) which is managed by the student group Cyber@UC. The student group has been very active in outreach to area high schools, organizing cyber competitions and presenting current information related to

cybersecurity. They have also organized visits to local area Security Operation Centers, notably Siemens Global Cyber SOC, US Bank SOC, and GE Aviation SOC.

Each year a visitor from the NSA explains mono- and polyalphabetic cryptography to about 200 university, high school, and middle school students with a demonstration of a captured German Enigma machine. We have received letters of appreciation stating that the visits have inspired students to consider careers in cyber.

Funding from the state has enabled the creation, maintenance, and growth of the first Ohio Cyber Range and the Ohio Cyber Range Institute. The OCRI has assembled and created a large library of cyber material for courses, research, and competitions at universities and high schools around the state. This achievement was due, in part, to NSA designation.

Students at UC have been quite active in cyber competitions since 2014. They have won several first-place awards in cyber competitions and have finished in the top 10 in the annual NSA sponsored Codebreaker Challenge over the last several years.

The Electrical Engineering and Computer Science department heads the Center for Hardware and Embedded Systems Security which is supported by the NSF and has affiliates from several universities, including two that are designated as CAE-COs, as well as the Air Force Research Labs and industrial sponsors.

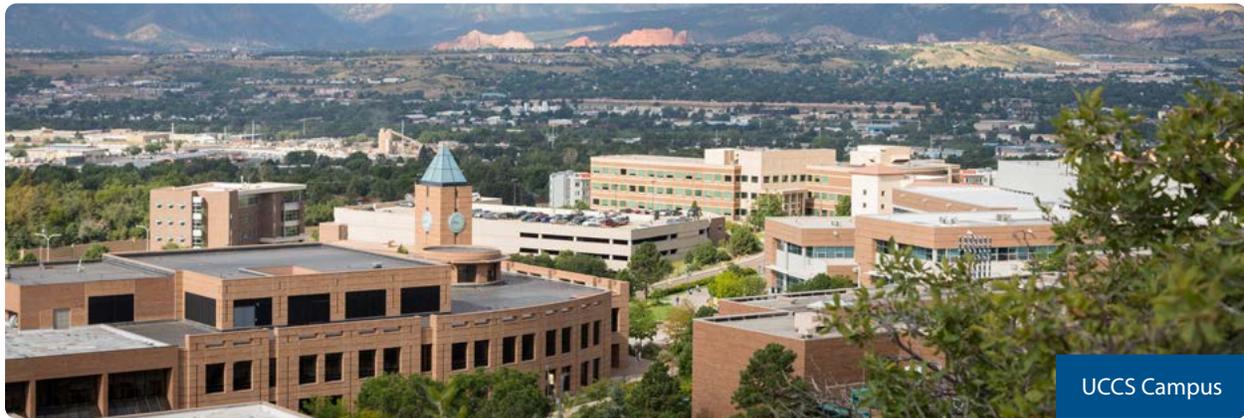
DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations

CONTACT INFORMATION

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The University of Colorado Colorado Springs (UCCS) is a recognized cybersecurity education and research leader in the region. The UCCS cybersecurity programs have trained security professionals that work to ensure our nation's security. Our faculty has obtained federal cybersecurity research grants and published their research results at top venues, developed techniques, systems, and tools with the broader cybersecurity community.

UCCS has developed a campus wide cybersecurity strategy focused on Partnership, Outreach, Workforce development, Education and Research (POWER). UCCS has formed strategic cybersecurity partnerships across campus, with industry, government, military, academic institutions, the Space Information Sharing and Analysis Center (ISAC) and the National Cybersecurity Center

(NCC). These partnerships identified industry and government cybersecurity needs, student internship and employment opportunities, collaborative research, hands on activities, and programs to benefit the security and intelligence communities. The UCCS cybersecurity program has used these partnerships to pursue research, share information collected to improve cybersecurity posture, define educational cybersecurity objectives, and provide comprehensive cybersecurity education.

UCCS has awarded over 200 security degrees in the last year at the bachelors, masters and doctorate levels. Due to a generous Colorado state funding of cybersecurity education, 120 students received just shy of \$400,000 in security degree scholarships.

UCCS will continue to expand and lead the cybersecurity ecosystem in the region by hosting Cyber Capture the Flags (CTF) with industry sponsors, build new cybersecurity programs across colleges, and leverage the \$24M in grants to support cybersecurity apprenticeships, research, faculty development and student camps for K-12 across the state and region.

In addition to our outstanding Cybersecurity programs in the College of Engineering and Applied Science, the UCCS College of Business launched Cybersecurity Management degree and certificate programs in Fall 2021.

DESIGNATIONS

- CAE-Cyber Defense

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The **Connecticut Cybersecurity Center (C3) at the University of Connecticut** has been designated as an NSA/DHS Center of Academic Excellence in Research since 2010. C3 is an applied research center that investigates, develops, promotes, and nurtures the best hardware and software-based security practices for indispensable defense and commercial (e.g., insurance, telecommunications) application domains. C3 is comprised of four niche cybersecurity centers: Center for Voting Technology Research (VoTeR), Center for Hardware and Embedded Systems Security and Trust (CHEST), Comcast Center for Security Innovation (CSI), and Synchrony Financial Center of Excellence in Cybersecurity.

The VoTeR Center is chartered to advise the State of Connecticut in the use of electronic election technologies, to investigate voting solutions and

voting equipment, and to develop and recommend safe use procedures for electronic systems used in the electoral process. CHEST, as a center, is focused on vulnerabilities and threats revolving around hardware abstractions, such as hardware counterfeits, Trojan detection, backdoors, hardware tampering, hardware vulnerability analysis, side-channel attacks (and resilience), and hardware quality and reliability.

The CSI and Synchrony centers, while spanning the breadth of hardware, software, and network cybersecurity research, is narrowly focused on the research challenges of Comcast Corp. and Synchrony Financial respectively. In addition to these centers, C3 also entertains cybersecurity issues materializing in encompassing domains such as mobile computing, medical systems, or web-based services and applications. C3 is home to 12 faculty, over 50 graduate and undergraduate students, and over \$4M in active research grants from industry and federal funding agencies.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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The Satish & Yasmin Gupta College of Business at the University of Dallas prepares its students to become principled and moral leaders who are ethical and effective decision-makers.

UDs Master's Program in Cybersecurity has been designated by the National Security Agency (NSA) as a Center of Excellence in Cybersecurity for the past twenty years. The UD Cybersecurity program is guided by the NSA, an Industry Cyber Advisory Board and cybersecurity professor experts. These important groups provide insights and expertise to inform the development of practice-based business education within the UD Cybersecurity Program of Study.

The UD Cybersecurity Program of Study is offered entirely online. Students may be physically located in any state or internationally. Students complete the master's program in 18-24 months while working full

time. Cybersecurity students work directly with their professors, complete cybersecurity labs for hands-on experience and have the opportunity through the Cyber Club, Industry Cyber Associations, Tabletop Exercises and Competitions to network with cyber experts while learning critical cybersecurity skills. UD students in the Masters and Doctoral programs research focuses on improving cybersecurity processes, procedures, reducing cyber vulnerabilities, risk management, employee mental models, cybersecurity framework, cyber controls, big data governance, cybersecurity breach cases and many other cyber related topics.

UD cybersecurity students and alumni are some of the most sought-after employees in the nation. UD cyber students and alumni are employed in cybersecurity executive leadership and technical security positions in government, Fortune 500 companies and many others. With every organization needing cyber skilled individuals and more than 600,000 position vacancies the UD cybersecurity master's program is an excellent career choice to engage in protecting our country's critical infrastructure, national and organizational defense.

DESIGNATIONS

- CAE-Cyber Defense

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After seeking inputs from the U.S. Department of Defense, the U.S. government, the financial services industry, and other Fortune 500 corporations, the **University of Delaware** designed and created a unique and modern program for cybersecurity education.

Partnering with industry training leader SANS in the creation of a weeklong summer cyber boot camp for undergraduate, graduate, and later elite high school students, held yearly since 2010, reinforced the critical need to incorporate industrial strength, hands-on experiences into all phases of cybersecurity education.

With funding provided by the NSF, UD created a suite of third-generation cybersecurity educational programs which stress use of these student hands-on experiences to create lasting reinforcement of

the expanding body of knowledge of computer and network security now known as cybersecurity.

Foundation cybersecurity courses were created covering subjects such as system protection and hardening, web applications security, pen testing, applied crypto, secure software design, reverse engineering, forensics, and secure embedded systems. The resulting degree programs include certificate programs, a cybersecurity minor for all BS/BA students, both on-campus and online Master of Science in Cybersecurity, a unique dual Cybersecurity/MIS Master's, and a broad portfolio of cyber research opportunities for PhD students spanning several departments such as ECE and CIS.

Topics covered include:

- Lattice and post-quantum cryptography
- Machine learning in cybersecurity
- Secure software, blockchain, indicators of compromise, and hardware security

Realizing that all engineers, scientists, and college graduates need to understand how cybersecurity will play a part in their careers and in every product or service that they help create, UD is now introducing cybersecurity across all disciplines and recently created a four-year, multidisciplinary undergraduate program for incoming high school seniors called Cyber Scholars.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Pioneer in Cybersecurity Education

Founded in 2004, the **Center for Cyber, Security, and Intelligence Studies at University of Detroit Mercy** celebrates more than a decade of evolving excellence. The Center provides the education, experience, and resources essential to cultivate effective leaders in today's digitally dominated world. It combines University of Detroit Mercy's strength in software management, criminal justice, cyber defense operations, and risk management, and builds cybersecurity professionals who are guided by logic, critical thinking, and ethics.

The Center's cybersecurity lab provides students with hands-on learning tools used in cyber defense and forensics and graduates have gone on to work for federal security agencies, Fortune 500 companies, and nonprofit organizations.

Detroit Mercy is uniquely distinctive among CAEs by

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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liberalarts.udmercy.edu/academics/cis/center-for-cyber-intel-studies.php

virtue of its well-documented history of excellence in software engineering education. Based on its publication and service record, Detroit Mercy is preeminent in a critical area of national academic interest — the study of secure software development and acquisition and ICT supply chain assurance.

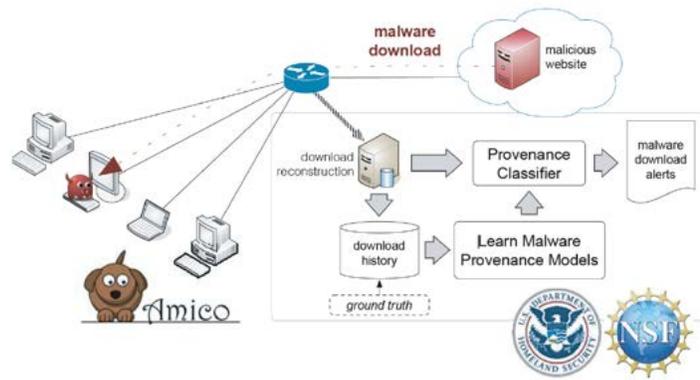
Detroit Mercy helped the Institute for Defense Analysis (IDA) develop the initial educational content and a pedagogy for ICT supply chain risk management in 2012. This particular expertise creates a unique program that produces not only conventionally skilled graduates, but also specialists in ICT acquisition.

Detroit Mercy offers a BS in Computer & Information Systems (CIS) with a major in cybersecurity, a BS in Criminal Justice, an MS in Information Assurance (MSIA), an MA in Criminal Justice, and an MS in Intelligence Analysis.

Detroit Mercy also offers accelerated 5-Year BS to MS programs with combinations of these degree programs.



UD Mercy Cyber Instructors



The mission of the **Institute for Cybersecurity and Privacy (ICSP) at the University of Georgia** is to contribute to meeting the nation's cybersecurity defense research and education needs. The goal of ICSP is to become a state hub for cybersecurity research and education, including multidisciplinary programs and research opportunities, outreach activities, and industry partnership.

Research by five faculty members in the ICSP is currently funded by the National Science Foundation, U.S. Air Force, Defense Advanced Research Projects Agency, Department of Homeland Security, Department of Defense and several industrial partners including Intel, Samsung, Cisco, PinDrop, and CodeGuard.

A team of ICSP faculty and students competed in the 2016 DARPA Cyber Grand Challenge (CGC) and

entered the final event. The first CGC event opened a new frontier in cyber defense as intelligent systems, not humans, competed in an attack and defense CTF-style contest. The UGA team was selected to enter the final competition from a field of over 100 qualified teams from the whole world. The event was the latest in a series of Grand Challenges issues since 2004 by DARPA. Previous well-known challenges included driverless cars and physical robotics. Both events had tremendous impact on the technology development and industry.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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2016 DARPA Cyber Grand Challenge (CGC)



The research of cybersecurity faculty at the **University of Hawaii'i - Manoa (UHM)** covers many critical issues, including cryptography, cloud security, IoT security, information assurance, machine learning security, mobile/wireless security, network security, smart grid security, software/hardware security, supported by AFOSR, AFRL, EPSRC, NASA, NSA, NSF, NRL, ONR, ODNI, and industrial partners. UHM faculty have published 300+ papers in prestigious

peer-reviewed journals and conferences, mentored security-focused graduate students, served as journal editors and reviewers, led research conferences, and given keynotes/invited talks at research conferences. These research successes earned UHM a CAE-R designation in May 2015. The designation provided many opportunities for Hawaiian communities including the establishment of the NSF CyberCorps®: Scholarship for Service program in 2016.

