

W A S H I N G T O N VETTS 2TECH Veterans * Transitioning service members * Military spouses

Cybersecurity Administration Weekly Training Plan

Agenda

- Program Notes
- Cybersecurity Administration Pathway learning objectives
- Professional Development overview
- Weekly Breakdown (weeks 1-16)
 - Session 08
 - Session 09
- Questions
- Conclusion

Program Notes



Current pathway prerequisites:

- College-level Algebra
- Behavioral Interview

Classroom Instruction:

- Academics:
 - Students will be in class Monday through Friday from 9:00 am to 5:00 pm
 - Students will attend three classes, twice a week for 2 ½ hours each class
 - During unstructured time, students will have the opportunity to work on classwork, work on group projects, or study for certification exams

- Career Development Managers will teach Professional Development classes twice a week and focus on:
 - Resumes
 - Cover Letters
 - Virtual Presence (LinkedIn, Social Media, etc.)
 - Job Search
 - Mock Interviews





Cybersecurity Administration – Learning Objectives

May 25, 2023

Pre-Requisites

College Algebra transcripts or Math placement test

available online

Outcomes

- ☐ Understand physical security principles, Internet & wireless security
- Analyze user authentication, permissions, password & audit policies, encryption &
- ☐ Create dedicated firewalls, network isolation & protocol security
- Configure & protect cloud data stores & local databases
- Conduct security & risk assessments & system audits
- Create an incident response report
 Create a risk assessment report on a real-world business

Certification Opportunities*





* Two certification exam vouchers are included in lab fees. WAV2T reserves the right to change which certifications are included under the voucher program.

Core

- □ Develop skills in Python/PHP/Bash scripting□ Develop basic programming logic
- ☐ Learn basics of Linux CLI using Kali Distribution
- ☐ Key topics: conditionals, strings/int/float; tuples, dictionaries, lists, methods, sets, classes, binary/hex
- ☐ Understand key data structures and algorithms
- Web programming basics
- ☐ Install Git & create a GitHub account

CSC 325:
Computer Security

CSC330:

Server

CompTIA

Network+

Network and

Fundamentals

Exam Preparation

Python/PHP

CSC 160:

Computing

Technologies

- ☐ Analyze security requirements☐ Understand CIA/DAD triad
- ☐ Relate national security implications of cybersecurity & info. Infrastructure; protection to individual/private
- ☐ Understand how OS, Apps and websites work, how to discover & exploit their vulnerabilities
- Apply Kali Linux tools: Maltego, Burp Suite, Sqlmap, Metasplit
- ☐ Intro to cryptography: monitor crypto systems
- ☐ Octal and permission settings in Linux
- ☐ Linux CLI core commands
- ☐ Explain the concepts of computer networking, the protocols: TCP/IP & DHCP & NPS
- ☐ Understand Windows active directory
- ☐ Implement security configuration on network devices & other technologies;
- ☐ Explain the basic concepts of virtualization, virtual machines, and software defined networks
- ☐ Intercept & analyze network traffic
- Learn how to harden OS/Apps and secure networks from attacks
- ☐ Identify adversary threat vectors (tactics & against / using OSI level protocols)
- ☐ Understand Wireshark. Metasploit, Aircrack-ng, Nmap,

Advanced

CSC 455 Cloud Technologies

AWS Solutions Architect Exam Preparation

- ☐ Explain concepts of Identity Management, the Control Plane, Access Control to cloud/server architectures
- ☐ AAA: Authentication, Authorization, Accounting
- ☐ Cloud security/cloud service models/backup & log analytics
- ☐ Cloud gateways, Web App security, Firewalls & dealing with DDoS threats
- ☐ Cloud Disk & Storage Encryption
- ☐ Identify key legal/ethical/regulatory elements that underpin identity management, AC, & accountability

CSC 364: Cybersecurity Threat

Intelligence

CompTIA Sec+ Exam Preparation

- ☐ Monitor use of data files and regulate access to safeguard information in computer files
- ☐ Demonstrate how NIST Cybersecurity Framework is used in planning/assessing info. sys. security plans/ programs
- ☐ Autopsy tools digital forensics
- ☐ Monitor current report of viruses/understand when to update virus protection systems
- ☐ Reverse engineering (Ghidra)
- ☐ Research top 10 vulnerabilities according to OWASP
- ☐ Shodan.io, OSINT

