



This presentation was given at the 2023 National Cybersecurity Education Colloquium

20 Years of DSU and CAE* Was the juice worth the squeeze?

Kyle Cronin and Michael Ham, Dakota State University

Who we are:

DSU Professors/CAE Enthusiasts

- Dr. Kyle Cronin
 - Cyber Defense
 - 16 years at DSU
 - Wireless / Cellular
- Dr. Michael Ham
 - Cyber Operations
 - 13 years at DSU
 - Malware / Reverse Engineering
- We are both DSU alumni



Kyle Cronin



Mike Ham

Overview

What we've got on the agenda for today.

- Why this talk?
- An overview of DSU
- What we do with NCAE
- Our enrollment over time
- Economic impacts attributed to CAE

Why this talk?

Sharing some information and motivation.

- How many years of Tony's Jokes?
- We've been around DSU and the CAE community for a long time!
- You all like your schools and share similar goals
- This community is a part of what we do and steers our efforts
- It isn't easy to quantify the CAE impacts
 - They've undoubtedly been immensely transformative

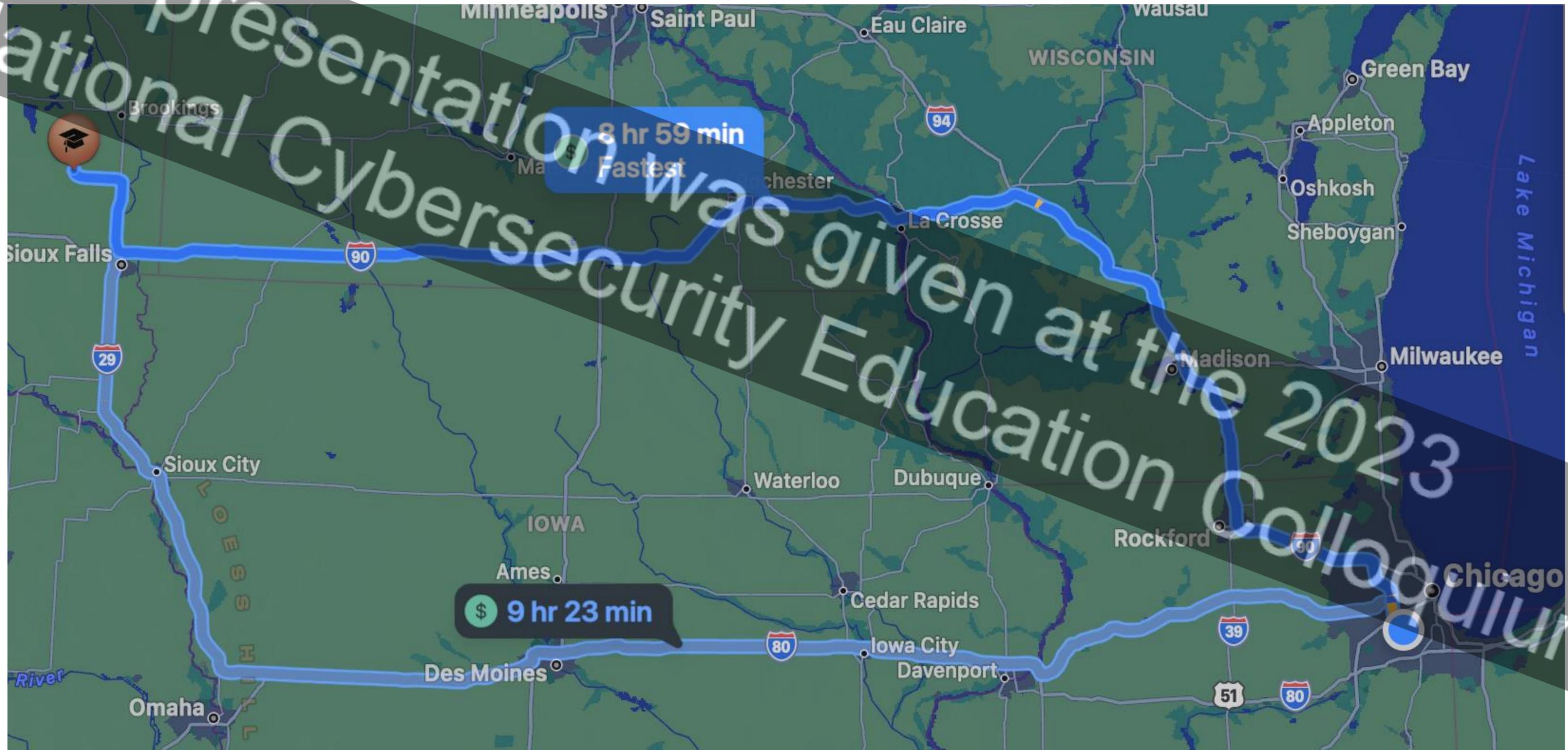
This presentation was given at the 2023
National Cybersecurity Education Colloquium

Highlighting DSU's Growth

Largely attributed to the CAE community!

