

Meeting the Cybersecurity Workforce Challenge: One Goal, Innovative Solutions

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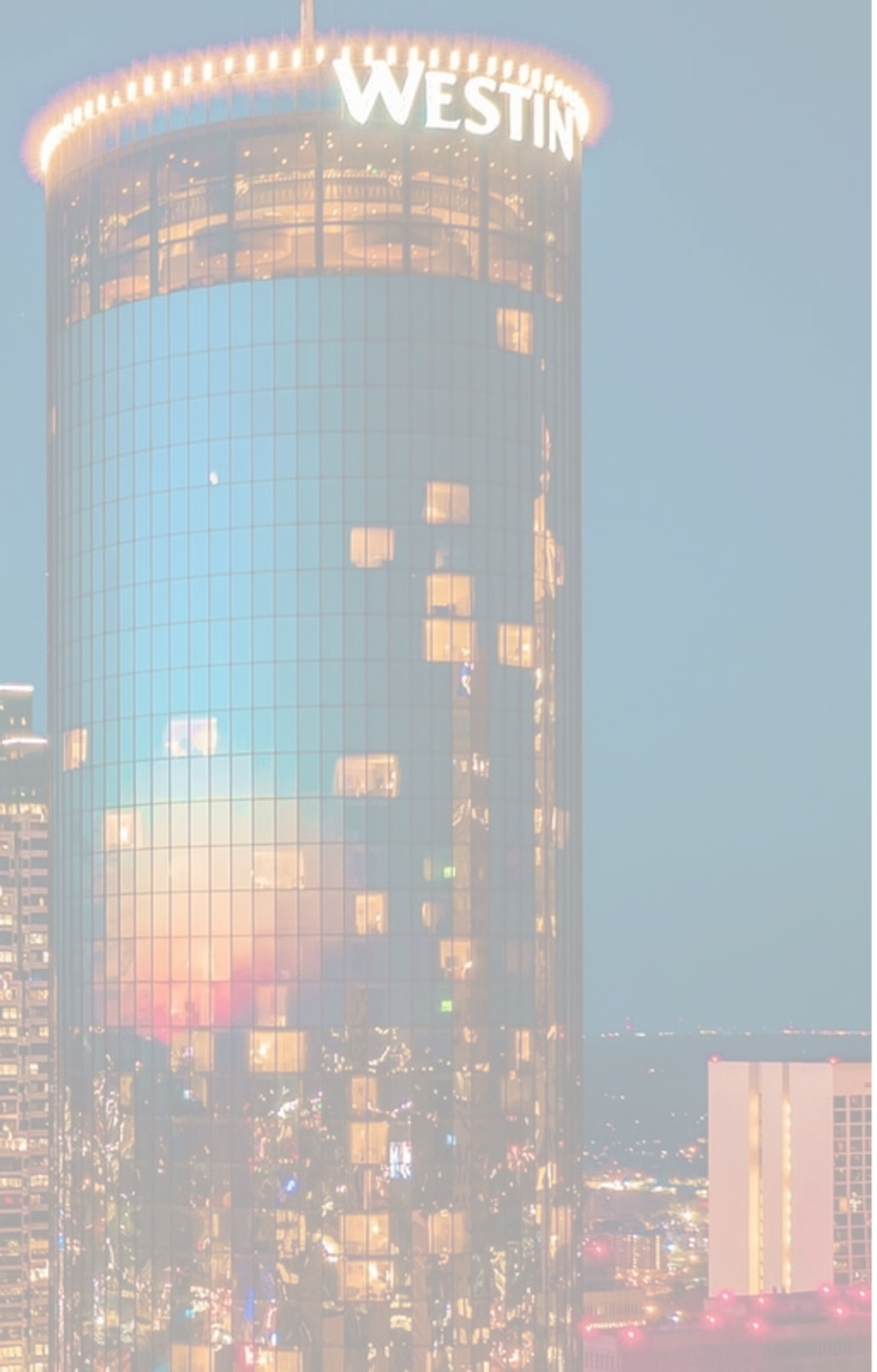
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NSA CAE-C Workforce Development Pilot Programs