We have enhanced computer science BA/BS degrees with a Security Science Concentration and a management MS degree with Information Security. We have collaborated with local government, education institutions, and industry communities and founded CyberHawaii'i in 2016, which broadens our outreach with high schools, community colleges, Hawaii'i DOD, Hawaii'i DOE, etc. We have hosted 18 NSF/NSA GenCyber Camps across 4 islands with 600+ campers since 2015. We have improved our curriculums with new security courses, including digital forensics, special topics in security (IoT, CPS, drone, wireless security, penetration testing, reverse engineering, etc.). We have worked with the UHM Airforce ROTC program and built the AFRL Cyber Spectrum Collaborative Research Environment program at UHM in 2017. We are currently improving cyber operation capabilities to build a CAE-OP in the next two years.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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GenCyber Camp



Situated on one of the most beautiful islands in the world, the **University of Hawai'i Maui College (UHMC)** is an accredited college that offers two bachelor of applied science (BAS) degrees, a wide variety of associate degrees and certificates. One of the BAS degrees focuses on Applied Business and Information Technology (ABIT) and is designated as a CAE-Cyber Defense by the NSA and DHS.

The UHMC inspires students to develop knowledge and skills in pursuit of academic, career, and personal goals in a supportive educational environment that emphasizes community engagement, lifelong learning, sustainable living, Native Hawaiian culture, and global understanding. We will prepare students to respond to emerging challenges in their lives, communities, and the world through compassion, leadership, problem-solving, and innovation.

The cybersecurity program at UHMC implements a program of cybersecurity education and workforce development that spans program disciplines and encourages newcomers to the field of cybersecurity. The project fosters a sense of inter-disciplinary collaboration and cooperation by creating a variety of engaging cybersecurity modules.

The cybersecurity program at UHMC introduces students to cybersecurity concepts with interactive and hands-on activities that span multiple disciplines. Participants include students majoring in criminal justice, accounting, hospitality and tourism, allied health, and electronics.

Students who wish to pursue additional studies in cybersecurity are provided with internship opportunities at local Hawaiian companies. Despite the Covid pandemic and health restrictions, several interns in the NSF ATE funded CyberSecure project were able to complete their internships.

DESIGNATIONS

- CAE-Cyber Defense

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Student Highlight - Leslie Ramos distinguished herself by completing several outstanding projects in the process of earning her BAS in the ABIT program in 2020-2021. Under the NSF ATE CyberSecure project she completed an internship at the Pacific Disaster Center on Maui. The primer and demo that she created to display various lockpicking techniques continues to be used as an instructional tool. Ramos also published a conference paper on privacy and confidentiality issues with contact tracing during the Covid pandemic.



UHWO Campus

Based on the rapid expansion of cyberspace operations and the importance of cybersecurity to both industry and the Asia-Pacific Region, the **University of Hawaii - West O'ahu (UHWO)** developed the Bachelor of Applied Science degree with a concentration in Information Security and Assurance. This degree program is the first of its kind at a public institution in Hawaii and the Pacific, developed in response to national and state needs for graduates with expertise in cybersecurity. The program is designated as a Center of Academic Excellence in Cyber Defense (CAE-CD), certified by the National Security Agency (NSA) and the Department of Homeland Security (DHS). UHWO is the only four-year university in the state to earn this designation. Enrollment in this nationally recognized program has grown from 13 students in 2014 to 131 students in Fall 2018.

Cybersecurity students from the university have twice in the past three years won the National Cyber League competition as overall National Champions.

Though the support of the Office of Naval Research, UHWO established the UHWO Cyber Security Coordination Center (CSCC) in order to further promote Cyber Workforce Development. CSCC students research and analyze global and technical cyber events in order to coordinate with and support local and regional partners.

The Cybersecurity program is one of five signature programs at UHWO, which has been the fastest growing four-year baccalaureate public school in the nation during the past two years. The school based in Kapolei, Hawaii was founded in 1976 and has an enrollment of 3,128 students.

DESIGNATIONS

- CAE-Cyber Defense

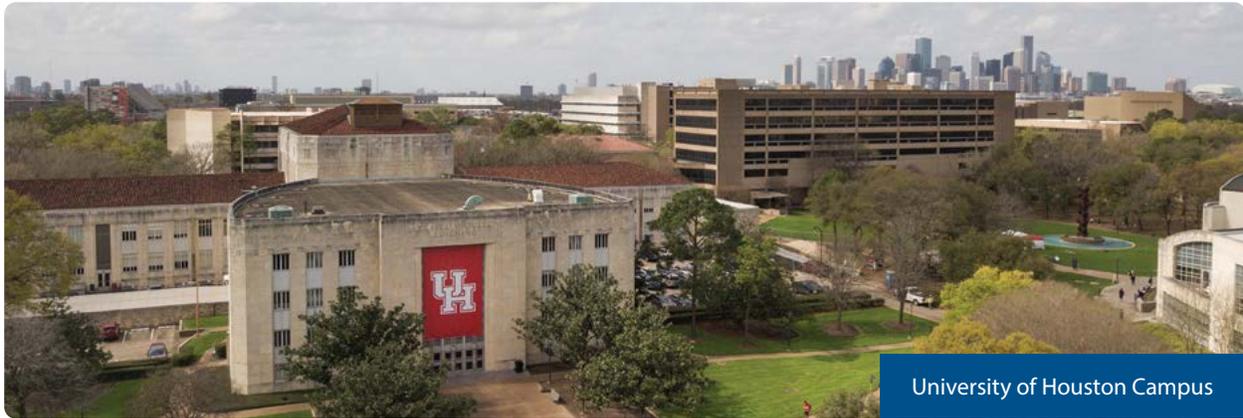
CONTACT INFORMATION

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Matthew Chapman, associate professor of information technology and cybersecurity



Established in 1927, the **University of Houston (UH)** empowers students in their pursuit of learning, discovery, leadership, and engagement. Ranked among the best colleges in America, UH is home to award-winning faculty, innovative research centers, has one of the most diverse student populations in the nation, and alumni who have become international leaders. At UH, we prepare students to envision their future, emerge as leaders, and launch careers that transform the world.

The University of Houston has developed a cybersecurity program under the aegis of the National Security Agency's Centers of Academic Excellence (CAE) Cyber Defense initiative and operated it since 2007. This program is situated within the Center for Information Security Research and Education in the College of Technology, an institution that combines elements of engineering,

computing, the sciences, business, and social sciences in applied, highly interdisciplinary programs. In 2015, the program expanded to include the Department of Computer Science resulting in the CAE Research designation.

Our programs prepare students for careers in cybersecurity via undergraduate, master's, and doctoral degrees. The recognized CAE CDE program is a professional master's degree in cybersecurity. This degree is designed to provide hands-on skills for working security professionals to lead cybersecurity teams. The program has specializations in critical infrastructure protections, digital forensics, and risk management. The Center for Information Security, Research, and Education at UH is the home of the CAE National Resource Center for Knowledge Unit development, an effort that leads the academic input that defines the academic requirements for CAEs.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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With a tradition of cybersecurity education and research since 1990, the **University of Idaho (UI)** was among the first seven universities to be designated a Center of Academic Excellence in 1999. In 2002, the UI was one of the first five Universities to participate in the NSF Scholarship for Service program.

UI faculty at our main campus in Moscow, Idaho and our branch campuses in Coeur d'Alene and Idaho Falls work with undergraduate and graduate student researchers to help educate and train the next generation of cybersecurity workforce while developing cutting edge new technologies to improve the security of the nation's computer systems. Through the Computer Science Department and our Center for Secure and Dependable Systems (CSDS), students can earn a BS, MS or PhD in Computer Science with an emphasis in cybersecurity. Students in Electrical and Computer Engineering

can also take cybersecurity courses and work jointly with CSDS researchers on interdisciplinary research projects. Our partnerships with Idaho National Lab and local industry allow students to work on real-world problems related to critical infrastructure, including the power grid and transportation systems.

As an example of our expertise, our world class faculty include Dr. Alves-Foss, who, working with Dr. Jia Song (who was then a Postdoctoral Research Associate and has now joined the UI Faculty) participated in the DARPA Cyber Grand Challenge in 2014-2016, qualifying the smallest team for the finals. Using CSDS expertise, they built new tools to successfully compete against well establish, larger research teams in this cutting-edge competition.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Dr. Jim Alves-Foss with cyber students



UNIVERSITY OF ILLINOIS AT SPRINGFIELD



UIS Campus

The **UIS Computer Science Department** offers programs in Information Systems Security (ISS), Computer Science, and Data Analytics. The department prides itself on its small class sizes and distinguished faculty dedicated to research and teaching.

The UIS Computer Science Department provides a uniquely student-centered educational experience both in and out of the classroom through active learning, meaningful research, and impactful competition that prepares graduates to contribute fully to society. To this end, high-quality courses offered in our ISS program provide students with the best security theories and practices in all security areas, including but not limited to security programming, secured system design, and cryptocurrency.

Our classes are offered both online and on-campus in interactive virtual environments that enrich student experience and facilitate active learning. Cutting-edge virtual experiment environments support most courses offered in the ISS program. Students can access, build, and hack any operating systems, servers, and network structures during the experiment. Meanwhile, our ISS program focuses on designing and implementing secure systems that have been widely adopted in industry and government. The unique training in secured system design grants students a significant advantage in their future careers.

In addition, students in our ISS program have a tremendous amount of opportunities to participate in cybersecurity competitions, work on real-life problems, and engage in research projects. Overall, our ISS program is well-known for its comprehensive course content, cutting-edge virtual experiment environment, student-centered learning, close relationship to industry and government, and for producing well-prepared graduates for both professional careers and graduate schools.

DESIGNATIONS

- CAE-Cyber Defense

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Cybersecurity Lab



UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



A view of the north Engineering quad at Illinois
Photo credit to the University of Illinois at Urbana-Champaign

Since its founding in 1867, the **University of Illinois at Urbana-Champaign** has earned a reputation as a world-class leader in research, teaching, and public engagement. With our land-grant heritage as a foundation, we pioneer innovative research that tackles global problems and expands the human experience. Entrepreneurship flows from our classrooms to our Research Park, a space that houses everything from Fortune 500 companies to student-founded startups. We are consistently ranked among the top five universities for NSF-funded research, and our total annual research funding exceeds \$600 million.

The Illinois Engineering program is one of the highest-ranked in the world, and our students, faculty, and alumni set the standard for excellence. We have a large and growing pool of faculty and projects concentrating on cybersecurity, both in

academic departments, such as Computer Science and Electrical & Computer Engineering, and in interdisciplinary research centers, such as the Coordinated Science Laboratory and the Information Trust Institute (ITI). ITI provides national leadership in the creation of trustworthy critical applications and cyber infrastructures. Over 200 ITI faculty affiliates are working to design complex systems that deliver predictable levels of reliability, security, privacy, safety, performance, and availability, even in the presence of unknowns.

The Center for Cyber Defense Education and Research at Illinois is in ITI. It advocates for and leads a variety of programs and events related to information assurance and cyber defense. Over 500 students take computer security courses every year at Illinois.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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Photo credit to the University of Illinois at Urbana-Champaign



Cyber Blitz: the JayHackers , First Infantry Division and high school students

The Department of Electrical Engineering and Computer Science (EECS) and the Information and Telecommunication Technology Center (ITTC) at the **University of Kansas (KU)** are a designated National Centers of Academic Excellence in Cyber Defense.

The EECS Department offers five Bachelor of Science degrees, four Master of Science degrees and two Ph.D. degrees in Electrical Engineering, Computer Engineering, Computer Science, Interdisciplinary Computing, and Information Technology. The Department also offers a graduate certificate in Information Security and Assurance. KU ITTC performs research in security modeling and analysis, information security and privacy, network security, mobile security, CPS and IoT security, theoretical modeling, and high-assurance system synthesis and verification.

Several initiatives highlight KU's commitment to excellence in cybersecurity education, research and the overall student experience:

- KU is one of the six Science of Security Labels funded by NSA Research Directorate to conduct foundational research in cybersecurity
- KU's CyberCorps®: Scholarship for Service (SFS) program provides scholarships for up to three years of support for cybersecurity undergraduate and graduate education
- KU's Information Security Club (the "Jayhackers") is a competition-based student group
- Cybersecurity research in KU has been supported by government agencies and industry partners, including NSA, NSF, AFRL, NASA, Ripple, etc.

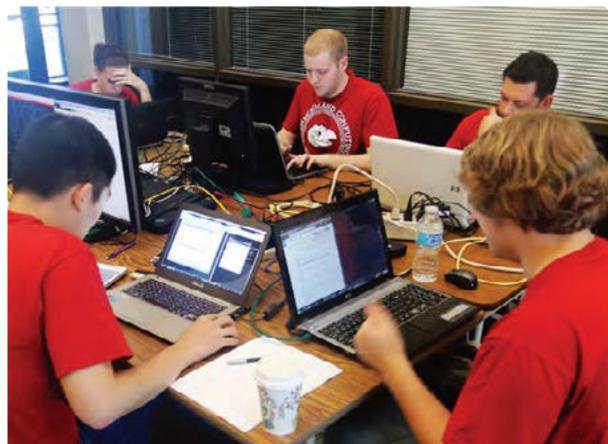
DESIGNATIONS

- CAE-Cyber Defense

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KU's cybersecurity club, the JayHackers, participated in a recent cyber defense competition



UofL Belknap Campus

The **University of Louisville (UofL)** is a state supported research university located in Kentucky's largest metropolitan area. With roots back to 1798, the modern UofL was a municipally supported public institution for many decades prior to joining Kentucky's university system in 1970. The university has three primary campuses including the 287-acre main Belknap Campus located three miles from downtown Louisville, containing seven of the university's twelve colleges and schools. The Health Sciences Center is situated in downtown Louisville's medical complex and houses the university's health-related programs (dentistry, medicine, nursing, and public health) and the UofL Hospital, an academic hospital pioneering the treatments shaping the future of healthcare. The 243-acre Shelby Campus serves the growing residential and business needs of eastern Louisville. In addition, the university maintains an in-person presence that serves nearby Fort Knox.