Dakota State University

Madison, SD



Overview of DSU

Madison, SD

- We're in **South Dakota**
 - It's the one under North Dakota
 - "Dakota" isn't a state
- Just over 3,500 students (online and on-campus) - a new record for us!
 - 84% of students are undergraduate
 - 558 graduate students
- Cybersecurity has been the fastest-growing area and largest on campus
- B.S. through Ph.D. in Cyber Operations, Cyber Defense, and Computer Science, Articulations
- NSA designations in CAE-CO, CAE-CD, CAE-R

Overview of DSU

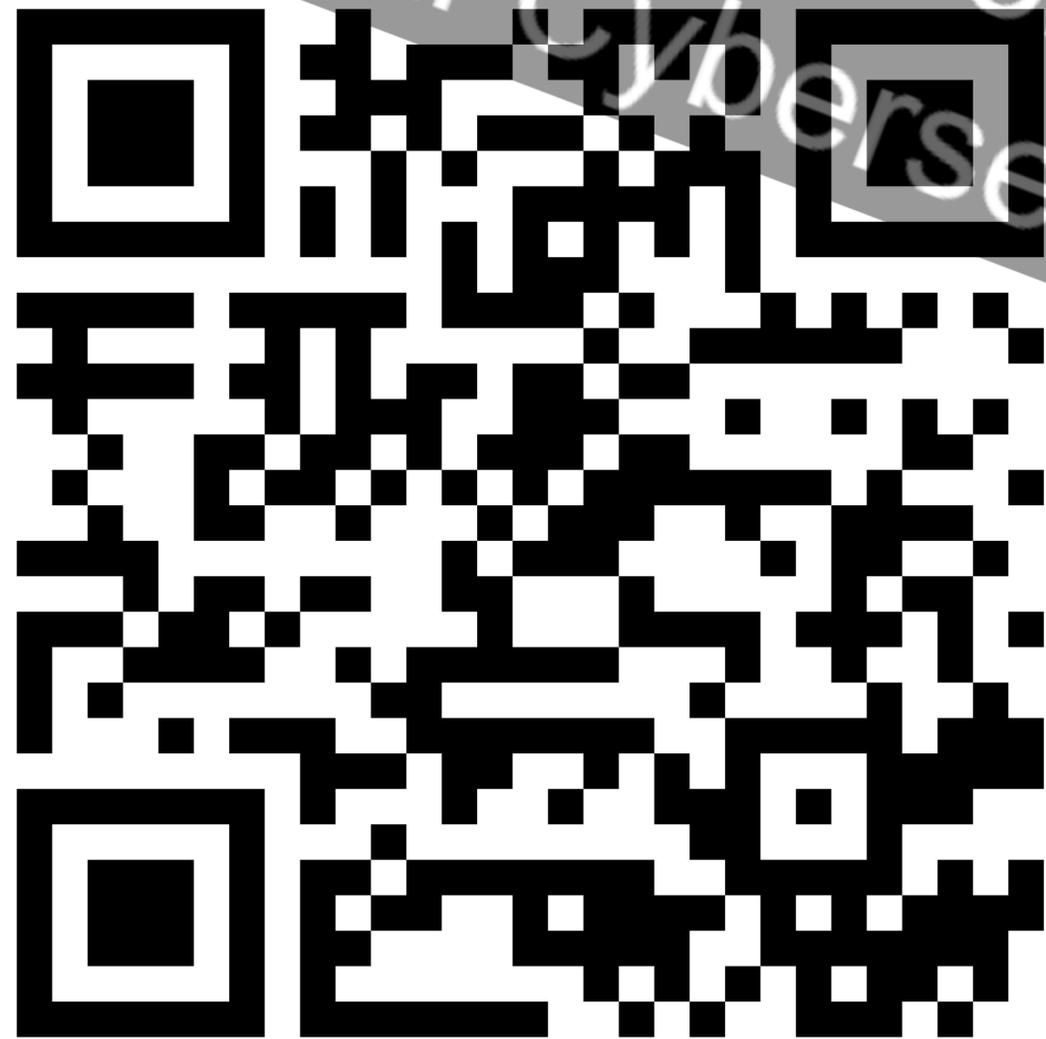
Continued

- 100% of programs are technology-infused and offered remotely
 - We've been offering distance education since before 2000
 - Legislatively required to have technology-infused
- 97 full-time faculty
- 44 majors
 - AS, BS Network & Security Admin
 - AS, BS, MS, PhD Computer Science
 - BS, PhD Cyber Operations
 - MS, PhD Cyber Defense
 - BS, <MS> Artificial Intelligence