CSC 426: Vulnerability Assessment:

- ☐ Relate organizational risk management to vulnerability assessment and risk mitigation
- Apply the concepts of threat modeling & threat surfaces to IT systems, public, private and hybrid cloud environments
- ☐ Explain architectural security elements OSI
- ☐ Monitor current report of viruses/understand when to update virus protection systems
- Conduct vulnerability assessments using CVE: Common Vulnerabilities and Exposure data, in conjunction with situationspecific threat modeling
- ☐ Develop and implement risk mitigation solutions to contain, eliminate or otherwise mitigate risks found in IT systems





Professional Development

- The Career Development Managers (CDM) for the Washington Veterans to Tech (WaV2T) program are responsible for the job placement function for a cohort of WaV2T students.
- Our CDMs also maintain relationships with employers, and graduates of the WaV2T program, managing the social network of this specialized community.



Resumes

- Translating military experience
- Personal assessment
- Target Resumes



Cover Letters

- Personalization
- Selling yourself



<u>Virtual</u> Presence

- <u>Presence</u>
- LinkedIn
- Personal branding
- Social Media



Job Search

- Target job market
- Hiring managers
- Recruiters



Interview skills

- Research Company
- Mock Interviews
- Negotiations
- Job offers



| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
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| 9:30 AM | WaV2T | Development | | Development | Unstructured |
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Learning Outcomes

- CSC 160
 - Course Introduction
 - Algorithms, Pseudocode, and Software Development
 - Introduction to Python
 - Program #1, Quiz #1
- CSC 325
 - Course Introduction
 - Cybersecurity Landscape
 - Threats, Attacks, and Vulnerabilities
 - TestOut and LabSim Activities
- CSC 330
 - Course Introduction
 - Networking Basics
 - OSI & TCP Reference Models
 - TestOut and LabSim Activities

- Classes:
 - Orientation, administrative tasks, teams and calendar overview



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Learning Outcomes

• CSC 160

- Data Types, Assignment Statements, and Arithmetic Expressions
- Int, Float, Strings, Lists, Tuples, and Dictionaries
- zyBooks Labs, Quiz #2

CSC 325

- Network and Endpoint Security
- Device/Network Protection and Network/Host Design
- TestOut and LabSim Activities

• CSC 330

- Network Cabling and Hardware Devices
- Network Cabling Discussion
- Research Paper #1
- TestOut and LabSim Activities

- Classes:
 - Your focus determines your reality
 - Guest speaker from Amazon



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Learning Outcomes

• CSC 160

- Iteration & Selection Statements and Boolean Logic
- Branching (if-else), Loops (for, while)
- zyBooks Labs, Program #2, Quiz #3

CSC 325

- Network and Endpoint Security
- Security Appliances, Firewalls, VPNs, and Network Threats/ Applications/Access Control
- TestOut and LabSim Activities

• CSC 330

- Network Addressing and Services
- IPv4, DHCP, (others: SMTP, IMAP/POP, HTTP), Transport Layer (TCP/UDP), and Network Troubleshooting
- Cisco Packet Tracer lab #1
- TestOut and LabSim Activities

- Classes:
 - Survey your professional environment (1)
 - Survey your professional environment (2)



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Learning Outcomes

• CSC 160

- Designing with Functions and Using Lists & Dictionaries
- zyBooks Labs
- Quiz #4, Quiz #5

CSC 325

- Identity, Access, and Account Management
- Access Control, Active Directory, User Mgmt, and Authentication/ Authorization
- Research Paper #2
- TestOut and LabSim Activities

• CSC 330

- Network Addressing and Services
- DNS, NTP, IPv6, Troubleshooting DNS & IP
 Communications, and Troubleshooting IP configurations
- TestOut and LabSim Activities

- Classes:
 - Constructing your Resume/Cover letter
 - Student Bio and Resume construction
 - AWS guest speaker