Our institution provides cybersecurity programs in two departments: the Speed School of Engineering's Computer Science and Engineering (CSE) department and the College of Business' Information Systems, Analytics, & Operations (ISAO) department. CSE offers a graduate certificate in cybersecurity, which is designed to help advanced computer professionals who want to strengthen their knowledge and skills in the fast-changing field of cybersecurity, as well as for students majoring in other disciplines who want to gain knowledge and skills in cybersecurity. ISAO offers an undergraduate track in information security through the Computer Information Systems Bachelor of Science degree that provides technical foundations in information systems and cybersecurity in the context of a business user or nascent manager.

Both programs provide educational, research, and service activities in cybersecurity, information assurance, digital forensics, and legal aspects of computing with an aim to promote secure and ethical use of information technology to the next generation of cybersecurity professionals.

DESIGNATIONS

- CAE-Cyber Defense

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UofL Student Cyber defense Team



The **University of Maine at Augusta (UMA)** is the third largest public university in Maine. In addition to its main campus in the state's capital, UMA also serves students at our campus in Bangor and at eight UMA Centers and receiving sites in virtually every corner of the state. UMA has also been recognized throughout the years as a top military-friendly school from various national organizations.

UMA is committed to excellence in cybersecurity education. Our mission is to provide students with innovative technology and a curriculum designed to meet the growing demands in the field of cybersecurity. We are dedicated to providing student-centered learning and professional development for a maximum experience in cybersecurity education, while aligning with industry needs. Our CAE recognized Bachelor of Science in Cybersecurity program offers students

focus areas in Information Assurance, Cyber Analyst, Cyber Forensics and General focus. Our academic pathway now includes our new Master of Science in Cybersecurity program, launched in the fall of 2020.

Since our CAE redesignation in 2019, UMA officially launched the Maine Cyber Range (MCR) in order to provide an immersive training and simulation center that takes cyber education and workforce development to the next level. Our goals include enhancing UMA's academic cybersecurity program; addressing the cybersecurity skills shortage; and providing cyber support to businesses and organizations.

The Maine Cyber Range has implemented multiple virtual environments:

- Our Cyberbit Range platform delivers a virtual SOC experience that includes massive networks, reverse engineered attacks, and commercially licensed security tools, providing students and professionals with skills that can be immediately applied in the workplace.
- Our NDG NetLab+ environments provide a remote access solution that lets students complete a variety of skill and proficiency labs anywhere at any time.
- Our Forensic lab environments utilize different tools used by law enforcement, military, and the government to carry out investigations.

UMA has become a cybersecurity education hub for the region.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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The **Maryland Cybersecurity Center (MC2)** is an academic center on the **University of Maryland (UMD)** campus that brings together faculty, researchers, and students working in the field of cybersecurity throughout campus. The Maryland Global Initiative for Cybersecurity also promotes and coordinates efforts across UMD to expand its cyber education, research, and development activities.

Our proximity to the nation’s capital enables close interaction with federal agencies, and our location in the Maryland-DC-Virginia region makes UMD an ideal place for technology development and partnerships with industry. In addition to graduate level courses and undergraduate degree concentrations in cybersecurity within the A. James Clark School of Engineering and the College of Computer, Mathematical, and Natural Sciences, the Advanced Cybersecurity Experience for Students

(ACES) seeks to revolutionize cybersecurity education by emphasizing the need for students to master both technical and nontechnical skills. ACES, as an Honors College living-learning and minor program, draws together exceptional students of different backgrounds into teams that create comprehensive solutions to real-world problems.

UMD is unique in its comprehensive, interdisciplinary approach to cybersecurity, in that it brings together not only faculty with expertise in the core areas of computer science and electrical engineering, but also those with backgrounds in various multi-disciplinary areas. MC2 has particular strengths in cryptography, programming-language and software security, behavioral aspects of security, empirical security, and cybersecurity economics.

UMD ranks among the top 20 public research universities in the nation, with top-ranked departments in computer science and electrical and computer engineering. NSA has designated the University of Maryland as a CAE-R, and the university was also named an Intelligence Community Center of Academic Excellence by the Department of Homeland Security.

The CyberCorps®: Scholarship for Service (SFS) program at ACES seeks to address cybersecurity education and workforce development through a grant from National Science Foundation.

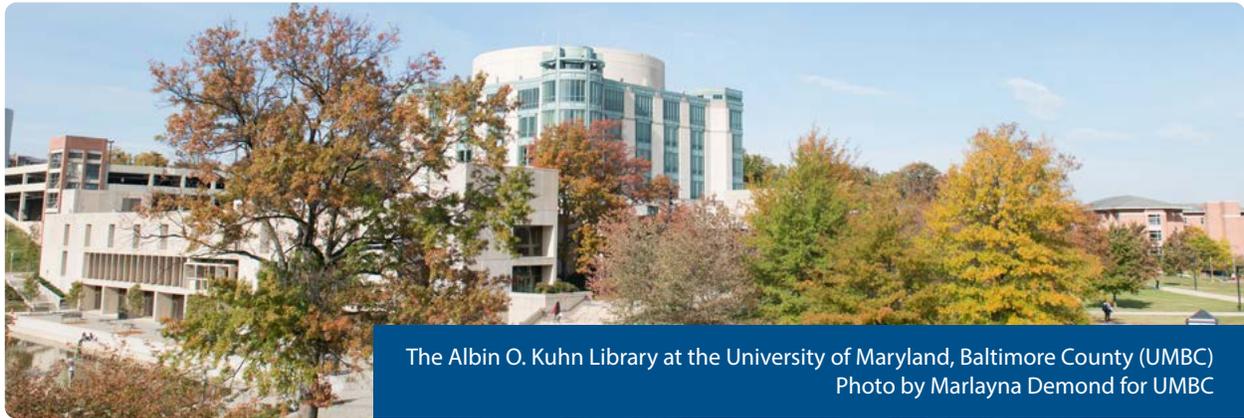
DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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The Albin O. Kuhn Library at the University of Maryland, Baltimore County (UMBC)
Photo by Marlayna Demond for UMBC

The **University of Maryland, Baltimore County Center for Cybersecurity (UCYBR)** is an interdisciplinary university center that provides Maryland and the Nation with academic and research leadership, collaboration, innovation, and outreach in this critical discipline through academic research, workforce development, and technology incubation activities to advance UMBC's position as a leading research university in cybersecurity-related disciplines.

At UMBC, students study cybersecurity by pursuing a BA or BS, MS, MPS, combined BS/MS, or PhD degree through programs in computer science, computer engineering, and information systems. These degrees are awarded through the Department of Computer Science and Electrical Engineering and Department of Information Systems, where there are tracks in cybersecurity at the undergraduate

and graduate levels. UMBC offers scholarships for students to study cybersecurity under the DoD Cybersecurity Scholarship Program (DoD CySP), NSF CyberCorps®: Scholarship for Service (SFS), and UMBC CyberScholars.

Undergraduate and graduate students can work with a variety of faculty in their labs spanning all aspects of cybersecurity—from hardware security to systems and network security, to mobile/IoT/CPS security, to securing applications. Projects at the Cyber Defense Lab include protocol analysis, educational cybersecurity assessment tools, and high-integrity voting systems. The CyberDawgs, UMBC's cyber competition team, won national championships in the 2017 National Collegiate Cyber Defense Competition and the 2019 DOE CYBERFORCE competition.

UMBC is known for inclusive excellence. Our undergraduate programs in computing are significantly more diverse than the national averages. The CyberScholars program is nearly 50% women and 40% students from groups historically underrepresented in computing.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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Drs. Alan Sherman and Rick Forno meet with students in the DoD CySP and SFS programs at UMBC.
Photo by Marlayna Demond for UMBC



Arteen I., BS Computer Networks & Cybersecurity

University of Maryland Global Campus (UMGC) is helping to meet the huge demand for trained cyber professionals by offering online and hybrid courses in a range of cybersecurity degrees, specializations, and certificates. Our innovative programs can help you gain the latest industry knowledge, cutting-edge technical skills, and real-world expertise to specialize in the cybersecurity field of your choice. All are created and continually updated with input from employers and industry experts and taught by experienced scholar-practitioners who are leaders in their fields.

Undergraduate Certificate

- Computer networking

Bachelor's Degrees

- Computer networks & cybersecurity
- Cybersecurity management & policy
- Software development & security

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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UMGC.edu
umgc.edu/cybersecurity

Graduate Certificates

- Cloud computing & networking
- Cyber operations
- Cybersecurity management & policy
- Cybersecurity technology
- Digital forensics & cyber investigation
- Information assurance

Master's Degrees

- Cloud computing architecture
- Cyber operations
- CyberAccounting
- Cybersecurity management & policy
- Cybersecurity technology
- Digital forensics & cyber investigation
- Information technology: information assurance

UMGC is consistently recognized within the cybersecurity industry for academic excellence. Our virtual lab provides a secure environment for students to gain hands-on experience detecting and combating cyber-attacks. In addition, our globally ranked cyber competition team provides students with real-world experience and networking opportunities.



Dr. Loyce Pailen, CISSP, Sr. Director,
Center for Security Studies



The **University of Massachusetts Dartmouth (UMassD) Cybersecurity Center** is a multi-disciplinary entity with affiliated faculty from Computer and Information Science (CIS), Electrical and Computer Engineering (ECE), and Physics. The CIS and ECE Departments offer bachelor's degrees in computer science and computer engineering with concentrations in cybersecurity, two minors in cybersecurity, as well as graduate certificates, which are compatible with master's degree requirements.

Faculty possess extensive research expertise, including secure software engineering, software assurance, cybersecurity risk assessment, hardware, embedded, and real-time system security, network, and cyber-physical system security, mobile security, cryptography, operating system and database security, privacy, forensics, reverse engineering, and biometrics.

Members of the Massachusetts Air National Guard who have completed the Joint Cyber Analysis Course program and meet UMass Dartmouth admissions standards are granted a minimum of 30 transfer credits toward a bachelor's degree in computer science or computer engineering.

UMass Dartmouth students have extensive opportunities to participate in the Internship and Undergraduate Research Incentive Programs. Prior to graduation, many students undertake one or more summer internships with U.S. Federal Government Agencies, Federally Funded Research and Development Centers, Major Defense Contractors, and private industry. Doctoral students go on to secure tenure-track faculty positions at nationally ranked universities as well as research scientists and engineering positions.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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View of the main campus with administrative building and Student Activity center

The long-term goal of Center of Information Assurance (CfIA) at the **University of Memphis** is to establish a regional hub for Cybersecurity Education and Research in collaboration with public and private sectors in the State of Tennessee with significant impacts on economic development, the provision of public services, citizen privacy and security. Since the Center founded in 2004, it has consistently met the criteria for maintaining its designation as a National Center of Academic Excellence in Information Assurance/Cyber Defense Education (CAE-CD) and Research (CAE-R) by the National Security Agency (NSA and Department of Homeland Security (DHS)). The University's undergraduate and graduate degree/certificate programs are listed below:

1. B.S Cyber Security Concentration
2. Graduate Certificate in Cyber Security and Information Assurance

3. Ph.D. in Computer Science with research and dissertation in Cyber Security
4. Graduate Certificate Program in Business Information Assurance

The CfIA is a founding member of the National Cyber Security Preparedness Consortium (NCPC). This five-university consortium is currently funded through DHS/FEMA grants to develop cybersecurity courses since 2006. The Center faculty have received several federal grants and expanded their research activities by collaborating with the Center to Advance cyber Security and Testing (CAST) and the Financial Infrastructure Stability and Cyber-security (FICS) at the University of Memphis. Because of the center's wide range of cyber-related activities, the University of Memphis is in the forefront of information security research, education, and outreach in the state as well as in the region.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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Students running experiments



MU Columbia Campus

The **University of Missouri, Columbia** was designated as an NSA Center of Academic Excellence in Research in 2019. As a member of the Association of American Universities (AAU), the University of Missouri is on the leading edge of innovation, scholarship, and solutions that contribute to scientific progress, economic development, security, and well-being.

The Cybersecurity Center at the University of Missouri is located within the College of Engineering. The faculty has active collaborations across different units that include engineering, information technology, business, law, medicine, social science, and mathematics.

The cybersecurity research at the Cybersecurity Center is supported through research grants from US DOD agencies, including the US Naval Research

Laboratory, US Army Research Laboratory, and National Security Agency, as well as the National Science Foundation, and the US Department of Energy. Cybersecurity Center faculty are also actively engaging industry partners through the Cognitive Internet of Things – Industry Supported Consortium at the UM College of Engineering.

With a commitment to student success, the cybersecurity faculty successfully mentor several graduate students and postdoctoral scholars. Prior students have joined cybersecurity careers in industry and academia. Cybersecurity Center faculty lead a Scholarship for Service project titled “MASTER: Missouri Advanced Security Training, Education and Research” sponsored by the National Science Foundation that funds MS and Ph.D. students specializing in cybersecurity.