- The NSA CAE-C Program funded three workforce development pilot to increase the number of qualified professionals.
- Common program goals
 - Provide training for transitioning military, first responders, and veterans
 - Prepare trainees for cybersecurity roles in Critical Infrastructure sectors
 - Share curricula and resources
- The programs include CAE-C coalitions led by
 - The University of West Florida
 - Purdue University Northwest
 - The University of Louisville



National Cybersecurity Workforce Development Program: Overview

University of West Florida

Program Goals:

- Develop nationally sustainable and scalable workforce program
- Develop shareable portal and resources for CAE-C Community
- Prepare transitioning military, veterans, and first responders for cybersecurity jobs
- Provide free training, career development, industry certifications, and digital badges
- Train and place 1700+ students across the country over 3 years
- Place in Critical Infrastructure sectors: Financial Services, Defense Industrial Base, and Energy
- Align training with NICE Framework



CyberSkills2Work CAE-C Coalition:

- Augusta University
- Dakota State University
- Eastern New Mexico University – Ruidoso
- Florida International University
- Metropolitan State University
- San Antonio College
- University of Houston
- University of South Florida –Cyber Florida
- University of Texas at San Antonio
- University of West Florida (lead)



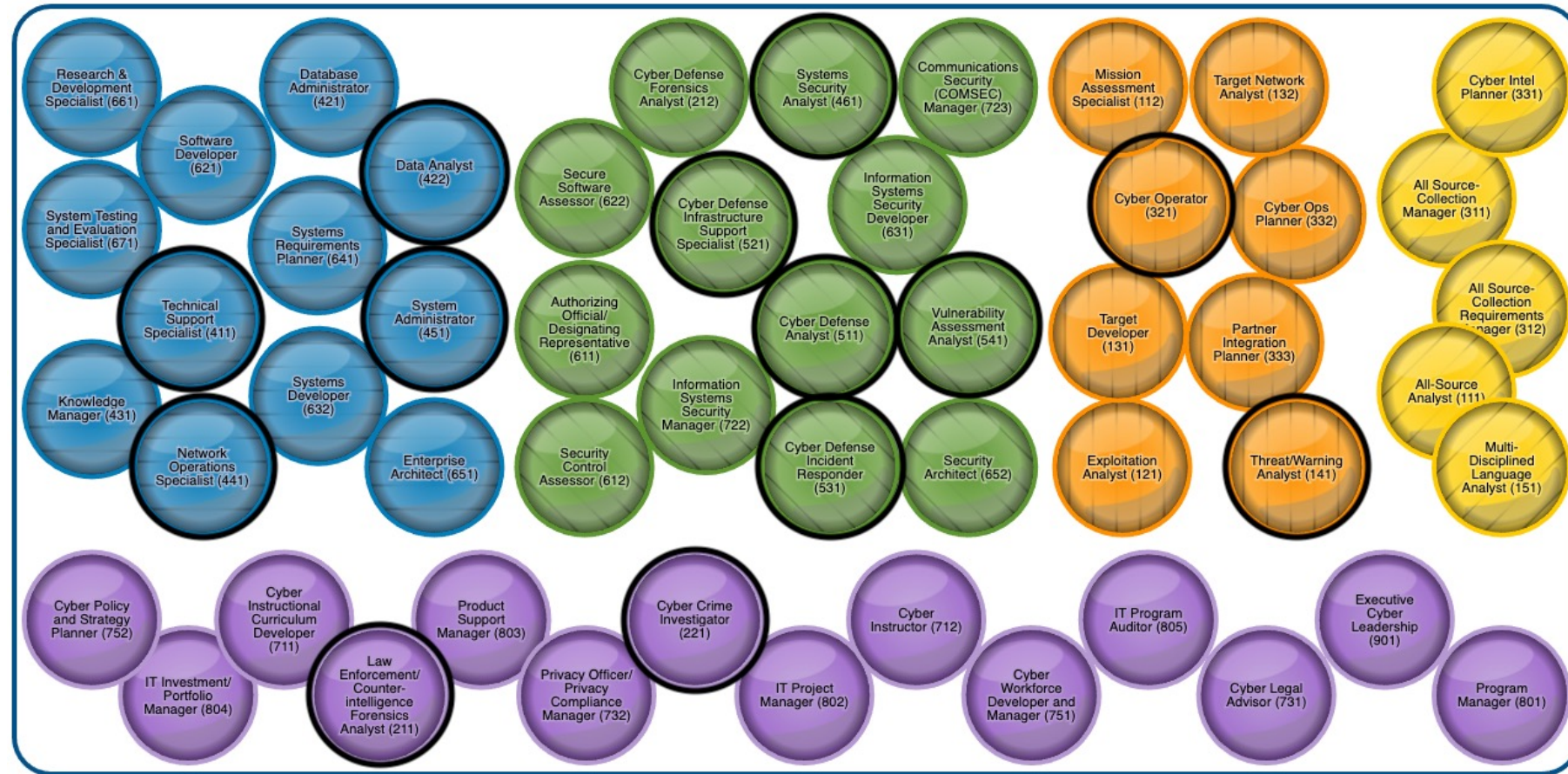
14+ NICE Cybersecurity Framework Work Roles Addressed