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Learning Outcomes

• CSC 160

- Working with Files (input/output) and Strings (Subscript Operator)
- zyBooks Labs
- Program #3
- Quiz #6

CSC 325

- Cryptography and Public Key Infrastructure (PKI)
- Cryptography & PKI Implementations, Hashing, and File Encryption
- TestOut and LabSim Activities

• CSC 330

- Ethernet/Wiring Standards
- Research Paper #2
- TestOut and LabSim Activities

- Classes:
 - Define your target market and personal marketing plan
 - Professional Development roadmap and milestones
 - Review resumes and student bios



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Learning Outcomes

• CSC 160

- Data Types (Classes) and Object-Orientation Programming (OOP)
- Zybooks Labs
- Quiz #7

• CSC 325

- Cloud, Virtualization, and Wireless Security
- Wireless Threats/Defenses, Securing Mobile Devices, and Virtual Networking
- Governance and Compliance
- Research Paper #3
- TestOut and LabSim Activities

CSC 330

- Firewalls and Intrusion Detection
- TestOut and LabSim Activities

- Classes:
 - Gather marketplace information & other methods of search
 - Hiring Managers
 - Guest Speaker
 - Start Job Tracker



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Learning Outcomes

• CSC 160

- Event-Driven Programming and Graphical User Interfaces (GUI)
- Program #4
- Quiz #8

• CSC 325

- Security Assessments
- Penetration Testing, Monitoring & Reconnaissance, and Intrusion Detection
- Secure Coding (Data & Applications)
- TestOut and LabSim Activities

• CSC 330

- Cisco Packet Tracker Lab #2 (in-class lab)
- Research Paper #3

- Classes:
 - LinkedIn and your virtual presence
 - LinkedIn from a recruiter perspective
 - Elevator pitches and Interviewing



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Learning Outcomes

• CSC 160

- Searching & Sorting Algorithms, Algorithm Complexity
 (Big-O) and Multi-Threading & Networking (Client/Server)
- Quiz #9
- Quiz #10

• CSC 325

- Incident Response and Resilience
- Log Mgmt, Digital Forensics, File & Packet Manipulation, Backups and Restores
- Risk Management
- TestOut and LabSim Activities

• CSC 330

- Cellular Technologies
- CompTIA Network+ exam review
- Group Presentation

- Classes:
 - Financial Health and assessing your finances
 - Transitioning to a new position
 - Guest Speaker

Transition from session 08 to 09



Notes:

- Students must pass Session 08 to move on to Session 09
- Mid-semester report, tracking students grades and certifications earned
- Setup interview schedule for students who demonstrate ability to go to FTE roles



| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|----------|-------------------------|-----------------------------|-------------------------|-----------------------------|--------------|
| 8:30 AM | CSC 364: | CSC 426: | CSC 364: | CSC 426: | |
| 9:00 AM | Cybersecurity Threat | Vulnerability Assessment | Cybersecurity Threat | Vulnerability Assessment | |
| 9:30 AM | Intelligence | | Intelligence | | Unstructured |
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Learning Outcomes

- CSC 364
 - Course Introduction
 - Threats, Attacks, and Vulnerabilities
 - Physical Security
 - Labs
- CSC 426
 - Course Introduction
 - Introduction to Penetration Testing
 - Video/Reading in TestOut (Modules 1 & 2)
 - PenTest Process & Types
 - Threat Actors & Target Selection
 - Assessment Types
 - Legal and Ethical Compliance
 - TestOut, TryHackMe, and Module 2 Quizzes
- CSC 455
 - Course Introduction
 - Cloud Concept Overview
 - Video/Reading in AWS Academy (Modules 1 & 2)
 - Cloud Concept Overview
 - Introduction to AWS
 - Create AWS Free Account
 - Configure Account and Create a Billing Alarm
 - CloudShell & AWS CLI Overview

- Classes:
 - Student exam preparation & testing
 - Student Mock Interviews
 - Job Trackers
 - One on One interviews



| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
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| 8:30 AM | CSC 364: | CSC 426: | CSC 364: | CSC 426: | |
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Learning Outcomes

