Virginia Cyber Navigator Program

George Mason University, Norfolk State University, Old Dominion University, University of Virginia, Virginia Commonwealth University, Virginia Tech

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The Need

- Secure elections are the bedrock of democracy
- Election systems are critical infrastructure
- Pipeline of cybersecurity professionals working for the public good

VA-CNIP Overview

A coalition of Virginia universities, in partnership with the **Virginia Department of Elections**, launched the Virginia Cyber Navigator Internship Program (VA-CNIP) – an innovative experiential learning experience to train **future cybersecurity professionals** to protect **election infrastructure**.

VA-CNIP Overview
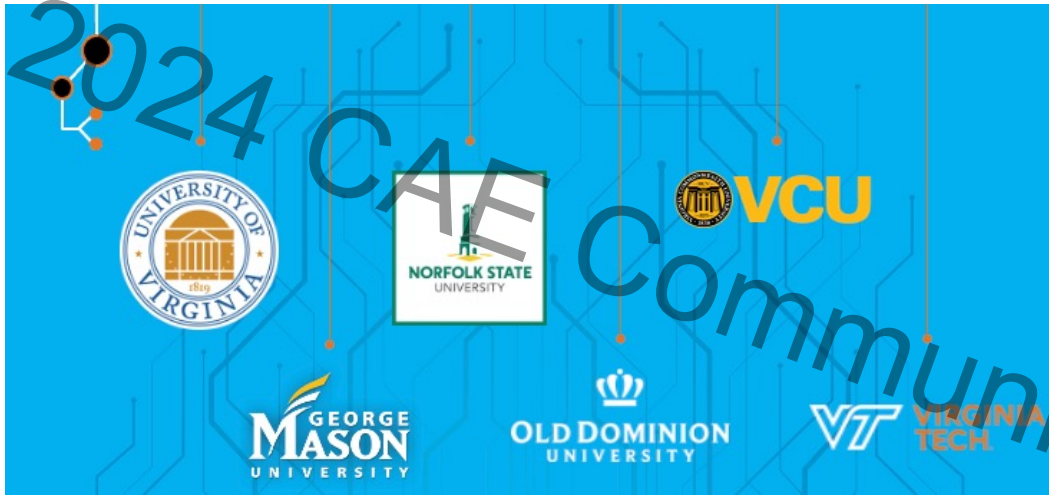
Virginia Department of Elections

Coalition of Six Virginia NCAE Universities and the Virginia Department of Elections

Virginia Department of Elections (ELECT)

- Promote and support accurate, fair, open, and secure elections for the citizens of the Commonwealth

  - Establishing cybersecurity needs of the local government election units.
  - Facilitating the selection of the local government units.
  - Ongoing coordination of communication between the local government units and the academic groups.
  - Presenting to the interns about the governmental aspects of security with regard to the overall voting process.
  - Being a resource for an assessment process with regard to the attained cybersecurity levels in the local government units.
  - Being a resource for an assessment of the internship program.

VA-CNIP Supporters

- National Center of Academic Excellence Program (NCAE) under NSA's National Cryptologic School

- University of Virginia School of Engineering and Applied Science

- CCI – Grant to GMU to fund eight additional interns

- Industrial Advisory Board
  - Greater Washington Partnership, Leidos, Veracode, Ernst & Young, Capital One, Accenture Federal Services, General Dynamics Information Technology (GDIT), Praxis Engineering, Fortinet, LMI

VA-CNIP Program

- Students take a one-semester, gateway course, **Cybersecurity and Elections**
  - Provides students with an understanding of the historical, cultural, and political significance of voting
  - Discusses the technical issues of securing election processes
  - Introduces students to careers in service for public good
- Class students apply for internship
- Selected interns participate in a two-day, pre-internship Boot Camp

UNIVERSITY of VIRGINIA

Commonwealth Cyber Initiative

VA-CNIP Program

- Internship runs for ten weeks
  - Interns are deployed in teams (two to three students per locality)
  - Hybrid – mix of on-site work and virtual engagement and meetings
  - Bi-weekly check-in meetings with ELECT and faculty
- 1.5 day debrief meeting at end of internship
- Final report submitted by each intern

Gateway Course Learning Outcomes

- Understand election system and legislative history of voting in the United States

- Understand the cultural significance of voting in American democracy and the important role of trust

- Understand possible threats, vulnerabilities, and attacks in election infrastructures

- Understand election system security standards and regulations including the Virginia Department of Elections Voting Systems Security Policies, Standards, Guidelines, and Virginia's Locality Election Security Standards (LESS).

Gateway Course Learning Outcomes

- Understand necessary security controls for voting systems, voter registration databases, and associated IT infrastructure and systems used to manage elections.

- Become aware of cybersecurity careers in the public sector.

Year 1 (2022) VA-CNIP Statistics

- 34 Interns: GMU (7), NSU (1), ODU (5), UVA (9), VCU (6), VT (6)

- 16 women

- Localities (17): Appomattox, Chesterfield, Clarke, Floyd, Henry, Madison, Nelson, Northampton, Lancaster, Lexington City, Mecklenburg, Pittsylvania, Richmond Co, Roanoke County, Roanoke City, Westmoreland, Wythe

Year 2 (2023) VA-CNIP Statistics

- 39 Interns: GMU (10), NSU (3), ODU (2), UVA (16), VCU (6), VT (2)
- 15 Women
- Localities (19): Dinwiddie, Emporia City, Henry, Louisa County, Northampton, Manassas City, Montgomery, Orange, Pittsylvania, Richmond City, Roanoke County, Russell, Salem City, Southampton, Stafford County, Tazewell, Virginia Beach, Virginia Beach City, Washington

Year 3 (2024) VA-CNIP Statistics

Projection

- 52 Interns: GMU (10), NSU (4), ODU (4), UVA (22), VCU (6), VT (6)

- 25 Localities

Lessons Learned

- **Absolutely** requires a committed, dedicated government partner
- Need commitment from participating university administrations
  - Confidentiality agreements
  - Handle student payments
  - Course scheduling and release time
- Involve university career offices, industry and alumni
- Emphasize to the students that they are making a commitment
  - Tie course to internship (grade depends on internship participation)
- Collect statistics at each step (demographics, results, etc.)
- Maintain contacts (students, localities, speakers, etc.)

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Questions

2024

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