DSU Programs

Overviews and Catalog Information

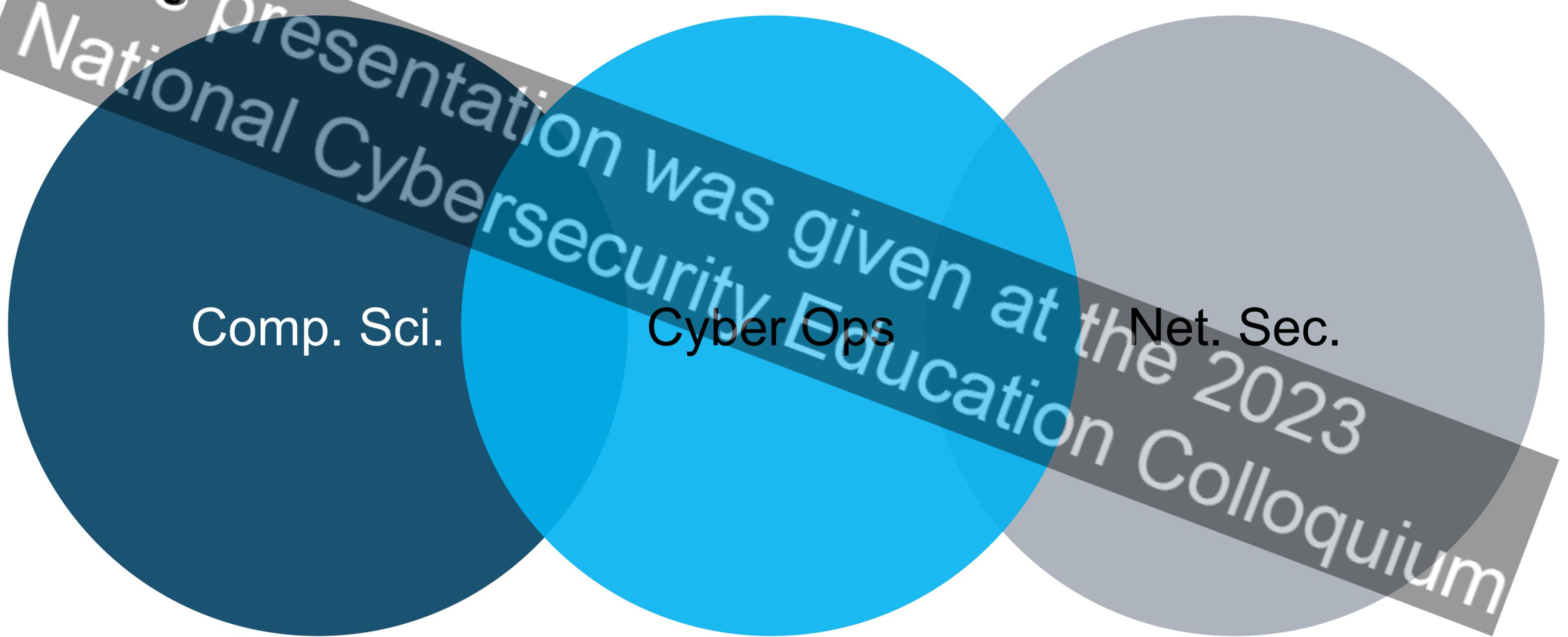
- <https://dsu.edu/academics/majors-degrees.html>



This presentation was given at the 2023 National Cybersecurity Education Colloquium

