CYBERSECURITY: NETWORKING AND SECURITY OPERATIONS - AAS DEGREE

Overview

See Department website and program contacts here

The **Cybersecurity: Networking and Security Operations (AAS) degree** is designed for students seeking careers in cybersecurity, networking, and information technology security. The curriculum combines technical computer, networking, and security skills to prepare students for employment in a variety of cybersecurity and IT environments.

Coursework includes topics such as **hardware and software support, network design and administration, cybersecurity, cryptography, ethical hacking, business continuity, and disaster recovery.** Students develop practical technical skills used to protect computer systems, networks, and data from unauthorized access and cyber threats.

The Cybersecurity program is workforce-focused and emphasizes practical, applied learning that prepares students for careers in network support, cybersecurity operations, information security, and related technology fields. **Students may also prepare for industry certifications such as CCNA, CompTIA, EC-Council, and others.**

Students in the program may have opportunities to participate in cybersecurity competitions and team-based events with colleges and universities nationwide.

Students are encouraged to work with an advisor (https://www.mhcc.edu/student-resources/academic-advising/) to ensure appropriate course selection and program planning based on their educational background and career goals. Students entering the program are recommended to have basic computer skills. Students without prior computer experience, or those who would like additional preparation before beginning the program, are encouraged to enroll in BCS090 Computer Basics for College Success through the Learning Success Center.

Refer to the tabs above for additional information about:

- **Education Plan** – provides a sample term-by-term sequence of courses
- **Career Info** – includes information on potential occupations, employment trends, and earnings

Program Learning Objectives

At the completion of this program, students should be able to:

- Perform preventative hardware and software maintenance
- Troubleshoot and correct computer hardware and software problems
- Conceptualize, design and diagram possible solutions for a given networking environment
- Work with others as part of a computer security team
- Assemble, reconfigure and upgrade personal computers
- Perform basic network and operating system administration, configuration and system security for both wired and wireless networks
- Configure and troubleshoot access to resources, hardware devices and drivers, storage use and network connections
- Analyze Internet security issues and apply them to network design problems
- Design a disaster recovery plan for a real-world scenario
- Communicate effectively and professionally in the information technology environment
- Perform necessary “white hat” attacks on a network to assess vulnerabilities
- Perform basic computer forensics on a variety of storage medium
- Design an appropriate risk analysis for a given business in a particular environment

Education Plan

This sample Education Plan illustrates one possible course sequence. Students should consult an advisor (https://www.mhcc.edu/student-resources/academic-advising/) to create a personalized plan.

General education courses (such as math, writing, health, etc.) can be taken during any term, or before starting the program.

First Quarter		
Fall		**Credits**
CIS151	Introduction to Networks	4
ISTM100A	Preparation For An Education in I.T. and Cybersecurity 1	1
ISTM183C	Fundamentals of CyberSecurity	3
WR121Z	Composition I	4
Human Relations Requirement (https://catalog.mhcc.edu/degree-certificate-requirements/aas/#human)		3-4
	Credits	**15-16**
Second Quarter		
Winter		
CIS125SS	Spreadsheets	3
CIS152	Switching, Routing and Wireless Essentials	4
ISTM100B	Preparation For An Education in I.T. and Cybersecurity 2	1
ISTM183A	Preparation for A+ Essentials	3
ISTM133P	Introduction to Python	4
ISTM283A	Fundamentals of Disaster Recovery and Business Continuity	3
	Credits	**18**
Third Quarter		
Spring		
CIS153	Enterprise Networking, Security, and Automation	4
ISTM100C	Preparation For An Education in I.T. and Cybersecurity 3	1
ISTM140L	Preparation for Linux	4
ISTM171	Introduction to Cloud and Virtualization Technologies	3
ISTM183B	Preparation for A+ Practical Application	3
Health and PE Requirement (https://catalog.mhcc.edu/degree-certificate-requirements/aas/#health)		3
	Credits	**18**

Fourth Quarter		
Fall		
CIS276	SQL	4
ISTM189	Wireless Security	3
ISTM279A	Windows Server (Azure)	4
ISTM283CC	Cyber Competition	3
	Credits	**14**
Fifth Quarter		
Winter		
CIS284S	Preparation for Security+	4
ISTM283B	Firewall Implementation	3
ISTM283CO	Cyber Operations	3
ISTM284E	Ethical Hacking	3
Select one programming elective from the following:		3-4
CIS125GA	Beginning Game Programming	
CIS197CSP	Web Authoring: Client-Side Programming (offered only in fall)	
CS161	Computer Science I	
ISTM235MA	Mobile Apps 1: Introduction to iOS Mobile Applications Development	
	Credits	**16-17**
Sixth Quarter		
Spring		
Select a course or combination of courses from the following list to complete a minimum of 4 credits:		4
CIS297 or WE280CAA or WE280CAB or WE280CAC or WE280CAD	Capstone Project Development or Coop Ed-Computer Applications or Coop Ed-Computer Applications or Coop Ed-Computer Applications or Coop Ed-Computer Applications	
ISTM233P	Python for Cyber Security	4
ISTM283F	Practical Digital Forensics	3
MTH065 or MTH058	Beginning Algebra II (or higher) or Quantitative Reasoning I	4-6
	Credits	**15-17**
	Total Credits	**96-100**

[1] Students planning to transfer to a four-year university should take CIS297 Capstone Project Development, while those planning to enter the workforce after graduation should take WE280CAD Coop Ed-Computer Applications.

[2] While not required, students are highly encouraged to take courses over the summer to help reduce some of the larger term loads. Students should speak with a department advisor about which courses are offered in the summer.

Awarding Requirements

The following requirement(s) must be fulfilled to be awarded the AAS in Cybersecurity: Networking and Security Operations degree:

- All program core courses (CIS, ISTM) must be completed within five (5) years of starting the program.

Career Information

Explore potential careers related to this program, including typical job roles, employment trends, and projected growth. This information can help you better understand how your education may align with future career opportunities.