NATIONAL CYBERSECURITY EDUCATION CHALLENGES AND SOLUTIONS

National Centers of Academic Excellence in Cybersecurity (NCAE-C)

NATIONAL CYBERSECURITY EDUCATION CHALLENGES

Overwhelming need for cybersecurity workforce pressures education system

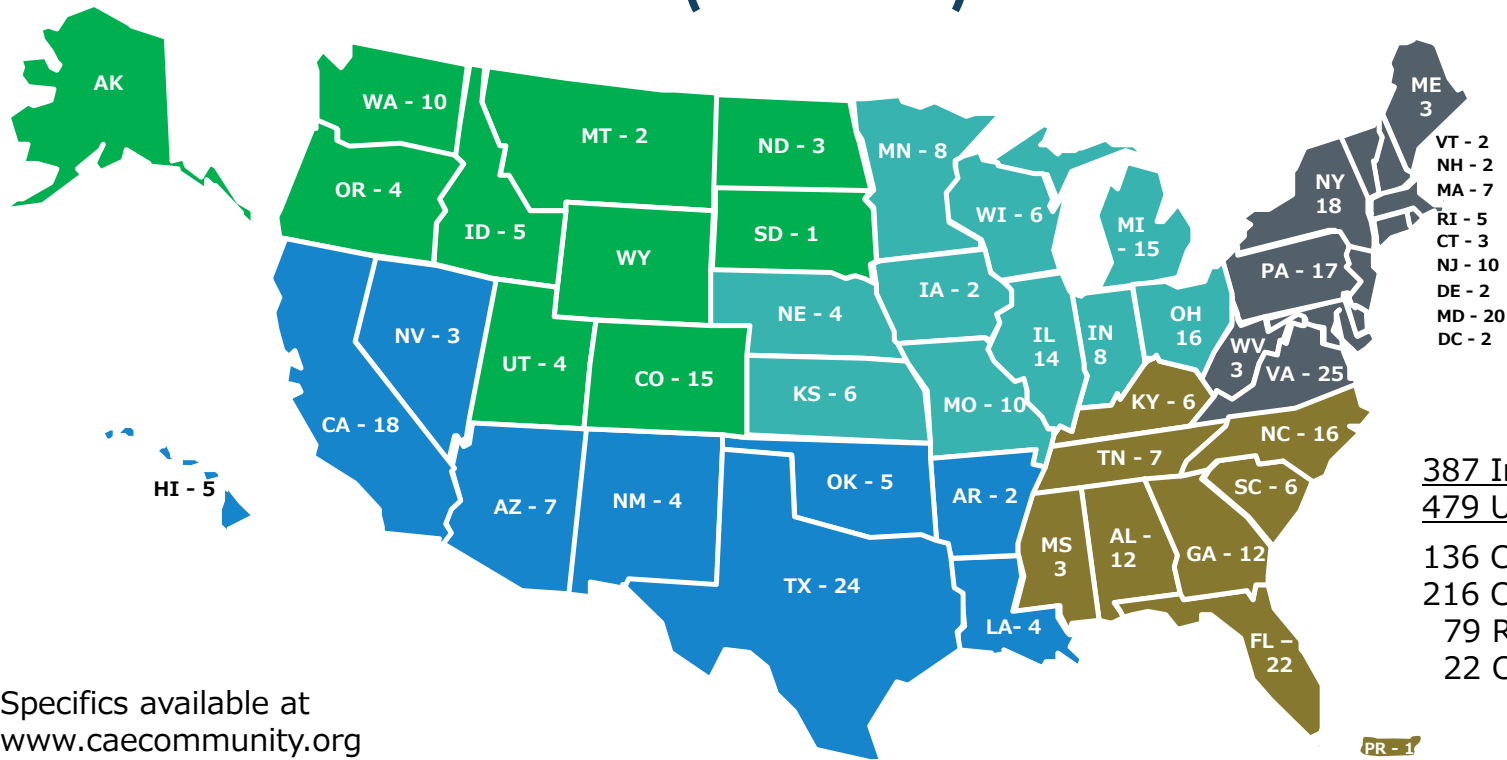Critical faculty shortage at all levels of education
- Expertise and availability
- Dictates number of students in seats
- Difficulty in starting new programs

Student readiness, integration of knowledge and skills

Cybersecurity awareness and identifying future workforce

NATIONAL CENTERS OF ACADEMIC EXCELLENCE IN CYBERSECURITY (NCAE-C)

AK

WA - 10
OR - 4
ID - 5
MT - 2
WY
ND - 3
SD - 1
MN - 8
WI - 6
MI - 15
ME 3
NV - 3
UT - 4
CO - 15
NE - 4
IA - 2
IL 14
IN 8
OH 16
NY 18
PA - 17
WV 3
VA - 25
VT - 2
NH - 2
MA - 7
RI - 5
CT - 3
NJ - 10
DE - 2
MD - 20
DC - 2
CA - 18
AZ - 7
NM - 4
OK - 5
AR - 2
KS - 6
MO - 10
KY - 6
NC - 16
TN - 7
SC - 6
HI - 5
TX - 24
LA- 4
MS 3
AL - 12
GA - 12
FL – 22
PR - 1