Overlaps

Undergraduate Overview



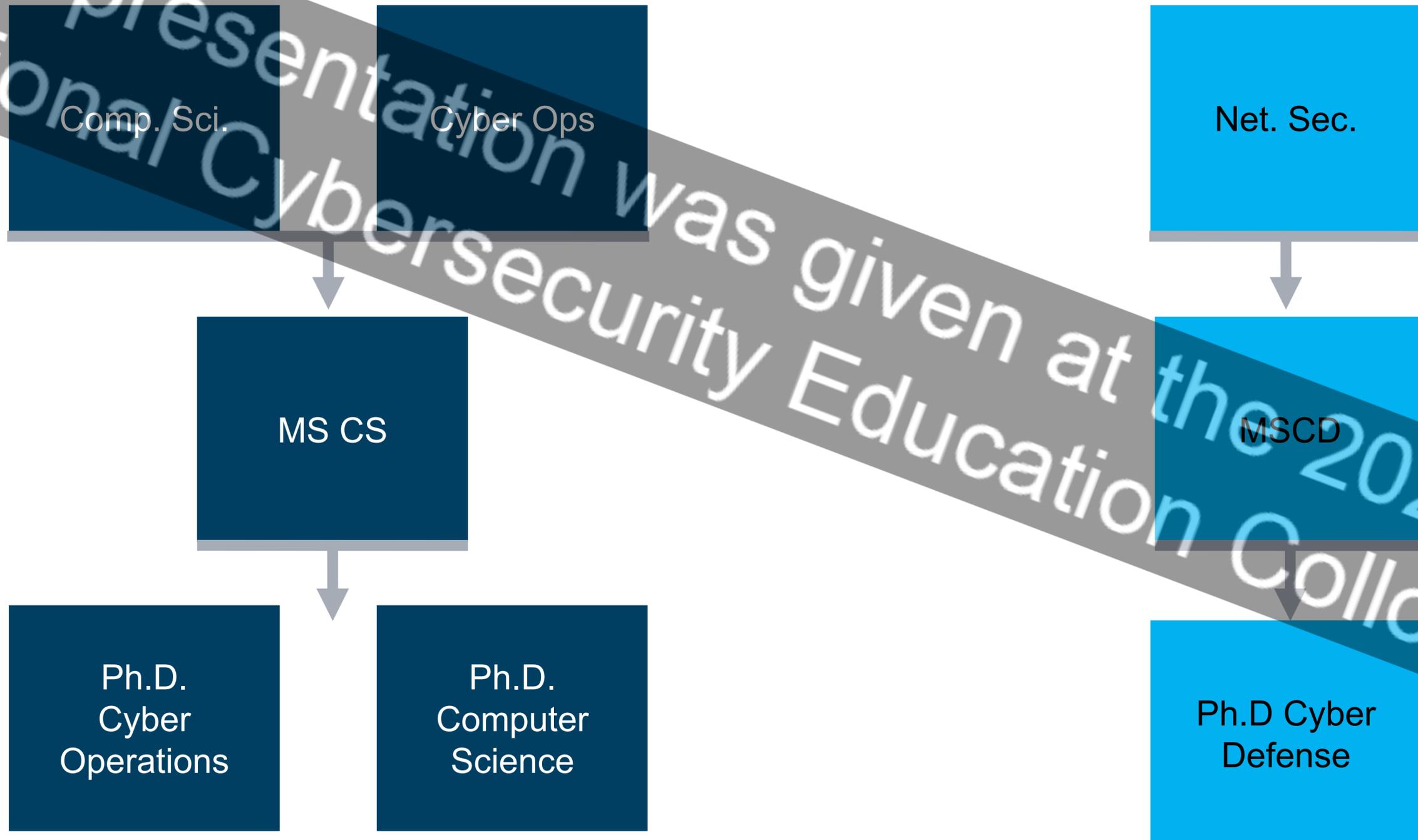
Comp. Sci.

Cyber Ops

Net. Sec.

Graduate School

Cyber Pathways



4+1 Program

Bachelor's and Master's degrees

- Way to start taking grad classes in place of your elective credits
- Can take up to 9 total graduate credits as an undergrad student
- Finish a B.S. and M.S. in 5 total years
- <https://dsu.edu/academics/4plus1-program.html>

Articulation Agreements

This presentation was given at the 2023
National Cybersecurity Education Colloquium

Articulation Agreements

B.S. in Cyber Operations and M.S. in Computer Science

- Students may already have a strong base in programming, math, and networking
 - Take some of prior education, job training, etc.
 - Also able to evaluate service/work background for service members
- B.S. Cyber Operations and M.S. Computer Science with Cyber Operations
- <https://dsu.edu/admissions/military/military-programs/cocoa.html>