- CSC 364
 - Networks and Hosts Design and Diagnosis
 - Devices and Infrastructure
 - Labs
 - Quiz #1
- CSC 426
 - Reconnaissance
 - Video/Reading in TestOut (Modules 3 & 4)
 - Rec. Overview
 - Countermeasures & Scanning
 - Banner Grabbing
 - Enumeration Overview
 - TestOut and LabSim activities
 - Modules 3 & 4 quizzes
- CSC 455
 - Cloud Identity Access Management
 - Cloud Economies and Billing
 - Billing Dashboard
 - Introduction to AWS IAM
 - Create IAM User and MFA
 - Cloud Computing
 - Launching Cloud Services

- Classes:
 - Student exam preparation & testing
 - Student Mock Interviews
 - Job Trackers
 - One on One interviews
 - Guest Speaker



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Learning Outcomes

- CSC 364
 - Identity, Access, and Account Management
 - Cryptography and PKI
 - Labs
- CSC 426
 - Vulnerabilities Assessment
 - Video/Reading in TestOut (Modules 5 & 6)
 - Introduction to Vulnerabilities
 - Vulnerability Management Life Cycle
 - Scoring Vulnerabilities (CVSS & VPR)
 - Vulnerability Assessment Tools
 - Vulnerability Databases
 - TestOut and LabSim activities
- CSC 455
 - Cloud Service and Deployment
 - Global Infrastructure Overview
 - Identity and Access Management
 - IAM User, Groups, Roles, and Policies
 - Services and Categories
 - Labs and AWS Videos

- Classes:
 - Student exam preparation & testing
 - Student Mock Interviews
 - Job Trackers
 - One on One interviews



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Learning Outcomes

- CSC 364
 - Wireless Threats
 - Virtualization, Cloud Security, and Securing Mobile Devices
 - Labs
 - Group Projects
 - Quiz #2
- CSC 426
 - Exploiting Ackme's Application
 - Video/Reading in TestOut (Modules 7)
 - How to find Vulnerabilities
 - Automated vs Manual Vulnerability Research
 - Finding Manual Exploits
 - System Hacking
 - Privilege Escalation
 - Maintain Access
 - Mid-Term Exam
 - TestOut and LabSim activities
- CSC 455
 - Networking, VPC, and Hybrid
 - Cloud Security
 - Shared Responsibility Model
 - Securing Accounts and Data
 - Networking Basics
 - Virtual Private Cloud Networking and configuration
 - Virtual Private Cloud Security
 - Configure Security Group and NACLs
 - AWS Transit Gateway
 - Route 53
 - Building VPC
 - Mid-Term Exam

- Classes:
 - Student exam preparation & testing
 - Student Mock Interviews
 - Job Trackers
 - One on One interviews
 - Guest Speaker



| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
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Learning Outcomes

- CSC 364
 - Securing Data and Applications
 - NIST Framework
 - Security Assessments
 - Labs
- CSC 426
 - Manual Exploitation: Practical
 - Video/Reading in TestOut (Modules 8 & 9)
 - Exploit & Cover your Tracks
 - Malware & Combat
 - Pentesting fundamentals & Ethics
 - PenTest Methodologies
 - Black, White, and Grey Box Penetration Testing
 - Practical: ACME PenTest
 - TestOut and LabSim activities
- CSC 455
 - AWS Compute Services
 - Compute Services Overview
 - Amazon Elastic Compute Cloud
 - Lunch EC2 instances (Windows & Linux)
 - Instance Connect and SSH
 - Launch instance with User Data and Meta Data
 - Access key & IAM Role
 - AWS Batch
 - Lunch Docker Container on ECS
 - AWS Lambda
 - AWS Elastic Beanstalk
 - Configure Elastic
 - Lab activity
 - Chapter Quiz

- Classes:
 - Student exam preparation & testing
 - Student Mock Interviews
 - Job Trackers
 - One on One interviews



| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|----------|---|---|---|---|----------------------|
| 8:30 AM | CSC 364: Cybersecurity Threat Intelligence | CSC 426: Vulnerability Assessment | CSC 364: Cybersecurity Threat Intelligence | CSC 426: Vulnerability Assessment | Unstructured Time |
| 9:00 AM | | | | | |
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| 1:00 PM | Professional Development | CSC 455: Cloud Technologies | Professional Development | CSC 455: Cloud Technologies | Unstructured |
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Learning Outcomes