387 Institutions
479 Unique Designations

136 Cyber Defense (Associates)
216 Cyber Defense (BA-PhD)
  79 Research
  22 Cyber Operations (BA-PhD)

Specifics available at
www.caecommunity.org

As of 17 Sep 2022

NCAE-C PROGRAM ORGANIZATION

CISA   NICE   DoD R&E
FBI   ONCD   DoD CIO
NSF   DoEd   CYBERCOM

PMO
Designation   Government Partners
Resources   Advocacy

Workforce
Development

Community
Development

CAE Community NC	Candidates NC	Career Prep NC	Education Pathways NC
Collaboration	Applicant Assessment	Careers Awareness	RING Execution
Communities of Practice	Mentoring	Career Preparation	RING Development
CARD & CLARK	Application process	Competency Policy	Education Pathway
NICE Challenge	Pre-Reviews	Development Resources	Institutions
INSuRE	Mentor Training	Student Management	Student Management
Competitions	Reviewer Training	Careers Matching Tool	Teacher Development
Travel	Application Reviews		
Events			
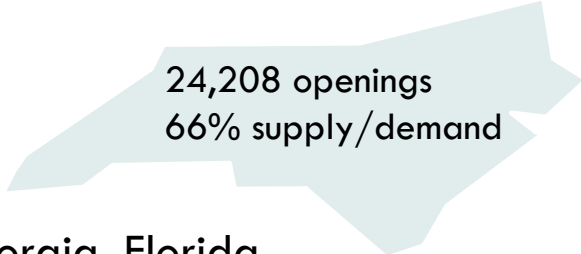
OVERWHELMING CYBERSECURITY WORKFORCE NEEDS

Cyberseek.org

- 714,548 Total Cybersecurity Job Openings
- Highest demand (25K-83K):
  California, Colorado, Texas, Illinois, New York, Virginia, Georgia, Florida
- 2nd Highest demand (6.5K-25K):Washington, Arizona, North Carolina, Pennsylvania, Massachusetts

24,208 openings
66% supply/demand

Pressures for Education System

- What's need to prepare for cybersecurity jobs?
  - Degree? Apprenticeship? Certificates?
- Quick solutions

Academia providing work ready graduates?

- Expectations

> ➢ Collaboration with federal partners
> **NCAE-C Initiatives**
> ➢ New higher education approaches
> ➢ New career matching tool
> ➢ Career Preparation National Center

CRITICAL FACULTY SHORTAGE AT ALL LEVELS OF EDUCATION

Expertise and availability

Dictates number of students in seats

Difficulty in starting new programs

NCAE-C Initiatives

➢ Faculty Development Opportunities
- Cross training
- Professors of Practice

➢ SFS PhD Scholarships

➢ HS Teacher Degree and Training Programs

STUDENT READINESS, INTEGRATION OF KNOWLEDGE AND SKILLS

Translating work role/job descriptions to academic programs

Employer expectations

Specific education requirements

Competency

"Soft Skills"

NCAE-C Initiatives

➢ New Career Matching Tool

➢ Helping introduce certifications into degree programs

➢ Student Professional Development programs

➢ Emphasis on competency-based education

CYBERSECURITY AWARENESS AND IDENTIFYING FUTURE WORKFORCE

Start early in a child's education

Increasing content middle & high school

Cybersecurity career awareness

Diversity

NCAE-C Initiatives

➤ GenCyber

➤ RING

➤ E-mates
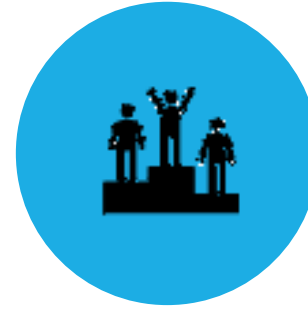
➤ Teacher education & training

ROI FOR DESIGNATED INSTITUTIONS

CAE COMMUNITY

TAILORED EVENTS

COLLABORATION

SHARING OF RESOURCES & IDEAS

ACCESS TO RESOURCES

NICE CHALLENGE

INSURE

SCHOLARSHIPS

COMPETITIONS

PRESTIGE

GRANTS

QUESTIONS? CONTACT INFORMATION

- NCAE-C
https://www.nsa.gov/resources/students-educators/centers-academic-excellence/
- Center of Academic Excellence in Cybersecurity Resource Directory (CARD)
https://www.caeresource.directory/home
- Cybersecurity Labs and Resource Knowledge-base (CLARK)
https://clark.center/home
- CAE Community
https://www.caecommunity.org/
- National Initiative for Cybersecurity Careers and Studies
https://niccs.cisa.gov/
- National Cybersecurity Training and Education Center (NCyTE)
https://www.ncyte.net/
- National Initiative for Cybersecurity Education (NICE)
https://www.nist.gov/itl/applied-cybersecurity/nice