National Cybersecurity Workforce Development Program

Training Pathways:

- Cyber Crime Investigator
- Cyber Defense Analyst
- Cyber Defense Incident Responder
- Cyber Defense Infrastructure Support Specialist
- Cyber Operator
- Data Analyst
- Forensics Analyst
- Malware Analyst
- Network Operations Specialist
- System Administrator
- System Security Analyst
- Technical Support Specialist
- Threat/Warning Analyst
- Vulnerability Assessment Analyst



National Cybersecurity Workforce Development Program: Status and Outcomes

University of West Florida



- Train and help place over **1700** new credentialed cybersecurity professionals in 3 years.
- **15** flexible workforce pathways, offered online, in-person or hybrid, at **9** NCAE-C designated institutions for entry-level through advanced cybersecurity jobs.
- Addresses **14** NICE Framework work roles and **3** Critical Infrastructure Sectors: defense industrial base, energy, and financial services.
- National Cybersecurity Employers Network that includes government and industry employers and job opportunities.
- National CyberSkills2Work website will serve as a one-stop-shop for learners, employers, NCAE-C institutions, and key stakeholders.
- Competency-focused credentialing, including verifiable badges, certificates, and industry certifications.
- Scalable, nationwide recruitment, promotion, implementation, and dissemination.

CWCT Overview



- A Collaborative Effort
 - PNW, Ivy Tech Community College, UTC, and UNCC
- Three Cybersecurity Learning Paths Offered (Choose One)
 - Artificial Intelligence, Digital Forensics, System Administration
- Six non-credit, college level courses per learning path
 - Offered through live *virtual* lectures – six hours per week (48 hours)
 - Receive Ivy Tech non-credit transcripts and program completion certificate
 - Each course may lead to an industry recognized certification
- 10 week sessions-term
 - 8 weeks – instructional period, 2 weeks for grading and break
 - A total of 11 CWCT training sessions/terms
- Opportunity to gain pathways to pursue degree programs at participating institutions

Current Status



- Application & Enrollment Status
 - 5500 applications from 50 states of US
 - 900 admitted and enrolled into CWCT training, 1300+ under assessment
 - 76% priority groups, 73% under represented/underserved
- Learning and Certification
 - Offered five 8-week training sessions, and an on-going summer session
 - Certification self paced preparation material hosted by CWCT
 - CEH, CyberOPs, A+, Linux, Security+
- Industry Relations, Career Development, and Placement
 - Connected & partnered with 39 employers, including staffing companies
 - Hosted 2 virtual job fairs
 - Hosted two career development workshops

WORKFORCE PATHWAYS FOR TRANSITIONING SERVICE MEMBERS, VETERANS, AND FIRST RESPONDERS



- Tests the use of online, mentored training
- 3 levels of depth:
 - Explorer
 - Practitioner
 - Professional
- Healthcare Cybersecurity Certificate

Explorer (Badges = AI Fundamentals & Enterprise Design Thinking)	Practitioner (Badges = Cloud Security, Cisco Cybersecurity & Blockchain)	Professional (Badges = Azure IoT, RPA and Power Automate & Threat Modeling)
<ul style="list-style-type: none"> • IT Basics • Network Foundations • Coding • DB Management • Privacy/Legal Foundations and Ethics • Security Principles & Foundations • Cryptography • Artificial Intelligence 	<ul style="list-style-type: none"> • Cloud Foundations • Network Security • Information Security • Cyber Threat Hunting • Forensics • Cognitive Computing • Data Mining • Blockchain 	<ul style="list-style-type: none"> • DB Security • Cloud security • IoT • Post Quantum Cryptography • Risk Analysis • Robotic Process Automation Analysis • Healthcare Capstone Project

Curricula developed as core foundation with tracks in healthcare industry and logistics (labs, datasets, etc.)