The scholarship recipients go on to serve at federal agencies or national labs upon their graduation. The cybersecurity faculty also actively mentor high-school students by organizing the Network Forensics for HackerTrackers camp at the University.

DESIGNATIONS

- CAE-Research

CONTACT INFORMATION

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MU Cybersecurity Students



The **University of Missouri–St. Louis (UMSL)** continues to develop cybersecurity research infrastructure and educational programs in alignment with national security interests. At UMSL, we realize that cybersecurity is both a technical and a management issue. Thus, our innovative cybersecurity programs engender security thinking and skills at the interface of technical and business aspects of cybersecurity.

With a focus on network and systems security, UMSL offers a broad, multidisciplinary approach to cybersecurity research and teaching. It offers both undergraduate and graduate degree programs in cybersecurity. Our programs are among the few interdisciplinary programs in the nation that are offered in two emphasis areas: Information Systems and Technology (IST) emphasis and Computer Science (CS) emphasis. The IST emphasis focuses

on cybersecurity management and operation whereas the CS emphasis focuses on design and implementation. The BS Cybersecurity program has a core set of courses that are common to both emphasis areas. Each emphasis area has its own set of required and elective courses. The graduate program is more specialized where each emphasis area has its own set of courses with some overlap between electives.

UMSL is one of the few universities that seek to make itself relevant to filling the gap between what the federal and other government organizations need by offering streams of well-structured cybersecurity programs with a good mix of conceptual grounding and hands-on training. We share the belief that no accomplishment will be more critical to these endeavors than improving educational opportunity for all.

As a result, we've partnered with the chamber of commerce to become a powerful force in the St. Louis Regional Education Commitment. We are committed to doing our part to increase the number of adults in St. Louis who hold a bachelor's degree to 40 percent by the year 2025. Military Times has named UMSL to its "Best for Vets" list for six consecutive years and UMSL was named a 2019 "Top Veteran-Friendly School" by U.S. Veterans Magazine. Forbes Magazine named UMSL one of "America's Best Colleges" based on the things that matter most to students: quality of teaching, great career prospects, graduation rates and low levels of debt.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Missoula College (MC) delivers cybersecurity education through coursework, internships, apprenticeships, certifications, certificates of technical skills, two-year degrees, pathways to baccalaureate degrees, and community outreach. MC was designated as a Center of Academic Excellence in Cyber Defense (CAE-CD) by the National Security Agency (NSA) and Department of Homeland Security (DHS) in September 2017. The MC CAE-CD is based upon four pillars of excellence:

- Relevant two-year college curricula mapping to Cyber Defense KUs designated by the NSA/DHS
- Qualified faculty with the appropriate credentials in cyber defense as recognized by the NSA/DHS
- An institutional culture of interdisciplinary cybersecurity education and best-practices

- Ongoing outreach and partnerships with the local community and industry partners

The Center provides community outreach in cybersecurity through high school dual-enrollment education programs, summer camps for middle school students, a cybersecurity higher education summit, and the annual Cybersecurity Awareness Week event.

Associate degree students at Missoula College are required to participate in a work-based learning experience. The “Earn While You Learn” program provides students over 2000 hours of paid on-the-job training, while earning the associate degree and a credential from the Montana State Department of Labor & Industry.

MC is a CompTIA Academy, Cisco Networking Academy, a member of the Microsoft IMAGINE, and Amazon EDUCATE. Certifications are integrated into academic curriculum to validate industry-relevant skills. A local employer advisory committee meets regularly to advise, assist, and advocate for cybersecurity education at Missoula College.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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NUCIA: Home of Nebraska University's Cybersecurity Programs

At **University of Nebraska Omaha (UNO)** we make cybersecurity fun and exciting for everyone at all levels. Our mission is the train the next generation of cybersecurity professionals and improve cybersecurity awareness locally, regionally, and nationally.

As one of the earliest universities to join the NSA/DHS Center for Academic Excellence (CAE-CD) program in 2003, UNO has led the region in cybersecurity education and research. It started its Bachelor's in Cybersecurity program in 2007 and the Master's in Cybersecurity program in 2012. It also offers the 5-year integrated master's degree in cybersecurity and a graduate certificate. Students are free to choose a managerial track or a cyber operations track at the master's level. UNO's cybersecurity programs has over 350 students completing various degrees, certificates,

and concentrations. UNO has offered the NSF CyberCorps Scholarship for Service program continuously since 2003 and is often recognized as one of the best universities for veterans by Military Times. UNO was also designated as the Center for Academic Excellence in Cyber Operations (CAE-CO) in 2017 – an elite hands-on program by NSA/DHS.

UNO also hosts the Nebraska University Center for Information Assurance (NUCIA), the University of Nebraska system wide center for all things related to cybersecurity. The Center organizes various outreach events in the community, hosts the curriculum advisory board, invites nationally and internationally recognized speakers for seminars and talks, and engages with the Omaha community and other cybersecurity centers in the region. It also sponsors the student computer security/hacking group Nullify.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations

CONTACT INFORMATION

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Cybersecurity students learning new ways to secure systems



The University of Nevada, Las Vegas (UNLV)

Computer Science Department was designated as a Center of Academic Excellence in Cyber Defense in 2019. Its Information Assurance program emphasizes research and education in the broad issues of developing trustworthy information systems and the cybersecurity workforce shortage. The core faculty members specialize in network security, computer forensics, cryptography, security data analytics, and blockchain security. They produce highly trained graduates at B.S., MS and Ph.D. levels. UNLV has also recently created an interdisciplinary cybersecurity MS program. Students are educated with a sound understanding in cyber law, risk management, emergency response, control frameworks, and the technologies involved in a rich and deep cybersecurity environment.

UNLV is an accredited test center approved by

EC-Council and regularly offers Certified Ethical Hacker (CEH) training classes and exams. Community involvement is a crucial part of the program providing financial support for certifications, mentors, lecturers, internships, and employment opportunities. Situated at the home of Black Hat and DEFCON conferences, UNLV students regularly participate in security conferences and competitions.

UNLV, a Title III & V Minority- and Hispanic-serving institution, has consistently been listed as the most diverse campus for undergraduate students in U.S. News & World Report since 2017. It has also been ranked an R1 “very high research” institution by the Carnegie Classification of Institutions of Higher Education. UNLV aims to be an institution of choice in the southwest U.S. for those wanting to start a career in cybersecurity.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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University of Nevada, Reno Campus

The **University of Nevada, Reno** located in the heart of Reno, Nevada is a Carnegie R1, Tier1 institution and the flagship public university of the State of Nevada. The University of Nevada, Reno has been highly instrumental in interdisciplinary cybersecurity education and research since the establishment of the university-wide Cybersecurity Center in 2014.

Our mission is to master the challenge of cybersecurity by bringing together cross-disciplinary teams to work in synchrony, examining each problem through disciplinary lenses and seeking solutions that incorporate societal, technical, ethical, political, and economic considerations. Currently, thirty faculty from eight disciplines (Computer Science & Engineering, Criminal Justice, Political Science, Psychology, History, Information Systems, Journalism and Public Health) are affiliated with the Center as active participants in cybersecurity research,

education, and outreach. The Cybersecurity Center provides educational and research opportunities for both undergraduate and graduate students that prepare them to pursue careers in cybersecurity and related fields.

The UNR Cybersecurity Center plays an active role in the placement of students in federal, state, and local government organizations as well as the high-tech industries in the near-by Silicon Valley and the expanding Northern Nevada technical industries. The Center is actively engaged with its student population and encourages them to participate in a broad range of cybersecurity-related activities in addition to education and research. The Nevada Cyber Club has become one of the top collegiate cybersecurity competition teams nationally: In 2019, the National Cyber League recognized the University of Nevada, Reno as the top school in the nation.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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UNR Cyber Club prepares for NCL competition



UNH Durham Campus

The **University of New Hampshire (UNH)**, the state's flagship public research university, received its designation as a Center of Academic Excellence in Cyber Defense (CAE-CD) by the NSA and DHS in 2019. UNH is the only institution in the state to earn this specialized designation for its commitment to building a cybersecurity workforce and helping organizations manage their cybersecurity risks.

To further cultivate future cybersecurity leaders and more broadly engage relevant communities, UNH created the Center for Cybersecurity Leadership, Education, and Outreach (CCLEO). Aligned with the CAE-CD designation, CCLEO focuses on cybersecurity education and training as well as external outreach and support to businesses and government agencies in New Hampshire and beyond. Leveraging the expertise of UNH faculty and

industry partners, the Center also provides resources to help build resilience, manage risks, and respond to cybersecurity incidents. Our cybersecurity degree programs and CCLEO activities emphasize the multidisciplinary approach necessary to whole-of-organization and whole-of-community solutions for cybersecurity.

UNH earned the CAE-CD designation based on its homeland security bachelor's degree program, which is offered at both the Durham and Manchester campuses. UNH also offers a bachelor's degree in computer science with a concentration in cybersecurity (Durham), as well as graduate programs in cybersecurity engineering (Manchester) and cybersecurity policy and risk management (online). UNH will soon be adding a master's program in national security intelligence analysis to its security studies portfolio.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Homeland security students with professor.



Bergami Center for Science, Technology, and Innovation

The **University of New Haven’s** cybersecurity program has earned a place among the most prestigious cybersecurity programs in the U.S. AccessCyber recently ranked us as having one of the top ten cybersecurity programs in the nation. Our program is also one of only two in New England to have earned the enviable National Security Agency (NSA) and Department of Homeland Security (DHS) designation as a Center of Academic Excellence in Cyber Operations.

The Tagliatela College of Engineering within the University also created and oversees Connecticut’s first CyberCorps® Scholarship for Service program, which will produce a new generation of Super Cyber Operatives to enter the government workforce with the mission of protecting the U.S. from cyberattacks.

The University of New Haven’s cybersecurity

program resides in the engineering college in the Electrical & Computer Engineering and Computer Science department, where it has a home within a home — the Connecticut Institute of Technology (CIT). CIT’s motto — “Tech Through the Lens of Security” — reveals both the overarching mindset of the Institute as well as its state-of-the-art cybersecurity research and teaching facilities.

Currently, there are seven-degree programs within CIT:

- B.S. in Cybersecurity & Networks
- B.S. in Cybersecurity & Networks with Cyber Operations
- B.Sc. in Computer Science with a Cybersecurity concentration
- B.Sc. in Computer Science with Cyber Operations
- B.Sc. in Electrical and Computer Engineering with a Cybersecurity concentration
- M.Sc. in Cybersecurity & Networks
- Ph.D. in Applied Science & Engineering with a Cybersecurity focus

DESIGNATIONS

- CAE-Cyber Operations

CONTACT INFORMATION

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Student Conducting Research



UNM McKinnon Center for Management at the Anderson School of Business

University of New Mexico (UNM) Anderson faculty members have developed a program that is unique in the country, if not the world, with the following characteristics and benefits to students:

- Master's of Information Systems and Assurance offered through UNM's Anderson School of Management
- Partnership with the FBI and its Regional Computer Forensics Lab (RCFL), housed at UNM
- A partnership with the Department of Energy's first satellite office for the Center for Cyber Defenders through Sandia National Laboratories
- Metro Law Enforcement Internship program for students to work with local crime units
- A designation from the National Security Agency (NSA) and the Department of Homeland Security (DHS) as a Center of Academic Excellence in Cyber Defense and Research

UNM also offers an Information Assurance Scholarship for Service Program. The UNM Information Assurance Scholarship for Service (SFS) program is funded through a National Science Foundation grant to provide scholarships to complete a master's degree in the information assurance (IA) field.

UNM SFS students have been placed in internships and careers at the Department of Defense, Department of Homeland Security, Department of Treasury, Environmental Protection Agency, Federal Bureau of Investigation, Federal Reserve Bank, Los Alamos National Labs, National Institute of Standards, National Security Administration, Sandia National Labs, and Securities and Exchange Commission.

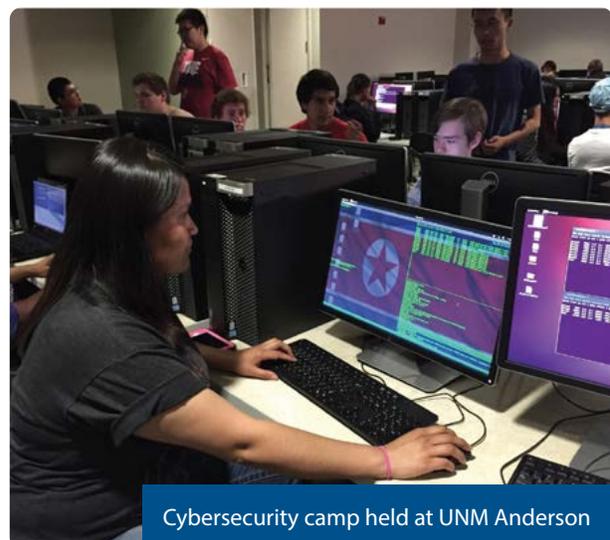
DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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Cybersecurity camp held at UNM Anderson



UNIVERSITY OF NORTH CAROLINA WILMINGTON



Congdon School

The **University of North Carolina Wilmington (UNCW)** received designation in September of 2018 as a National Center of Academic Excellence in Cyber Defense (CAE-CD). UNCW established, in April of that same year, the Center for Cyber Defense Education (CCDE – <https://csb.uncw.edu/ccde/>) with the mission to: graduate qualified cyber defense (CD) professionals who rigorously adhere to the fundamental concepts of cybersecurity and possess the skills necessary for thinking critically about cybersecurity issues and effectively solving problems in the cyberspace domain.

