As of May 23, 2023

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

• **Professional Development:**
  • 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

Core
- 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
- Interception & analysis of 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
- 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

Pre-Requisites
- College Algebra transcripts
- Math placement test available online

Outcomes
- Understand physical security principles, Internet & wireless security
- Analyze user authentication, permissions, password & audit policies, encryption & malware
- 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*
- 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 160: Computing Technologies

CSC 325: Computer Security

CSC 364: Cybersecurity Threat Intelligence

CSC 426: Vulnerability Assessment:

CSC 455 Cloud Technologies

AWS Solutions Architect Exam Preparation

AWTS reserves the right to change which certifications are included under the voucher program.

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

- **Virtual Presence**
  - LinkedIn
  - Personal branding
  - Social Media

- **Job Search**
  - Target job market
  - Hiring managers
  - Recruiters

- **Interview skills**
  - Research Company
  - Mock Interviews
  - Negotiations
  - Job offers
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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

### Professional Development

- Classes:
  - Orientation, administrative tasks, teams and calendar overview
Week 2

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

Professional Development

- 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

## Professional Development

- 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

## Professional Development

- Classes:
  - Constructing your Resume/Cover letter
  - Student Bio and Resume construction
  - AWS guest speaker
# Week 5

## 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

## Professional Development

- **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

### Professional Development

- Classes:
  - Gather marketplace information & other methods of search
  - Hiring Managers
  - Guest Speaker
  - Start Job Tracker
## Week 7

### 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

### Professional Development

- **Classes**:
  - LinkedIn and your virtual presence
  - LinkedIn from a recruiter perspective
  - Elevator pitches and Interviewing
**Week 8**

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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

**Professional Development**

- 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
Week 9

### 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

### Professional Development

- **Classes:**
  - Student exam preparation & testing
  - Student Mock Interviews
  - Job Trackers
  - One on One interviews
# Week 10

## 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

## Professional Development

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

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Week 11

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

Professional Development

- Classes:
  - Student exam preparation & testing
  - Student Mock Interviews
  - Job Trackers
  - One on One interviews
Week 12

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

Professional Development

- Classes:
  - Student exam preparation & testing
  - Student Mock Interviews
  - Job Trackers
  - One on One Interviews
  - Guest Speaker
Week 13

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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
    - Lunch 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

Professional Development

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

### Professional Development

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

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# Week 15

## 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

## Professional Development

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

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## Week 16

### 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)
    - IoT: 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

### Professional Development

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

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