Eligible Students

NCU

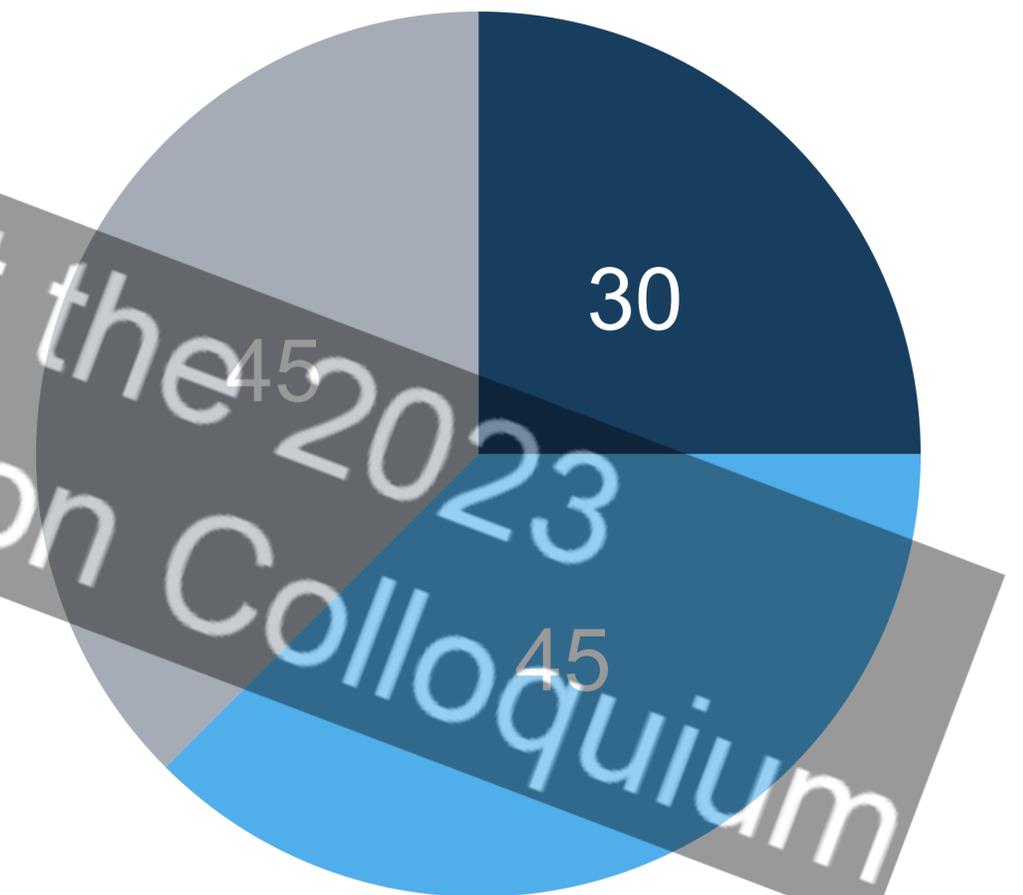
- Students who have completed JCAC, CYBR3420, or CYBR3422
- Undergraduate: transfer up to **45** credit hours towards the B.S. in Cyber Operations degree
- Graduates: up to **12** graduate credits towards the M.S. in Computer Science with specialization in Cyber Operations degree program
 - Three graduate credits will be awarded for each 80 contact hours of NSA-sponsored coursework

B.S. in Cyber Operations

Articulation Agreement

- 45 credits covered by the articulation agreement
- 75 total remaining
 - 30 general elective credits required
 - 45 additional major content credits required