UNCW offers five cybersecurity-related academic programs: 1) BS in Cybersecurity (the first such BS degree in the NC public university system); 2) BS in IT with Cybersecurity concentration (this is the curriculum path that received designation in 2018); 3) BS in CS with Security concentration;

4) Cybersecurity minor (18-credit minor open to all UNCW majors); 5) MBA with Cybersecurity specialization. The BS in Cybersecurity, the BS in IT with Cybersecurity concentration and the Cybersecurity minor are all interdisciplinary programs managed jointly by the Department of Computer Science (CS) and the Congdon School of Supply Chain, Business Analytics, & Information Systems.

While technical skills will arguably form the base of any cybersecurity program, employers need their workforce to also be good communicators, critical thinkers, positive teammates, and exhibit a strong work ethic. UNCW prides itself on interdisciplinary cybersecurity programs that strengthen students’ soft skills while including robust work-based learning components augmented by intern-/apprenticeships with industry partners to polish essential hard skills.

Cybersecurity-focused efforts at UNCW have been continually accelerating over the past 15+ years with the CCDE grounded in and fully committed to its purpose to: Strengthen the cybersecurity aptitude of our entire community of scholars so they are equipped to wisely balance the unique risks of living in an all-digital future. These efforts are propelled by many people and organizations that include a committed CCDE advisory board made up of local and regional business partners that meet periodically with and advise university faculty; an active student-led Cyber Defense Club (CDC) that meets and competes regularly; and dedicated faculty teaching and researching a variety of cybersecurity topics.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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UNG Dahlonega Campus

The **Center for Cyber Operations Education** at the **University of North Georgia** develops highly capable cyber professionals as a Center of Academic Excellence in Cyber Defense. UNG is also designated as a University System of Georgia leadership institution and is The Military College of Georgia, one of six federally-designated Senior Military Colleges in the nation.

UNG offers a Bachelor of Science degree in Cybersecurity, a Graduate Certificate in Cybersecurity, two degree concentrations, and two minors. The Department of Computer Science and Information Systems (CSIS) has offered the concentration in Information Assurance and Security (IAS) as part of the Bachelor of Science degree in Computer Science since 2004 and serves more than 1,250 students in the department and in related majors taking cybersecurity courses.

The Department of CSIS offers the Information Assurance and Security minor, and, jointly with the Department of Criminal Justice, the minor in Cybersecurity, to add value to any undergraduate major across all disciplines. The interdisciplinary Bachelor of Arts degree in Strategic and Security Studies offers a concentration in Cybersecurity for students interested in military, government, or intelligence careers.

The nationally-ranked CyberHawks cyber competition team participates in more than two dozen cyber competitions per year, including placing 1st in the Nation in the NSA's Codebreaker Challenge in both 2019 and 2020 and provides opportunities for student certifications, research, and conference participation.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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UNG Cybersecurity Course



UNT Clock Tower

The **University of North Texas (UNT)**, located in Denton, TX, is a Tier One research university, designated by the Carnegie Classifications of Institutions of Higher Education. This represents the University's continued devotion to high-level research and scholarly activities. UNT has more than 42,000 students and offers 37 PhD programs.

The UNT College of Engineering, Department of Computer Science and Engineering, offers Bachelor's, Master's, and PhD degrees related to cybersecurity:

- Cybersecurity, B.S.
- Computer Science, B.S. with Cybersecurity Certificate
- Information Technology, B.S. with Cybersecurity Certificate
- Computer Engineering, B.S. with Cybersecurity Certificate

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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- Cybersecurity, M.S.
- Computer Science, M.S. with Interest in Computer Networking and Security
- Computer Science with concentrations in Professional Master of Science in Cybersecurity, M.S.
- Computer Science and Engineering, PhD

UNT's Center for Information and Cyber Security (CICS) is a collaborative initiative to anticipate and respond to the rapidly changing needs in cybersecurity. CICS has been designated as a Center of Academic Excellence in Cyber Defense Education (CAE-CDE) since 2003, and Cyber Security Research (CAE-R) since 2012. Research interests of CICS include the following:

- Blockchain
- Post-quantum cryptography
- Security for Novices
- Denial-of-Service Resilience
- Secret Sharing for Cloud Security
- Secure Video Streaming
- Remote Collaboration Systems
- Artificial Intelligence



Women in Cybersecurity



University of Pittsburgh Campus

The **University of Pittsburgh**, through its Department of Informatics and Networked Systems (DINS), has long been recognized for excellence in education and research in cybersecurity, network security and resiliency, and privacy. Since 2004, we have been designated as a National Center of Academic Excellence in Cyber Defense Education and Research. Our programs include:

- BSIS (Cybersecurity pathway)
- MSIS, Information Security specialization
- MST
- Graduate Certificates in Cyber Security, Policy and Law
- PhD degrees in Information Science and in Telecommunications

We are a hub for research, education, and innovation at the confluence of information, networks, and

human cognition, perception and behavior. Our courses and research projects explore Cyber security subjects and challenges through the lenses of networks, human behavior, and information. Our students apply what they learned in the classroom by participating in multiple cybersecurity competitions including CyberForce, Collegiate Cyber Defense Competition, and Hivestorm.

For the past four years, the Pitt Cyber Institute hosted a free week-long CyberCamp for high school students. The camp is designed for a range of technical skill levels, including introductory digital literacy, cyber ethics, and systems security. From infrastructure resiliency to access control, and from location privacy protection to trusted systems, our research produces innovations in Cybersecurity to secure and protect industry and individuals for generations to come.

Our faculty secures funding from NSF and the DOE to work on topics such as cybersecurity manufacturing innovation, use of games to model and evaluate the cybersecurity risk at nuclear power plants, and investigating compound threats to critical infrastructure systems.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Pitt Students participating in a Cyber Competition



The University of Rhode Island Campus

The University of Rhode Island's Digital Forensics and Cyber Security Center (DFCSC) is a multidisciplinary hub on the Kingston, RI campus that harnesses the resources of Computer Science, Electrical and Computer Engineering, and the Office of Information Technology. Established in 2004 with a grant from the U.S. National Science Foundation, the DFCSC provides courses and degree programs, research, services, and consulting in multiple cyber security disciplines. Its research objective is to formulate new concepts that help digital forensics and cyber security professionals protect the nation's citizens. The DFCSC also focuses on preparing the workforce of tomorrow through extensive outreach into K-12 education in computer science, data science, and cyber security.

The DFCSC members work closely with a number of different academic institutions, government

organizations, state and local law enforcement agencies, and private companies. We draw on the expertise of these partners to help in developing digital forensics and cyber security related capabilities and guiding the direction of DFCSC projects and education.

The Digital Forensics and the Cyber Security programs approach teaching as a mixture of academic and practical points of view. This hybrid approach allows students to build a strong foundation and expand their knowledge by applying real-world techniques and tools to the subjects being taught. Students also leverage the close knit nature of the State of Rhode Island to obtain experience through internships, job shadowing, and apprenticeships.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

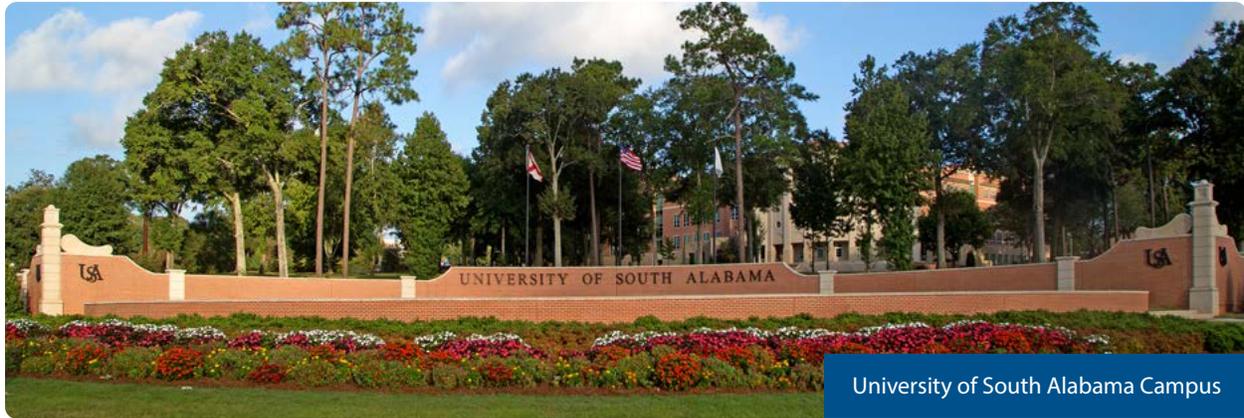
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UNIVERSITY OF SOUTH ALABAMA



University of South Alabama Campus

The **University of South Alabama School of Computing** has been a National Center of Academic Excellence in Information Assurance / Cyber Defense Education since 2011 and was redesignated in 2014 under the new program criteria. USA School of Computing houses all computing disciplines in the same academic unit. This centralization allows for faculty and students unique opportunities to collaborate through academics, research, internships, and technology transfer.

The school offers ABET accredited degrees in Computer Science, Information Systems, and Information Technology, as well as a degree in Health Informatics. At the graduate level, Masters students are awarded a degree in Computer & Information Sciences with a focus in Computer Science or Information Systems. Certificates are available in Cyber Security and Artificial Intelligence. Our PhD

in Computing degree integrates coursework and research projects from computer science, information systems, and information technology, merging different perspectives and creating impactful advancements in areas such as Cyber Security, Digital Forensics, Big Data, and Cloud Computing.

Students gain sound preparation for a wide variety of cyber security careers and for continuing their education to the terminal degree. Our programs provide both a strong theoretical foundation and practical hands-on experience in the core aspects of security. In coordination with our Center for Forensics, Information Technology and Security, students at all levels can participate in research and internships beginning as early as the freshman year. Students completing the CAE designated curriculum are awarded certificates upon completion of the program.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Shelby Hall, School of Computing



The **University of South Carolina (UofSC)**, founded in 1801, is one of the three research universities of South Carolina. The College of Engineering and Computing hosts the departments of Computer Science and Engineering, the primary unit for the CAE-CD and CAE-R designations, and Integrated Information Technology.

The mission of these departments is to provide undergraduate and graduate instruction, to undertake research in computing and information technology, and to serve the community and the profession.

UofSC has offered cybersecurity courses and programs since 2000. Cybersecurity research accomplishments of our faculty and students are demonstrated by externally funded grants, peer-reviewed conference and journal publications, and graduation and placement of our students.

Faculty and staff of UofSC are actively reaching out to local industry and educational institutes to promote cybersecurity collaboration and awareness. A small sample of our collaborative efforts include those with The Citadel, Clemson University, Trident Technical College, and local HBCUs. In 2019, UofSC and the Medical University of South Carolina jointly hosted the 33rd annual IFIP WG 11.3 Conference on Data and Applications Security and Privacy in Charleston.

UofSC works with the South Carolina National Guard and the Naval Information Warfare Center Atlantic to develop state-level cybersecurity capabilities. At the national level, UofSC signed an Educational Partnership Agreement with the Air Force Research Laboratory Information Institute in 2013, leading to research collaborations and student internships.

UofSC also strengthened collaboration with national laboratories and agencies, such as Savannah River and ESnet, by providing internship opportunities to our students and by co-organizing technical workshops.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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The Storey Innovation Center hosts the Departments of Computer Science and Engineering (CSE) and Integrated Information Technology (IIT)



USF Tampa campus

The **University of South Florida (USF)** continues to distinguish itself as a leader in cyber defense and cybersecurity and is also home to Cyber Florida: The Florida Center for Cybersecurity, designated by the Florida Legislature to elevate Florida as a national leader in cybersecurity education, research, and outreach. USF offers an unparalleled breadth of cybersecurity-focused academic programs and conducts innovative research at the forefront of the field.

Undergraduate programs include a B.S. in Cybersecurity, B.S. in Computer Engineering, B.S. in Computer Science, B.S. in Information Science, B.A. in Criminology, B.S. in Business Analytics and Information Systems, and a B.A. in Global Business. An expansive list of graduate programs includes an M.S. in Cybersecurity, M.S. in Cybersecurity Intelligence and Information Security, M.S. in

Intelligence Studies, M.S. in Cybercrime, M.S. in Learning Design and Technology, M.A. in Applied Mathematics, M.A. and Ph.D. in Mathematics, M.S. and Ph.D. in Electrical Engineering, MBA in Cybersecurity, M.S. in Information Assurance and Cybersecurity Management, and an M.S. in Business Analytics and Information Systems. Graduate certificates are offered in Cyber Intelligence; National Security Studies; Compliance, Risk, and Anti-Money-Laundering; Digital Forensics; Information Assurance; and Cybersecurity Awareness and Education.

USF faculty are engaged in a multitude of interdisciplinary research projects spanning diverse cyber-defense areas, including but not limited to cyber-physical and IoT systems security, network privacy and security, secure software systems, persistent threat detection, human factors and cybercrime, and machine learning and artificial intelligence.

USF is recognized among the nation's top veteran-friendly schools as well as a preeminent research university, boasting numerous accolades for academic programs, research activities, and faculty excellence.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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Rocky the Bull



UTC Engineering, Math, & Computer Science Building

The **University of Tennessee at Chattanooga (UTC) InfoSec (Information Security) Center** located within the College of Engineering and Computer Science, and in collaboration with the College of Business, College of Art and Science, and College of Health, Education and Professional Studies. The UTC InfoSec Center was designated as a National Center for Academic Excellence for Cyber Defense (CAE-CD) from NSA and DHS.

