

# Cybersecurity, MS—Align

The Master of Science in Cybersecurity—Align program is designed for students with a BS/BA degree from all backgrounds. During the first semester of year one, students are expected to take foundational courses in computer science fundamentals, as well as a course in data structures/discrete mathematics. During their second semester, students take coursework in object-oriented design, as well as introductions to algorithms and computer systems.

Our Master of Science in Cybersecurity combines a solid understanding of information security technology with relevant knowledge from law, the social sciences, criminology, and management. The MS program is designed for working professionals and also recent graduates who want knowledge they can apply in workplaces to assess and manage information security risks effectively.

The cybersecurity program provides graduates with both the theoretical and experimental skills to perform professional cybersecurity duties. Due to the broad variety of positions that cybersecurity professionals may hold in the industry, our curriculum is designed to provide enough flexibility to our students to tailor their own careers appropriately.

The cybersecurity curriculum is intended to provide a comprehensive approach to cybersecurity, which includes both the technical skills and the contextual understanding that are fundamental to cybersecurity professions.

## Concentration in Criminology

Cybercrime has evolved into more advanced techniques and sophisticated structures. Cybersecurity professionals are of vital importance in crime investigations, and for that reason, they need to have a well-rounded background and knowledge. The Master of Science in Cybersecurity provides an interdisciplinary foundation that includes computer science technical courses, complemented with the contextual knowledge courses required for a proper holistic approach to cybercrime. The optional concentration in criminology and criminal justice will offer MSCY students an opportunity to obtain the fundamental principles and the most important practices that criminal justice professionals use.

## Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

### Align Bridge Coursework

A grade of B or higher is required in each course.

Code	Title	Hours
<b>Fundamentals</b>		
CS 5001 and CS 5003	Intensive Foundations of Computer Science and Recitation for CS 5001	4
<b>Discrete Structures</b>		
CS 5002	Discrete Structures	4
<b>Cybersecurity</b>		
CY 5001	Cyberspace Technology and Applications	4
<b>Additional Align Courses</b>		
CS 5008 and CS 5009	Data Structures, Algorithms, and Their Applications within Computer Systems and Recitation for CS 5008	4

## Core Requirements

Code	Title	Hours
<b>Foundations</b>		
CY 5010	Foundations of Information Assurance	4
<b>Technical Track</b>		
Complete 8 semester hours from the following:		8
CY 5120	Applied Cryptography	
CY 5130	Computer System Security	
CY 5150	Network Security Practices	
CY 5770	Software Vulnerabilities and Security	
CY 6740	Network Security	
CY 6760	Wireless and Mobile Systems Security	
<b>Contextual Track</b>		
Complete 8 semester hours from the following:		8
CY 5200	Security Risk Management and Assessment	

CY 5210	Information System Forensics	
CY 5240	Cyberlaw: Privacy, Ethics, and Digital Rights	
CY 5250	Decision Making for Critical Infrastructure	
CY 6200	Special Topics in IT Security Governance, Risk, and Compliance	
CY 6240	Special Topics in Privacy Law	
<b>Capstone</b>		
CY 7900	Capstone Project	4

## Electives

Code	Title	Hours
Complete 4 semester hours from the following:		
CRIM 6200	Criminology	4
CRIM 6202	The Criminal Justice Process	
CRIM 6262	Evidence-Based Crime Policy	
CS 5200	Database Management Systems	
CS 5500	Foundations of Software Engineering	
CS 5600	Computer Systems	
CS 5610	Web Development	
CS 5700	Fundamentals of Computer Networking	
CS 6710	Wireless Network	
CS 7580	Special Topics in Software Engineering	
CS 7805	Complexity Theory	
CY 5061	Cloud Security	
CY 5062	Introduction to IoT Security	
CY 5120	Applied Cryptography	
CY 5130	Computer System Security	
CY 5150	Network Security Practices	
CY 5200	Security Risk Management and Assessment	
CY 5210	Information System Forensics	
CY 5240	Cyberlaw: Privacy, Ethics, and Digital Rights	
CY 5770	Software Vulnerabilities and Security	
CY 6200	Special Topics in IT Security Governance, Risk, and Compliance	
CY 6240	Special Topics in Privacy Law	
CY 6720	Machine Learning in Cybersecurity and Privacy	
CY 6740	Network Security	
CY 6750	Cryptography and Communications Security	
CY 6760	Wireless and Mobile Systems Security	
POLS 7341	Security and Resilience Policy	
PPUA 6503	Managing People in Public and Nonprofit Sectors	

## Concentration in Criminology

This optional concentration's required courses may count toward the contextual track, and its elective may count toward the major's elective area.

Code	Title	Hours
<b>Required</b>		
CRIM 6200	Criminology	4
CRIM 6202	The Criminal Justice Process	4
Complete one of the following:		
CRIM 6262	Evidence-Based Crime Policy	4
CY 5250	Decision Making for Critical Infrastructure	
CRIM elective <sup>1</sup>		

## Program Credit/GPA Requirements

36–44 total semester hours required

Minimum 3.000 GPA required

<sup>1</sup> CRIM elective to be approved by director/associate director of MSCY.