- CSC 364
 - Incident Response, Forensics, and Recovery
 - Autopsy
 - Ghidra Reverse Engineering
 - Risk Management
 - Labs
 - Quiz #3

CSC 426

- Intrusion Detection Systems & Firewalls
- Video/Reading in TestOut (Modules 10 & 11)
 - Firewalls & Honeypots
 - Firewall Penetration Testing Facts
 - Avoid Firewall Detection
 - Bypass Windows Firewall with Metasploit
 - Evade Honeypots
 - Detect Malicious Network Traffic with a Honeypot
 - Create a Honeypot with Pentbox
- TestOut and LabSim activities

CSC 455

- AWS Storage Services
 - Amazon Elastic Block Store (EBS)
 - Console Demonstration S3
 - EFS Configure Demonstration
 - AWS S3 Glacier
 - EBS Snapshots and DLM
 - Amazon Machine Images (AMI)
 - Versioning, Replication, and Lifecycle Rules
 - Configure Replication and Lifecycle
 - Configure S3 Static Website
 - Permission and Bucket Policies
- Labs and Videos
- Chapter Quiz

- Classes:
 - Student exam preparation & testing
 - Student Mock Interviews
 - Job Trackers
 - One on One interviews
 - Guest Speaker



| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|----------|---|-----------------------------|---|-----------------------------------|----------------------|
| 8:30 AM | CSC 364: | CSC 426: | CSC 364: | CSC 426: | |
| 9:00 AM | Cybersecurity Threat Intelligence | Vulnerability Assessment | Cybersecurity Threat Intelligence | Vulnerability Assessment | Unstructured Time |
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| 1:00 PM | Professional Development | | Professional Development | CSC 455: Cloud Technologies | Unstructured Time |
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Learning Outcomes

CSC 364

- Governance and Compliance
- Labs
- Group Project
- Quiz #4

CSC 426

- Principles of Security
- Video/Reading in TestOut (Modules 12 & 13)
 - The CIA Triad
 - Principles of Privileges
 - Security Models, Threat Modeling & Incident Response
 - Websevers, Web Applications, and SQL Injections
 - Wi-Fi, Bluetooth, & Mobile Devices
 - Cyber Defense: Intro to Wireshark
- TestOut and LabSim activities
- Module 12 & 13 quizzes

CSC 455

- Amazon Databases and Analytics
- Amazon RDS Overview
 - Demonstration: Create RDS and Configuration
 - Build a Database Server
 - Amazon Dynamo DB Table
 - Amazon Redshift
 - Amazon Aurora
 - Database Analytics Services
 - Configure Amazon Elastic Map Reduce
 - Athena and Glue
- Labs and Videos
- Module Quiz

- Classes:
 - Student exam preparation & testing
 - Student Mock Interviews
 - Job Trackers
 - One on One interviews



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Learning Outcomes

- CSC 364
 - CompTIA Security+ Practice exams
 - CompTIA Security+ Exam
- CSC 426
 - Cloud Computing and Internet of Things
 - Video/Reading in TestOut (Modules 14 & 15)
 - loT: Technologies and Protocols
 - IoT Hacking
 - Search for IoT with Shodan
 - Scan for IoT with Nmap
 - Cryptography
 - Cryptography Implementations
 - Cryptographic Attack Countermeasures
 - TestOut and LabSim activities
 - Module 14 & 15 quizzes
 - FINAL EXAM

CSC 455

- Cloud Architecture, Deployment & Automation
- Well-Architected Framework Design Principles
- Operational Excellence
- Security, Reliability & Performance Efficiency
- AWS Trusted Advisor
- Caching and Amazon CloudFront
- Demonstration: S3 Static Website with CloudFront
- Cloud Development Kit (CDK)
- Deploy and Configure a Web Application
- AWS CodeStar Demonstration
- Labs & Videos
- Module Quiz
- FINAL EXAM

- Classes:
 - Student exam preparation & testing
 - Student Mock Interviews
 - Job Trackers
 - One on One interviews
 - Graduation





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