The mission of the Center is to serve as a regional model for promoting excellence in information security education, assisting businesses, government agencies, education institutions and industry in their information security needs, and serving as the first point of call for any information security emergency. The Computer Science department offers courses, as well as, concentrations in Cybersecurity at both the undergraduate and graduate levels.

The CAE-CD Center strives to:

- Prepare students to meet the challenges posted by the rapid developments in information technologies and the corresponding emergence of new threats and attacks on the critical information infrastructure upon which our society has come to depend
- Provide working professionals with the security skills and best practices needed to meet the workplace challenges resulting from current advances in computer technology
- Promote excellence in information security research by keeping abreast of developments in emerging areas
- Serve the University and the surrounding communities with leadership and distinction

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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UTC team competing in the Department of Energy (DoE) CyberForce competition in the Oak Ridge National Lab.



UNIVERSITY OF TEXAS AT DALLAS



The Erik Jonsson School: The home of our CyberCorps program at UT Dallas

Over the past 15 years, cybersecurity has become one of the key areas of strength at **The University of Texas at Dallas (UT Dallas)**. In 2004, UT Dallas established its CyberSecurity Research and Education Institute (CSI) with a mission to be a national resource for the government, industry, and academia by conducting cutting edge interdisciplinary research. By providing comprehensive education in all aspects of cybersecurity, students are equipped with the skills needed to carry out cyber operations.

Today, CSI houses 10 core and over a dozen affiliated faculty members conducting funded research and supervises over 40 PhD students in cybersecurity. UT Dallas has been designated as a CAE in Cyber Defense since 2004. The curriculum requirements of this program are mapped to several graduate courses in computer science and students fulfilling

these requirements are awarded these graduate certificates.

UT Dallas has also held a CAE in Research since 2008. This designation acknowledges the research work performed by our faculty in various areas of cybersecurity. UT Dallas obtained its designation as a CAE in Cyber Operations in 2015. The curriculum requirements of this program are mapped to a number of graduate courses in computer science. Students completing these courses receive notations in their academic transcripts recognizing their achievement. These CAE designations enabled UT Dallas to compete in NSA and NSF scholarship programs which have graduated over 40 domestic students and placed them into related government jobs. The designation also enabled our faculty to receive competitive NSA funding to conduct research in cyber defense.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations
- CAE-Research

CONTACT INFORMATION

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UT Dallas Cybercorps Scholarship for Service team receiving renewal award.



Business students receive hands-on applied training in our cybersecurity program

Today's world calls for greater collaboration to protect America's national security infrastructure.

University of Texas at San Antonio (UTSA) is leading this charge, armed with the most powerful cyber, computing, cloud and data analytics teams of faculty, government professionals, and business professionals, along with our students. Now, with the vision of a new National Security Collaboration Center and a proposed School of Data Science becoming reality on our Downtown Campus, UTSA is the undisputed leader in cybersecurity education.

UTSA defends cyber space through creative approaches in business, science, and engineering, and liberal and fine arts. Five centers and institutes advance that work, which focuses on solving global security challenges in today's increasingly technological world.

San Antonio is among the nation's largest cybersecurity hubs and home to the largest concentration of cybersecurity experts and industry leaders outside Washington, D.C.

UTSA's cybersecurity graduates are heavily recruited and are employed quickly. They are hired in governmental positions and with top national/international commercial companies.

UTSA students can specialize in cybersecurity, computer science, computer engineering or information systems. Additional programs are offered in data center design, network and data center management, digital forensics, and data analytics. In fall 2017, UTSA began offering a fully online B.B.A. in Cyber Security.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations
- CAE-Research

CONTACT INFORMATION

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UTSA Campus



Sunrise welcoming students to campus

Located in the heart of Appalachia since 1888, **University of the Cumberland** is an institution of regional distinction that offers undergraduate degrees in more than 40 major fields of study, along with several pre-professional, graduate, and doctoral programs. With a total enrollment of more than 19,000 students, UC is one of the largest and most affordable private universities in Kentucky. Cumberland is devoted to preparing students for the future through innovative programs as well as hands-on, experiential learning and research.

While the entire UC community benefits from the CAE Designation, it was earned in 2017 based on our M.S. Information Systems Security degree program in the School of Computer and Information Sciences. Offered in online and hybrid formats, over 2,500 MSISS graduates have earned the degree and worked at Fortune 500 and FAANG companies,

governmental agencies, and in academia. Many advance their cybersecurity education further in our Ph.D. IT program as well. There are complementary degrees available in digital forensics and cyber-engineering, with emerging technologies always driving further curricular growth.

Our 250 CIS faculty come from all ends of industry and government and dedicate their vocation to UC students' ambitions and dreams. Prospective students with a desire to become servant-leaders in cybersecurity, or in the broader field of technologies, are encouraged to explore all the information available at the resources provided here. Hiring officials seeking out well-rounded graduates who have been substantively prepared, as well as learned lessons in leadership, communications, ethics, and law, are likewise welcomed to reach out.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Collaboration and fellowship help capture the flag



The University of Tulsa is a private, doctoral-degree granting research institution in Tulsa, Oklahoma

The University of Tulsa (TU) has been a designated Center of Academic Excellence in Cyber Defense since 2000 and was one of the first 14 institutions awarded this distinction. TU also is recognized as a CAE in Research and Cyber Operations. TU cybersecurity alumni are employed worldwide in leading roles among the private and public sectors, as well as academia.

TU offers multiple programs for students who want to advance in cybersecurity education. At the undergraduate level, students from disciplines across the university can pursue a minor in cybersecurity. Graduate students can earn master's degrees in cybersecurity and computer science. The Master of Science in Cybersecurity offers an online professional track degree, as well as an accelerated option. The Ph.D. degree in computer science targets graduate students seeking a career in research and

scholarship. TU has a long-standing reputation for excellence in cybersecurity research with campus projects supported by the National Security Agency, U.S. Department of Defense, National Science Foundation, U.S. Department of Energy, the U.S. Department of Transportation, the National Institute of Justice and the Defense Advanced Research Project Agency.

Armed with a high-quality education and valuable experience in research and real-world scenarios, TU's cybersecurity graduates are well equipped to serve in intellectually stimulating and personally rewarding roles that strengthen national and global security. Graduates are grounded in the theory, concepts and techniques of information assurance, and network defense and apply them in real-world settings.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations
- CAE-Research

CONTACT INFORMATION

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TU computer science and cybersecurity students regularly participate in cybersecurity competitions



The **University of Virginia (UVA)** is a Tier 1 comprehensive University with a high-level of activity in cybersecurity education, research, and scholarship. The center of activity is the Department of Computer Science (CS) in the School of Engineering and Applied Science. The CS department offers a Bachelor of Science in Computer Science (BSCS), a Bachelor of Arts in Computer Science (BACS), and a Bachelor of Science in Computer Engineering (BSCpE). Students in these degree programs may complete a CAE Cybersecurity Focal Path by completing ten courses approved by the National Centers of Academic Excellence Program office.

CS faculty and students are active in national cybersecurity competitions. In 2020, the student-led Computer and Network Security Club won their third consecutive National Collegiate Cyber Defense Championships (NCCDC) championship. In 2016,

a team of faculty and students competed in the DARPA Cyber Grand Challenge held at DefCon 24 in Las Vegas. The challenge was to build an automated cyber reasoning system capable of detecting attacks at machine speed. Showcasing UVA-developed cybersecurity research, the team took second place, garnering a \$1M prize.

Faculty in CS recently received a \$3M 2021 NCAE-C in Cybersecurity Education Innovation Award to create the Virginia Cyber Navigator Internship Program. This innovative experiential learning program bundles a cybersecurity course and internships to give students real-world experience in supporting information systems at Virginia localities, emphasizing critical infrastructure used in elections. UVA is also home to the Cyber Innovation & Society Initiative, National Security Policy Center, and National Security Law Center.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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UVA Cyber Defense Team



University of Washington Campus - Bothell

The **University of Washington (UW)** is one of the world's preeminent public universities. Our impact on individuals, our region and the world is profound — whether we are launching young people into a boundless future or confronting the grand challenges of our time through undaunted research and scholarship. Ranked No. 7 in the world on the U.S. News & World Report's Best Global Universities rankings, the UW educates more than 54,000 students annually. We turn ideas into impact and transform lives and our world.

UW has been a major center of cybersecurity research and education since 2004, has earned both CAE-CD and CAE-R designations, and was recognized by the Ponemon institute as begin among the top ten places in the world to study cybersecurity. We provide an extraordinarily broad and deep range of undergraduate, graduate, and

professional education opportunities at all three UW campuses, in addition to world-class interdisciplinary research. Our undergraduate curricula include a degree option within a number of programs of study.

At the graduate level, opportunities are available within computing and software systems (cybersecurity engineering), technology and business (cybersecurity and leadership), international studies (cybersecurity and international policy), and in conjunction with a number of world languages. UW also provides continuing education for working professionals around the world via online and in person certificates.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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UW Cybersecurity Student



University of West Florida campus

The **University of West Florida (UWF)** advances cybersecurity through nationally-recognized educational programs, research, and the Center for Cybersecurity. UWF offers the only stand-alone CAE-designated and ABET accredited B.S. in Cybersecurity in Florida in addition to multidisciplinary undergraduate and graduate cybersecurity-related programs and certificates.

UWF serves as the CAE-C Regional Hub for the Southeast, providing leadership to advance cybersecurity education across Alabama, Florida, Georgia, Mississippi, Kentucky, North Carolina, South Carolina, Tennessee, Puerto Rico, and the U.S. Virgin Islands. UWF leads the National Cybersecurity Workforce Development Program, including a coalition of 10 CAE-C institutions. Funded by a three-year \$9 million NSA grant, the program provides cybersecurity training and

career development for transitioning military and first responders to prepare them for cybersecurity positions in our nation's critical infrastructure sectors. UWF collaborates with several CAE-C institutions on grants to support workforce, faculty, and curricular development. UWF faculty collaborate with academic, industry, and government partners on cutting-edge research projects, including for critical infrastructure security, industrial control systems, and malware analysis.

The UWF ACES program, funded via NSF CyberCorps® Scholarship for Service, focuses on growing a strong and diverse cybersecurity workforce, including women and veterans, through high-impact learning practices. The UWF Cyber Club qualified for the Global Collegiate Penetration Testing Competition and Southeast Collegiate Cyber Defense Competition Regionals.

UWF leads a variety of K-12 outreach initiatives, including GenCyber camps, CyberPatriot, and its Cybersecurity Ambassadors program to enhance cybersecurity awareness and interest.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Students in the UWF Center for Cybersecurity eSOC



University of Wisconsin - Stout Campus

University of Wisconsin - Stout is a comprehensive, career-focused, polytechnic university. Our students, faculty and staff use applied learning, scientific theory and research to solve real-world problems, grow the state's economy, and serve society. Located in scenic Menomonie, Wisconsin, our campus has a long and rich history of providing a distinct array of programs. Our students enjoy a 98.2% rate of finding employment or continuing their education after they graduate. We're proud of our tremendous industry partnerships and our contribution to the local and regional economy.

UW-Stout Computer Networking & Information Technology (CNIT) program provides students with the strong technical, communication, teamwork, leadership, and problem-solving skills that students need to succeed.

Students take courses in emerging fields such as:

- Ethical Hacking and Pen Testing
- Virtualization
- Wireless Networking and Security
- Network Infrastructure
- Server Administration
- Linux/Unix Network Administration
- Cloud Computing Design, Implementation, and Security
- Python, Java, C++, Web Programming and Network Automation
- Project Management

CNIT students are required to do capstone projects with IT Industry partners before graduation. Many of our students have internship or co-op experience. The CNIT program path has been used as a program path for getting the CAE designation in November 2017.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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2016 CNIT students place 1st & 3rd at AITP



Utica College is located in the heart of the Mohawk Valley yet maintains a global virtual presence. As a military-friendly college, Utica College was the first college in the nation to achieve both the designation as a Center of Academic Excellence in Cyber Defense by the National Security Agency and the Department of Homeland Security, as well as the Center of Digital Forensics Academic Excellence by the Defense Cyber Crime Center. As pioneers in cybersecurity education, Utica College positions its students for success by forming strategic relationships with industry partners to keep the curricula relevant and encourage job placement for students upon graduation.

Utica College's undergraduate and graduate programs are each designated as CAEs in Cyber Defense. Offering their undergraduate courses on campus and online, students have the option to

specialize in Cybercrime and Fraud Investigation, Network Forensics and Intrusion Investigation, Cyber Operations, and Information Assurance. The Master of Science graduate program is offered entirely online, and specializations include Computer Forensics, Cyber Operations, Electronic Crime, Intelligence, and Malware Analysis.

The cybersecurity curriculum at Utica College provides a unique blend of cybersecurity, criminal justice, and fraud and financial crime investigations. The college is proud of its world-renowned cybersecurity faculty. As practitioners in the space, Utica College faculty are well versed in how to bridge the gap between the real-world and classroom, further echoing the college's ability to prepare students for the cybersecurity workforce.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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The **Virginia Commonwealth University (VCU)** Cybersecurity Center is the hub of the university's cybersecurity education activities. VCU provides leadership to advance cyber defense education and cybersecurity support throughout the region.