■ Gen Eds ■ Required ■ Articulation

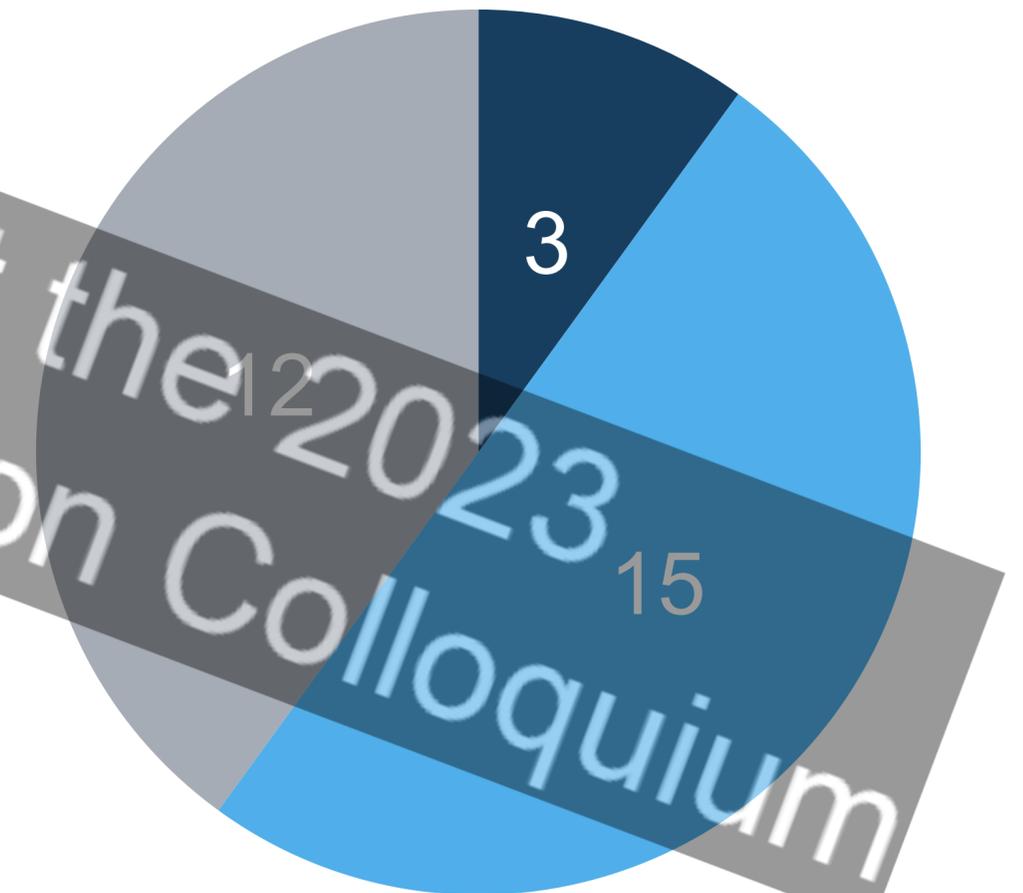


M.S. in Computer Science

Articulation Agreement

- 12 credits covered by the articulation agreement
- 18 total remaining
 - 15 credits of core classes
 - 3 credits of cyber operations specialization courses

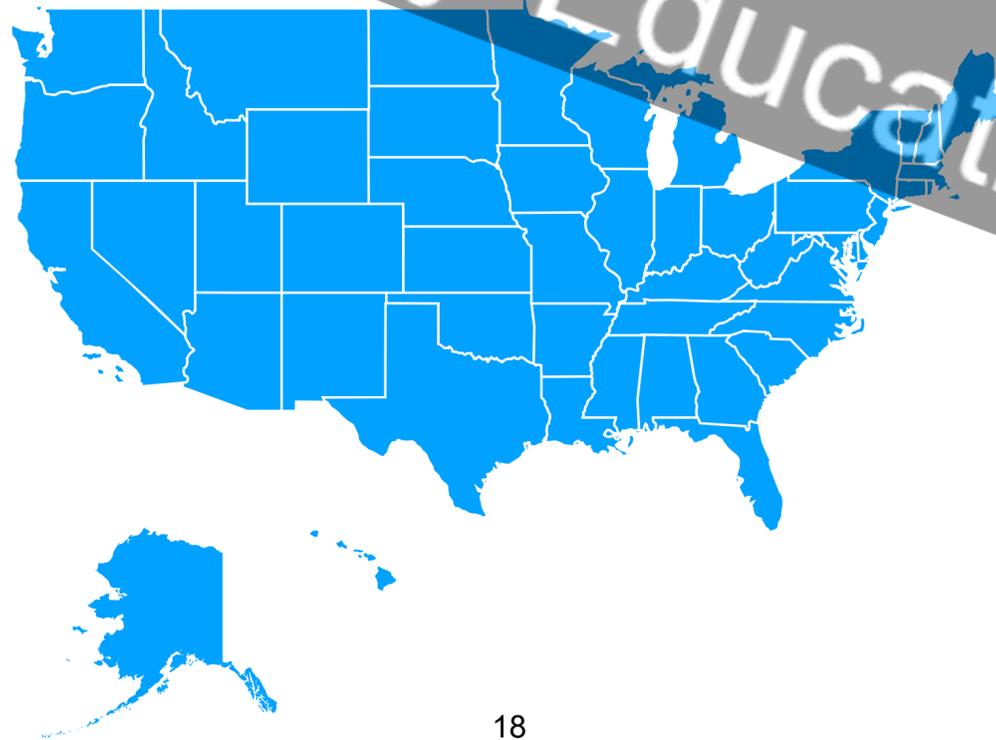
■ Cy. Ops. ■ Required ■ Articulation



Student Body

Who these efforts are for!

