



# WELCOME TO CYSER

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# VICEROY Northwest Institute for Cybersecurity Education and Research

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WASHINGTON STATE  
UNIVERSITY



MONTANA  
STATE UNIVERSITY



# VIRTUAL INSTITUTES FOR CYBER AND ELECTROMAGNETIC SPECTRUM RESEARCH AND EMPLOY

Developing Mission-Focused Cyber and Spectrum Skills for

Funded by DoD and managed  
by the Griffiss Institute

<https://www.viceroysscholars.org/>

- Develop foundational expertise in critical cyber and spectrum operational skills.
- Augments traditional college curricula with hands-on, research-based, and operationally-focused experiential learning opportunities.
- Develop early student interest in challenging DoD and National Security problem sets

## MAVEN Summer Internships (2025)

<https://www.viceroysscholars.org/apply/>

- Priority Deadline is November 15, 2024
- “8-week cyber-spectrum technology and operations internship that provides immersive experiences in DoD culture, leadership, and operations. The internship culminates in creating an IEEE-style research paper, a poster session and a mission-focused operational vignette where participants work as an offensive cyber operations cell”
- Must be security clearance eligible
- June 9, 2025 through August 1, 2025
- \$22/hr, \$1500 travel allowance, food & housing provided

## ENVOY Summer Internships (2025)

<https://www.viceroysscholars.org/apply/>

- Priority Deadline is November 15, 2024
- “10-week internship, students are matched to DoD positions that align with their operational skillsets, immersing them in DoD and service-specific culture through supporting projects that advance the mission. Interns receive Secret clearances as required. Employment bridge programs are leveraged as pathways for permanent student employment”
- Must be security clearance eligible
- June 2, 2025 through August 8, 2025
- \$24/hr, \$1500 travel allowance, food & housing provided

# Internships broadly

- Requirement for CySER Fundamentals and an option for Basics certificates
- All CySER students who haven't done a cybersecurity internship should apply to MAVEN.
- Students who have completed MAVEN are encouraged to apply for ENVOY.
- Seminar speakers from industry/government promote internships
- WSU Academic Success and Career Center
- Job fairs and career expos
- Can be done at any point during your undergraduate program

# Seminars

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- Attendance is required
- There is a survey to complete at the end of each seminar
- <https://cyser.wsu.edu/seminars/>



VICEROY NORTHWEST INSTITUTE FOR  
CYBERSECURITY EDUCATION AND RESEARCH



CySER Virtual Seminar

Jess Smith

Pacific Northwest National Laboratory

*Building Trust in an Untrustworthy World*

Oct. 22, 2024, 12:10 – 1 PM Pacific

Team Link: [Click here to join the meeting](#)

Meeting ID: 235 232 319 187 | Passcode: RYCAJB

Call in (audio only) +1 509-498-6399 | Phone Conference ID: 342 122 868#

## Abstract:

As the builders and operators of critical systems, we are required to do the impossible – build systems that we can fully trust from devices and components that cannot be trusted. Often, we don't have the overarching viewpoint necessary to even identify all the problems that may exist across lifecycles and supply chains, much less reduce or mitigate those problems. Even if we have good visibility, there is no single modification that will "fix" the problem. This presentation will explore ways to understand the cyber supply chain, methods for evaluating the integrity of those systems, and a discussion of how we as cyber professionals can begin to mitigate the risks.

## Bio:

Dr. Jess Smith is a Senior Cyber Security Research Scientist with experience working across both government and industry. At PNNL, Jess's research focuses include industrial control system and cyber supply chain risk management, and she has led research projects in everything from exploring state machine reverse engineering to defining resilience mathematically in cyber systems. She is currently leading PNNL's supply chain integrity efforts which support multiple government agencies. Prior to PNNL, Jess worked in industry at Schweitzer Engineering Laboratories, MITRE, and interned at NASA. After completing both a MS and BS in Computer Engineering at the University of Idaho, Jess earned her PhD in Computer Science from Washington State University. She has her CISSP and CSSLP certifications and is a member of IEEE.



VICEROY

**CySER**

<https://cyser.wsu.edu/>

- Information on up-coming seminars
- Archive of all past seminars with full videos
- Details of past Summer Workshops
- Contact info for CySER staff

# Research Experience

- Undergrads assigned to mentors (grad students, CySER “seniors”, industry sponsors)
- Participate in real-world research related to cybersecurity
- Meant to give “exposure” not “mastery”
- Participants will gain familiarity with a research project and get hands-on experience
- Present outcomes (such as any results, lessons learned) in a poster session at the CySER Summer Workshop 2025
- <https://cyser.wsu.edu/summer-workshop/cyser-summer-workshop-2024-posters/>

# Summer Workshop



- <https://cyser.wsu.edu/summer-workshop/>
- Example: 2024



# Coursework

- Can be done at any point during your undergraduate program
- Must inform your advisor you intend to complete a CySER certificate!
- CySER CAE-CO Fundamentals
  - CS, SE, Cybersecurity
  - 3 required cybersecurity courses, 4 electives, capstone course with cybersecurity project
- CySER Basics
  - All other majors
  - 3 required courses, capstone course with cybersecurity project
- SME
  - Assefaw Gebremedhin, EECS
  - Paul Wilmoth, EECS
  - Tracey Spencer, Carson College of Business
  - Goretti Manzo, Carson College of Business
- <https://cyser.wsu.edu/certificate-offerings/>



# Cyber Security Group RSO



## Introduction

The Cyber Security Group teaches it's members cybersecurity concepts through hands on lessons. It also uses competitions to encourage learning of cyber security concepts, skills, and collaboration in a hands on, interactive way.

## Lesson Meetings

- The club hosts periodic meetings to teach members about cybersecurity concepts. Meetings led by members are focused on a specific cybersecurity topic, and often involve hands on exercises.
- Example topics include:
  - Network Forensics
  - OSINT
  - Cryptography
  - Web Pen-Testing
  - Password Cracking

## Benefits of Competitions

- Students learn both hard and soft skills.
- Students are exposed to new cybersecurity domains they may not be familiar with and are motivated to learn new skills to help further their team's progress.
- Students learn importance of effective team organization and leadership to produce high functioning cyber teams.

## Capture The Flag (CTF)

- Students work across a wide variety of domains to solve challenges, such as cryptography, reverse engineering, and web exploitation to retrieve a 'flag', a short string, to gain points and climb the leaderboard.

## Simulated Exercises

- Students work together to approach a pre-designed cyber exercise that simulates a real-world mission, requiring teams to plan and execute a mission, then debrief to adapt to challenges they may have faced.

## Competitions

- VICEROY Dr. Boom
- Spokane Mayors Cup
- National Cyber League
- Pacific Rim Collegiate Cyber Defense Competition
- CyberForce Competition

## Club Leadership

President – Zachary Werle  
 Vice President – Alexander Hagood  
 Treasurer – Guinevere Fish  
 Outreach Officer – Adam Caudle  
 Logistics Officer – Alec Barran  
 Instructional Lead - Justin Van Der Sluys  
 Faculty Advisor – Dr. Assefaw Gebremedhin

## Acknowledgements

Some of the competitions were supported by funding for the VICEROY Northwest Institute for Cybersecurity Education and Research (CySER) provided by The Office of the Undersecretary of Defense for Research and Engineering, in collaboration with the Air Force Research Laboratory and Griffiss Institute.



WSU CyberCougars at Spokane Mayors Cup 2024



Cybersecurity Club lesson on networking and packet analysis



connected to address 112.33

username: \*\*\*\*\*

password:

Password12345:)

Access granted...

Wrap-up and Questions