The VCU Cybersecurity Center is dedicated to cybersecurity research, education, and workforce development. The center provides opportunities for collaboration among VCU's cybersecurity programs within the departments of Computer Science and Electrical and Computer Engineering, the Homeland Security and Emergency Preparedness program at the Wilder School of Government and Public Affairs, and the VCU School of Business' Department of Information Systems. It facilitates student and faculty participation in cybersecurity activities such as faculty and industry led talks, a student-run cybersecurity club, cybersecurity competitions,

internships, scholarships, and undergraduate and graduate-level research. The center is also active in community outreach, including Virginia academic and industry initiatives such as the Virginia Cyber Range, the Virginia Cyber Security Partnership (VCSP) and the Commonwealth Cyber Initiative (CCI) Central Virginia Node.

The Department of Computer Science offers a Bachelor of Science in computer science with a concentration in cybersecurity. Students who earn this concentration gain a firm command of cyber defense, cyber forensics, and cyber ethics. They understand and can apply the best practices of computer systems and network security, security architecture, and cryptography. The Cybersecurity Club at VCU qualified for the 2019 National Collegiate Penetration Testing Competition in Rochester, New York.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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VCU Cybersecurity Team at CPTC Nationals
(Photo: Mariah Rose Whitmoyer)



Drillfield and Burruss Hall on Virginia Tech Campus

Virginia Tech (VT) offers multidisciplinary opportunities in cybersecurity education and research, with participating faculty from the departments of Computer Science, Electrical and Computer Engineering, Political Science, and Business. With its strong engineering and science focus, Virginia Tech offers deeply technical undergraduate and graduate programs in cybersecurity, and our faculty conduct world-class research in information security, network security, hardware security, and software security. Centers such as the Hume Center for National Security and Technology research defense and intelligence applications in offensive and defensive cyber. The IT Security Lab, part of the university's CIO organization, can use the university's production network as a teaching hospital for cybersecurity. VT hosts the Virginia Cyber Range where investigators may conduct research and development in an isolated and protected virtual space. VT has secured

\$15 million per year in research grants and contracts and has 150 students per year supported as graduate research assistants.

VT's faculty have wide-ranging research programs in cybersecurity, with core strengths in cyber-physical system security, cybersecurity policy and governance, and wireless communications and networking security. Several research centers and labs capture a large portion of the ongoing research activity, including, *Complex Networks and Security Research Lab, National Security Institute, Information Technology Security Lab, Wireless @ Virginia Tech, Yao Group Human-centric Machine Intelligence Lab, Trustworthy Cyberspace Lab, and Virginia Cyber Range.*

Dedicated to its motto, Ut Prosim (That I May Serve), VT pushes the boundaries of knowledge by taking a hands-on, transdisciplinary approach to preparing scholars to be leaders and problem-solvers. A comprehensive land-grant institution that enhances the quality of life in Virginia and throughout the world, VT is an inclusive community dedicated to knowledge, discovery, and creativity. The university offers more than 280-degree programs to a diverse enrollment of more than 37,000 undergraduate, graduate, and professional students in eight undergraduate colleges, a school of medicine, a veterinary medicine college, Graduate School, and Honors College. The university has a significant presence internationally and across Virginia, including the Innovation Campus in Northern Virginia; the Health Sciences and Technology Campus in Roanoke; sites in Newport News and Richmond; and numerous Extension offices and research centers. A leading global research institution, Virginia Tech conducts more than \$550 million in research annually.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Cyber Operations
- CAE-Research

CONTACT INFORMATION

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Virginia Western Community College (VWCC) is a two-year public institution of higher education located on a 70-acre campus in southwest Roanoke, VA. Established in 1966, VWCC has grown to its current annual enrollment of over 9,000 students in credit courses and more than 1,400 enrollment in fast-track workforce and continuing education courses.

The Center for Cybersecurity Education at VWCC includes new labs designed to provide extra hands-on learning opportunities that prepare students to enter the growing IT Security workforce, as well as to transfer to other colleges and universities and further their education in cybersecurity. Frequent security related events and capture-the-flag competitions are held in the Cybersecurity Center. This open laboratory space invites students to network with peers, educators, and professionals in

the area. It also encourages peer-to-peer interaction on projects and group activities.

VWCC offers an Associate of Applied Science degree in Cyber Security and Network Administration as well as a more focused career studies certificate in Cyber Security that can be completed in one year. Both paths prepare students for industry certifications in security and networking. The curriculum is guided by curriculum advisory committees, which bring together faculty and local industry partners for bi-annual meetings. Students in the programs learn skills such as scripting, secure system administration, ethics, data and privacy law, and project planning.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Wake Technical Community College has been designated as a Center of Academic Excellence in Cyber Defense through the academic year 2025.

Wake Tech offers a Cybersecurity Associate of Applied Science (AAS) degree that covers a broad expanse of technology concepts and prepares students for an IT career in digital forensics, network security services, and ethical hacking. The program offers students an extensive and practical foundation of skills required to implement effective and comprehensive information security controls. Students scan networks for vulnerabilities and learn how to best secure information shared through networks, servers, and databases. They come to understand how cyberattacks are staged against network infrastructure, as well as develop and integrate security measures to strategically prevent and defend against future attacks. Students learn

how to examine a crime scene for digital evidence, how to legally collect and examine this evidence, as well to give expert testimony about the evidence.

Coursework includes networking technologies, operating systems administration, information policy, intrusion detection, penetration testing, and digital forensics, ethical hacking, security admin, and industry best practices to protect data communications. Many of these courses are aligned with the region's most sought-after industry credentials.

Founded in 1958, Wake Tech is North Carolina's largest community college, serving more than 70,000 adults annually. Wake Tech is a multi-campus, accredited community college that offers more than 200 associate degrees, diplomas, and certificates that prepare students for university transfer or immediate employment.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Walden University Graduation

Walden University was founded in 1970 and is accredited by The Higher Learning Commission (HLC), which accredits degree-granting postsecondary educational institutions in the north-central region of the United States. Walden has more than 55,000 students* in bachelors, master's, and doctoral degree programs, and certificate programs. The university has degree programs from the bachelor's through doctoral levels with cybersecurity specializations.

Walden's cyber defense programs have a dedicated online repository, where the university's official Center for Cybersecurity Education has been established. It includes publications, presentations, and cybersecurity-related content.

The center was established prior to Walden's first CAE-CD designation in 2013. Walden was

redesignated in 2019 as a National Center of Academic Excellence in Cyber Defense through academic year 2023–2024.

In 2013, Walden established a Doctor of Information Technology (DIT) program. Many doctoral graduates have published dissertation research in the field of cyber defense. Moreover, Walden faculty members have published numerous articles in peer-reviewed journals, such as IEEE and ACM publications, and have also conducted presentations and participated in nationally recognized security conferences for organizations including CISSE and NICE.

Walden is committed to collaboration and supporting the business community nationwide. It also provides hands-on learning through cyber competition opportunities and a challenging cybersecurity curriculum, so learners gain the experience and expertise needed in this important and growing field.

***Source:** Walden University Office of Finance; total enrollment as of December 31, 2020.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

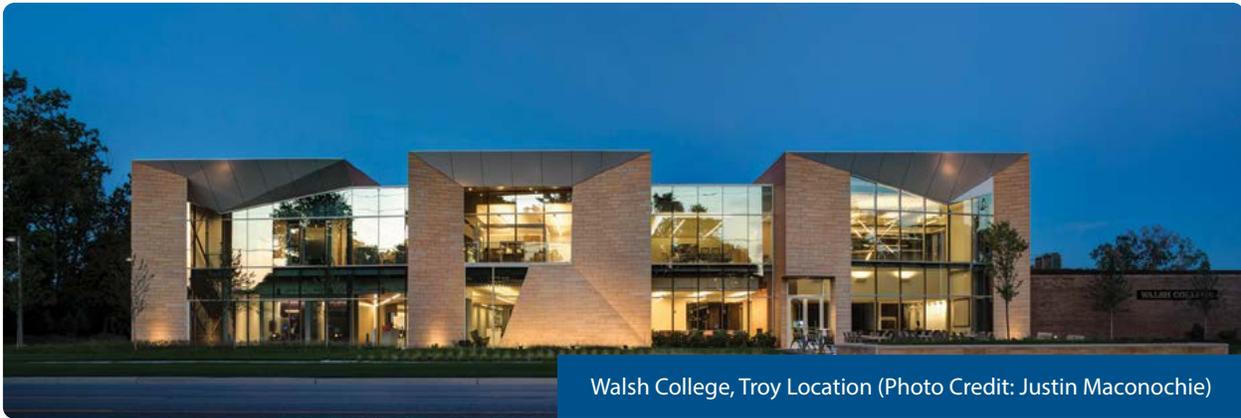
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Walden University Cyber Student



Walsh College, in Troy, Michigan, was designated a Center of Academic Excellence in Information Assurance Education in 2003 and was one of the first schools in Michigan to be designated as a Center of Academic Excellence in Cyber Defense. Walsh is a private, nonprofit, upper-division school offering undergraduate, graduate, and doctoral business and technology degrees. Our information technology degrees include concentrations in cybersecurity and the nation's first concentration in automotive cybersecurity. A graduate business certificate in cybersecurity is also offered. Walsh's IT degrees align with the Department of Defense and Department of Homeland Security NICE Framework standards and are F1 DHS STEM designated programs. Walsh has been recognized by thebestschools.org for having one of the best online Master's in Network Security in the country.

Our cybersecurity curriculum follows a technology tradecraft model, combining academic rigor and dozens of hours of hands-on exercises with enterprise-level equipment in our Cyber Lab. This state-of-the-art research and training environment was custom designed to develop highly skilled cybersecurity professionals. Coursework includes automotive threat and malware analysis, securing cyber physical systems, ethical hacking strategies, cryptography, penetration testing, and threat analysis, using current industry tools, programming languages, standards, and protocols. Walsh faculty have decades of industry experience and teach real-world scenarios in small class settings. Students receive personal attention whether a class is online or on ground and graduate with the knowledge, critical thinking, and ethical problem solving skills they need to compete in the constantly evolving field of cybersecurity.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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The Cyber Defense Program at **Washtenaw Community College (WCC)** provides students with opportunities to learn and practice the skills and strategies needed to operate, maintain, protect and defend an organization's networks and systems. Practical lab experiences that enhance critical thinking and problem-solving capabilities are the foundation of our program. We align our curriculum to meet the needs of local and regional industry partners, which includes an alignment to industry certifications where appropriate.

Our Cybersecurity associate degree is divided into three focus areas that cover cyber defense from infrastructure to operations:

- Computer Networking
 - > Routing & Switching
 - > Operating & Network System Administration

- Cybersecurity Principles & Network Defense
 - > Network Security
 - > Penetration Testing
 - > Perimeter Protection
- Cyber Operations
 - > Cyber Operations
 - > Digital Forensics & Incident Response

We know that cybersecurity extends far beyond the traditional computer network. In addition to computer networks, the Cyber Defense program at Washtenaw Community College integrates concepts related to all networked systems, including embedded technologies such as automotive networks. Students work with mobile hacking workbenches that simulate a vehicle network utilizing actual OEM technologies to find vulnerabilities and assess risk.

We are building cyber defense education programs not only for today but for the future.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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WCTC Campus

The vision of **Waukesha County Technical College Center for Cybersecurity Education** is to provide world-class cybersecurity education to future workforce professionals, businesses and institutions. Our objective is to provide a venue for education and research in information assurance, computer network security, digital forensics, cryptography, risk assessment and mitigation, disaster recovery and business continuity management, security regulations and compliance, and information security management.

The WCTC Center for Cybersecurity Education resides within the School of Business located on the main campus of Waukesha County Technical College at 800 Main Street in Pewaukee, Wisconsin.

Waukesha County Technical College was the first college in Wisconsin that has been recognized by

the National Security Agency and the Department of Homeland Security as a Center of Academic Excellence in Information Assurance / Cyber Defense (CAE-CD). This designation helps our students as they enter the workforce or transfer to four-year schools, conveying that they graduated from a program nationally recognized for its excellence and alignment to the highest information security standards for two-year college education.

WCTC's cybersecurity programs offer multiple degree and certificate options that lead to the CAE-CD designation and opportunities to transfer to complete a 4-year bachelor degree. Many student activities extend learning beyond the classroom and enhance professional development.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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WCTC Cyber Student



Weber State University is an exceptional comprehensive university providing associate, bachelor and master’s degrees to meet the needs of the region. WSU graduates are broadly educated, capable and prepared for meaningful careers, graduate and professional schools, and civic engagement. The hallmark of the university is excellent teaching with extraordinary interactions between faculty and students.

WSU offers a wide and diverse variety of degrees/ programs - the largest and most expansive undergraduate program in the State of Utah. With a student body of over 26,000 drawn predominantly from Utah, but also including students from 49 states and 60 foreign countries, WSU takes pride in its student-centered environment for learning and believes that quality education is founded upon close associations between faculty and students.

WSU is distinguished by outstanding academic programs that recruit motivated students to work with faculty to create and share knowledge. More than fifty academic departments and programs in seven colleges provide learning opportunities for a diverse spectrum of students, including grants and support for undergraduate research, community-based and service learning, an Honors program, and a Bachelor of Integrated Studies (BIS) program.

The Office of Undergraduate Research (OUR) and the Center for Community Engaged Learning help to engage students in learning both inside and outside the classroom, and the Honors program provides small classes in a rich, supportive, and challenging academic setting. The BIS offers students the opportunity to design their own degrees with three areas of academic emphasis meant to prepare them for specific career paths or graduate study.