- 61% from South Dakota
- Students are enrolled from all 50 states
- Students are from regions where we do **zero** marketing



NCAE Involvement

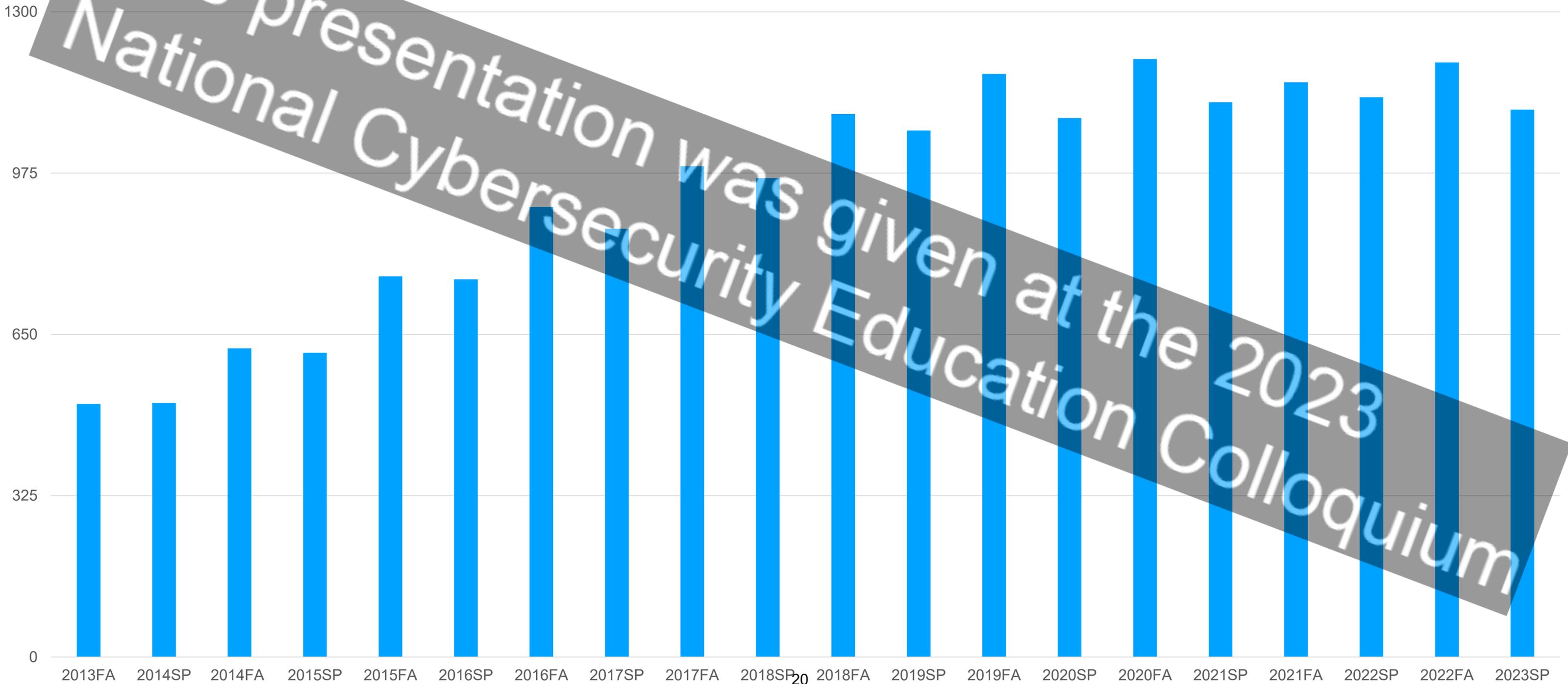
When we were first designated.