Tech industry badges earned throughout (IBM, Microsoft, Google, etc.)

Train the trainer and open-source modules available-please inquire

Success coaches assigned to each student

Cybersecurity Certificate

6 months duration.
8-week courses
online, instructor-led
labs, applied learning.
Cohorts of 35-40
First group launched Fall 2021

PATHS to Associate, Bachelors, and Graduate Degrees
AND/OR Certificates!

Healthcare and Logistics Tracks – Workforce Certificate

<https://louisville.edu/education/nsacybersecurity/>
Free monthly Information sessions including sample modules – call/visit website for registration/details 502-852-3871

Drs. Sharon Kerrick, Andrew Wright, Adel Elmaghraby

Current Status

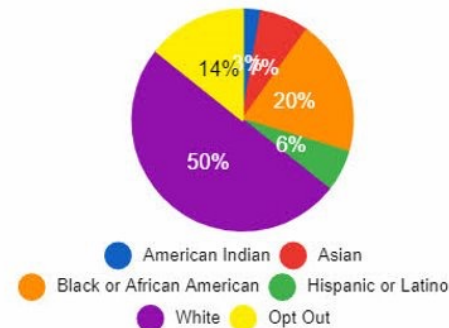


CYBERSECURITY
 WORKFORCE CERTIFICATE PROGRAM

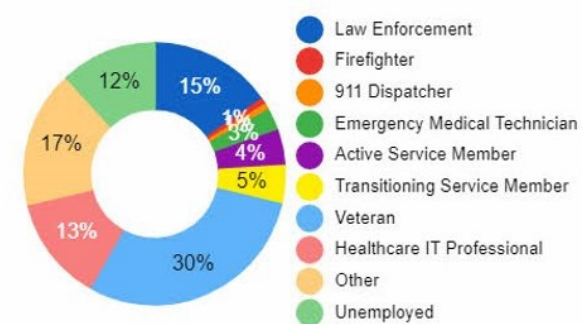
- 200 Military veterans/first responder's scholarships (2021-2022)
- Waiting list over 75
- 5 Train the Trainers included (2021-2022) and more being added
- 4 HBCU/MSI Universities included to enable others to train in cybersecurity
- 175 Technology vendor micro-credentials included/completed in the program (i.e. Google Analytics, IBM Blockchain, Microsoft AI/Azure, etc.)
- Healthcare industry track (applied learning/homework exercises/labs)
- Logistics track being added (applied learning/ homework/exercises/labs)
- Core foundation of 22 modules + capstone then applied learning/ homework/labs, etc. customized to industries

Admissions Data

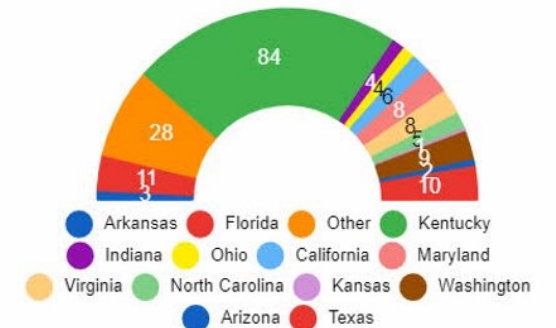
Admissions by Ethnicity



Admissions by Career Industry



Admissions by State



National CAE-C Cybersecurity Workforce Development Program Expansion



NCAE-C Community

National CAE-C Cybersecurity Workforce Development Program: Call to Action



National CAE-C Cybersecurity Workforce Development Program: Opportunities

We have a dream...

- Expand program in future years to include additional:
 - NCAE-C institutions
 - Target populations and participants
 - Sectors and employers
 - Training pathways and NICE work roles

Call to Action!

- CAE-C institutions: join the coalition
- Government partners: provide support to sustain and scale program
- Government and industry employers: Join the National Employers Network

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