From the smallest home business to the largest multi-national corporations, computer networks have become a vital part of almost every organization. These complicated systems require advanced skills in hardware systems, programming languages and data and voice network design. The demand for highly trained professionals to manage these complex networks has never been greater. The Network Management Technology program at WSU gives you the skills and expertise to launch a successful career in this industry.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Webster Hall

Founded in 1915, **Webster University** is a private non-profit university with campuses in North America, Europe, Asia, Africa, and online. We are committed to ensuring high-quality learning experiences that transform students for global citizenship and individual excellence. The Cybersecurity program resides in the George Herbert Walker School of Business and Technology, Department of Math and Computer Science.

Our Bachelor of Science in Computer Science with Emphasis in Cybersecurity is designated as a National Center of Academic Excellence in Cyber Defense, and the Master of Science in Cybersecurity degree is one of the largest programs in the Midwest. The program also offers two 18-hour Cybersecurity certificates - Information Assurance and Threat Detection.

Webster's program prepares individuals for demanding positions in government, military, and private sectors leading, managing, and operating the information security programs for communications and computer systems, and IT infrastructures. As a leading international university, students are able to complete coursework in class, online, via WebNet+/Zoom, or through a blended mode course of study at campus locations across the world.

Students learn to apply critical thinking toward information protection, threat detection, intelligence/counterintelligence, forensics, social engineering, cloud, and space and strategic force operations; and, benefit from the university's membership in the Gateway Higher Education Cybersecurity Consortium, and partnerships with the EC-Council and the Global Cybersecurity Center.

Webster University places special emphasis on supporting women in the Cybersecurity discipline by hosting an annual Junior High School Girl's Cyber Explorers Workshop focusing on engaging girls about career opportunities in Cybersecurity and Computer Science.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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Center for Cybersecurity



Westchester Community College's Associate of Applied Science (A.A.S.) and certificate programs in cybersecurity provides a strong foundation in computer technology security.

The A.A.S. program covers the functions of hardware, operating systems, databases, and networks. It is designed to cover beginner to advanced topics in areas such as computer forensics, network security, and ethical hacking. This program prepares the student for employment in entry-level positions in information technology, information assurance, security, and digital forensics.

The curriculum is for the student who intends to seek full-time employment after graduation, who wishes to make a career change/enhancement into information assurance and information systems, or

to transfer into an information technology program at a four-year college.

The cybersecurity certificate provides students with a firm foundation in the basic principles of business security. It is designed for those with prior computer experience and those who need to enhance their job skills. Students may apply the courses towards the A.A.S. degree in cybersecurity. Graduates of the certificate program can expect opportunities to use their expertise in private industry, government, law enforcement, the military, health services, and academia.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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WESTERN WASHINGTON UNIVERSITY



Western Washington University serves over 15,000 students in Bellingham and at locations in the Puget Sound and Central Salish Sea regions. Western's Cybersecurity degree is a unique joint academic program between Western Washington University and Washington State community colleges, culminating in a baccalaureate degree in cybersecurity. Students follow a 2+2 program pathway:

- The first 2 years- Students earn a specific cybersecurity transfer degree from one of our eight partner colleges.
- The last 2 years- Students earn their Bachelor of Science in Cybersecurity from WWU from one of our 3 Washington State locations: Bellingham, Poulsbo, or Kirkland.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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This high demand program prepares students for a career in preventing and responding to internet security breaches that threaten businesses, corporations, and the government. Western Cybersecurity graduates have gone on to work for companies such as Amazon Web Services, Premera Blue Cross, and CI Security.

Graduates of Western's Cybersecurity program will have an ability to:

- Analyze a complex cybersecurity problem and to apply principles of cybersecurity and other relevant disciplines to identify solutions.
- Design, implement, and evaluate a technical solution to meet a given set of security requirements.
- Communicate effectively in a variety of professional contexts.
- Recognize professional responsibilities and make informed judgments in cybersecurity practice based on legal and ethical principles.
- Function effectively as a member or leader of a team engaged in activities appropriate to cyber security.
- Apply security principles and practices across the broad range of the cybersecurity field to maintain operations in the presence of risks and threats.



The Advanced Engineering Research (AER) building houses the Lane Department of Computer Science & Electrical Engineering and many of WVU's Cyber programs

West Virginia University has been an active participant in the CAE program since 2006, and currently holds both the CAE-CD (4 year institution) and CAE-R designations. The primary curriculum program path for the program is through the Lane Department of Computer Science & Electrical Engineering (LCSEE) in the Statler College of Engineering & Mineral Resources. Students may pursue studies in the Cyber field through undergraduate majors in Biometric Systems, Computer Science or Computer Engineering, or through graduate majors in Computer Science. In 2018, we had 38 undergraduates and 52 graduates pursuing studies in this CAE area, including 13 students who completed the BS Biometric Systems degree and 34 students who completed their MS Computer Science degree.

During the past year, WVU has approved two new degree programs focusing on cybersecurity. The

Department of Management Information Systems in the Chambers College of Business & Economics will be offering a new MS degree program in Business Cybersecurity, and the LCSEE department will be offering a new BS degree program in Cybersecurity. The BS Cybersecurity degree program has been designed specifically to map the CAE Knowledge Units and the NIST framework. Both degree programs began accepting students in Fall 2018.

WVU has an active research program in the field of cybersecurity, with multiple research projects externally sponsored by the National Science Foundation, the US Department of Justice, and from private industry. Research activities in the fields of biometrics, malware detection, and digital forensics are nationally recognized. WVU Faculty Member Yanfang (Fanny) Ye and her students received the Best Paper Award from the 2017 ACM International Conference on Knowledge Discovery and Data Mining (ACM SIGKDD) for their paper "HinDroid: An Intelligent Android Malware Detection System Based on Structured Heterogeneous Information Network" which demonstrated how machine learning techniques could significantly improve malware detection on Android Devices.

DESIGNATIONS

- CAE-Cyber Defense
- CAE-Research

CONTACT INFORMATION

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Dr. Yanfang (Fanny) Ye and her students pursue research in using machine learning techniques



Whatcom Community College's Computer Information Systems program aims to advance cybersecurity education in the United States by supporting students, working closely with industry representatives, and developing new tools and curriculum on current cybersecurity topics to prepare students to enter the workforce.

Whatcom Community College (WCC) in Bellingham, WA is regularly recognized as one of the top 150 community colleges in the nation by the Aspen Institute. WCC is a national leader in cybersecurity education and since 2011 has held the Center of Academic Excellence in Cyber Defense designation by the National Security Agency (NSA) and the Department of Homeland Security. Whatcom Community College was among the first community colleges in the United States to earn this designation.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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The Computer Information Systems (CIS) program offers multiple pathways for students in cybersecurity including a two-year degree in cybersecurity, a direct transfer degree to Western Washington University in cybersecurity, and a Bachelor of Applied Science in cybersecurity.

WCC's Computer Information Systems (CIS) faculty work closely with local industry representatives who serve on an advisory committee for the CIS program. Most recently, the program collaborated with a local company, Anvil Corporation, to develop an Industrial Control Systems (ICS) Cyber Range supported by WCC's CIS students. Whatcom's CIS program is continuing to grow and develop new courses, certificates, and degree pathways to meet the continuously changing industry environment.

The CIS program is well known for its SCADA courses in both the two-year and bachelors' degree programs. These courses include ICS security and ICS Architecture that teach students the importance of understanding and managing both Information Technology (IT) and Operational Technology (OT).

Additionally, industry representatives have expressed the need and demand for unmanned aircraft systems in different industries. As such, WCC has developed new unmanned aircraft systems (UAS) security courses that cover piloting (FAA Part 107), fleet management, and automation and mapping.



Wilmington University's Center for Cybersecurity Education offers accredited, affordable, academically rigorous programs that adapt with agility to changing industry needs. Bachelor's and master's degree programs, concentrations, and certificates are available online, offering working adults maximum flexibility.

The BS in Computer and Network Security has been designated as a Center of Academic Excellence in Cyber Defense since 2011. Students are prepared to sit for industry-recognized certifications, including CISA, CISSP, A+, Linux+, Security+, and Network+. Students in this program can apply their bachelor's degree coursework toward a graduate certificate in SCADA Cybersecurity. An optional concentration in Digital Forensics is also available.

The MS in Cybersecurity equips graduates to battle

cyberterrorism and protect against multi-vector attacks. It addresses cyberintelligence, cybercrime investigative principles, forensics, preservation of critical infrastructures, counter sabotage, and espionage. The program also teaches threat modeling and analysis, constructing defense scenarios, and guarding against asymmetric warfare and attack.

The MS in Information Systems Technology/ Information Assurance Concentration provides students with a practical understanding of the principles of data protection, cybersecurity, cloud security, and data security analytics, as well as highly sought-after hard and soft skills in networking, disaster recovery and high availability, and internet security detection, prevention, and remediation.

Certificate programs in Digital Evidence Discovery and Digital Evidence Investigation, SCADA, and Cyberterrorism allow professionals to quickly expand their skills and credentials in targeted areas. Expert instructors provide practical, realistic, and standards-based approaches to assessing, protecting, detecting, and auditing critical infrastructure/control systems.

DESIGNATIONS

- CAE-Cyber Defense

CONTACT INFORMATION

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At **Worcester Polytechnic Institute (WPI)**, our cybersecurity program prepares students to be effective leaders in a world where actual and potential digital cyberattacks, and security threats can disrupt entire industries. With the skills to keep systems secure and the drive to remain a step ahead, WPI's cyber students are committed to making the world more safe.

WPI is a leader in project-based learning. In cybersecurity, our multidisciplinary teams work within four distinct research areas: Analysis, Architecture, Principles, and Security Mechanisms/Functionality. They tackle subjects as varied as cryptography and cloud computing to forensics and authentication, so students learn to approach challenges from several angles and to hone their skills in team settings.

DESIGNATIONS

- CAE-Research

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WPI's well-funded program is supported by organizations such as the National Science Foundation, the U.S. Department of Defense, and the U.S. Department of Homeland Security. Since 2014, WPI has been designated as a Center of Excellence in Cybersecurity Research by the National Security Agency and the U.S. Department of Homeland Security. WPI students may apply for two prestigious federal scholarships to support their cybersecurity studies: CyberCorps Scholarship for Service (funded by the National Science Foundation) and the Cyber Scholarship Program (funded by the U.S. Department of Defense). Recipients receive full tuition and fees, plus a monthly stipend and professional development allowance. In return, they work in a paid cybersecurity position at a federal agency or other government employer, after they graduate, for the same number of years for which their education was funded.

Degree programs at WPI include, a Master's Degree in Cybersecurity, Master's Degree in Computer Science, Online Certificate in Cybersecurity, and a Bachelor's Degree in Computer Science.

WPI's undergraduate curriculum allows for exploring and developing preemptive measures, comprehensive solutions, and ongoing safeguards. Graduate students may choose between an industry-focused non-thesis track or a research-intensive thesis track program. Either choice allows for independent study and research under the guidance of an engaged advisor. Graduates are sought after for jobs in academia, industry, and government. WPI's cybersecurity program supports real-world impact in a field where employees are in high demand.



Xavier University's Computer Science Cybersecurity concentration is committed to excellence and distinction in the discovery, dissemination, and application of knowledge. Our curriculum follows our university's mission to promote the common good and develop responsible and productive citizenship with informed action. This intellectual, moral, and spiritual development is what makes our program unique to the region. We think of cybersecurity in terms of the social good and societal impact. Further, our Cybersecurity program is embedded in the computer science discipline, emphasizing critical thinking, logical reasoning, and the precise expression of ideas. Our programming curriculum paired with cybersecurity results in students who are ready for careers in multidisciplinary pathways.

Computer science classes at Xavier, including those in the Cybersecurity concentration, range in size

DESIGNATIONS

- CAE-Cyber Defense

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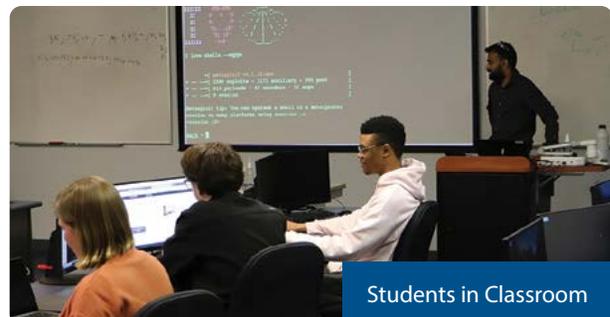
www.xavier.edu

xavier.edu/computer-science-department/index

from 10 to 30 students, resulting in personalized attention both in and out of the classroom. The combined programs in Computer Science at Xavier include about 110 majors with an average of 15 graduating each year.

Xavier University is part of the 500-year-old Jesuit Catholic tradition of academic excellence in the liberal arts and is strongly committed to enhancing equity, inclusion, and diversity. 97% of students from Xavier's undergraduate STEM programs, including Computer Science, are working, volunteering or in graduate school within six months of graduating.

The College of Arts and Sciences is the oldest and largest college at Xavier University. The college provides an excellent liberal arts education in the Jesuit tradition that prepares students for careers, professional or graduate school, and life in a global society. We're ranked among the Top 50 Colleges for Liberal Arts (College Factual) and average nearly 400 graduates each year. The College of Arts and Sciences is committed to diversity and inclusion to help us all realize our aspirations for Xavier as a place to hold genuine dialogue across differences.





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