- Cyber Defense
 - Information Assurance Education*
 - 2004, first designated
- Cyber Research
 - 2012, first designated
- Cyber Operations
 - 2012, first cohort designated



Cyber Program Headcount

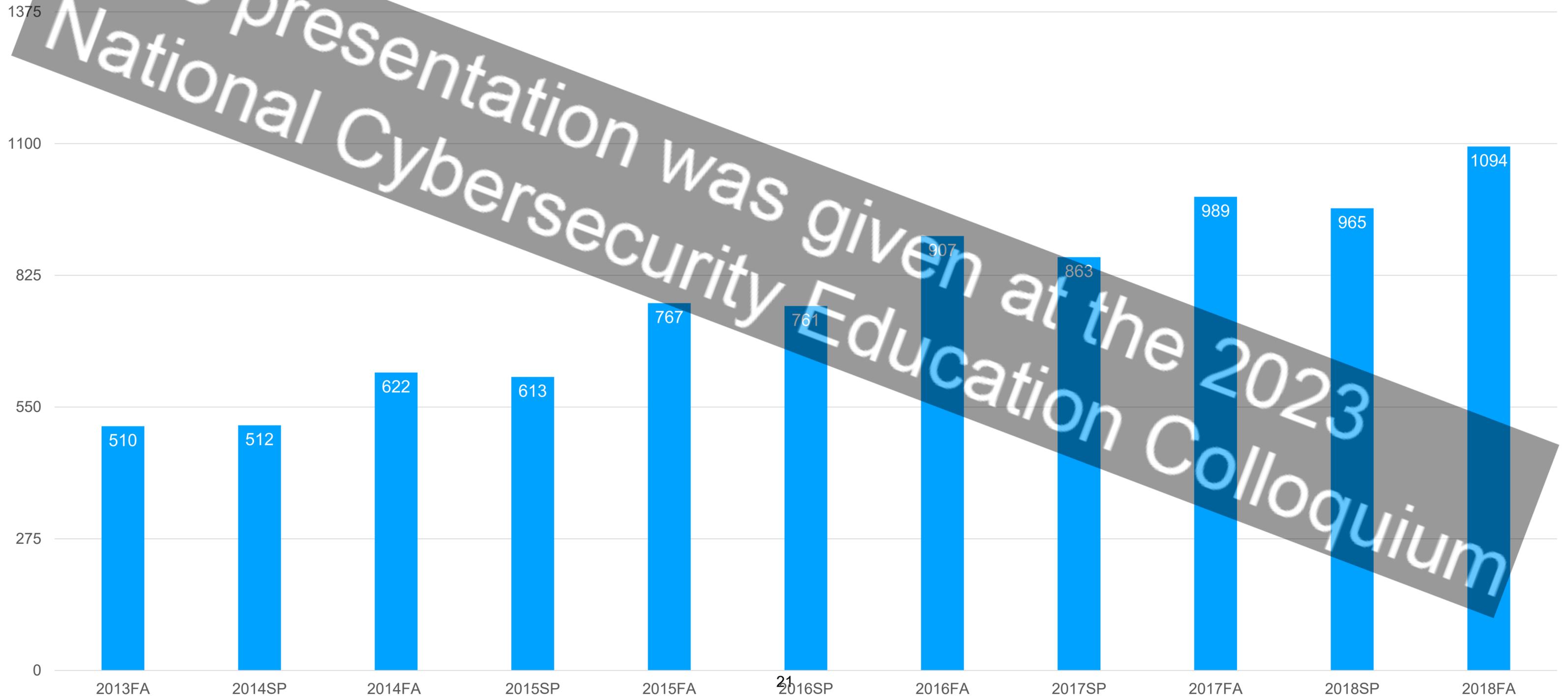
Cyber Ops, CS, and Net. Sec.



This presentation was given at the 2023 National Cybersecurity Education Colloquium

Our Enrollment Doubled

In 5 short years!



NCAE Programs

GenCyber

- CyberStars Pilot in 2014
- 29 different camps
 - Teachers
 - High school students
 - Middle school girls
 - Camp in a box
- Just over 4,000 total attendees
- Mostly residential programs



NCAE Programs

Scholarships

- IASP + CySP
- CyberCorps*
- Roughly 135 student scholarships

Other Programs

Related to NCAE

- INSuRE
- CRRC's

This presentation was given at the 2023 National Cybersecurity Education Colloquium

Future Goals

Begin with the end in mind.

- Cyber 27 (<https://www.dsucyber27.com/>)
- Double graduates (again)
- Significant funding from outside
- Expand research capabilities
- Keep up with faculty demand
- Provide new opportunities for our students

The Juice

100% worth the squeeze.

- We've had a lot of squeezing
 - CAE Program Office
 - State government
 - Federal partners
 - Private industry
- Roughly \$183 million in impact to our university of 3500
 - Plus the student enrollment increases



Open discussion & questions:

Dr. Michael Ham

Michael.Ham@dsu.edu

Dr. Kyle Cronin

kyle.cronin@dsu.edu