



Merritt Cybersecurity - CodePath Certificate (pending)

CCC Major or Area of Emphasis: Cybersecurity

UC/CSU Major or Majors: Cybersecurity

Award Type: Certificate of Achievement units 22 units

This certificate indicates completion of CodePath; a group of interactive scenarios that enables computer security professionals to hone their skills, gain vital experience, and demonstrate the Knowledge Skills and Abilities (KSA) used to identify candidates for recruitment into Information Security (InfoSec) Careers. Aligned with ethical hacking scenarios, these interactive labs present industry-applicable real-world projects for students solve. These projects cover the full spectrum of cyber issues.

| | | |
|--------------|---|---|
| CIS 005 or | Introduction to Computer Science | 5 |
| CIS 006 and | Introduction to Computer Programming | 5 |
| CIS 071 or | Introduction to Information Systems Security | 3 |
| CIS 072 and | Systems and Network Administration | 3 |
| MATH 230 and | Elementary and Intermediate Algebra for Business or STEM majors | 6 |
| CIS 055 and | Hacker Techniques, Exploits & Incident Handling | 3 |
| CIS 060 | Computer Forensics Fundamentals | 3 |

CodePath Courses

Credit Hours: (1 Required)

| | | |
|------------|--|---|
| CIS 221 or | Cyber Safety, Online Identity, and Computer Literacy | 1 |
| CIS 205 | Computer Literacy | 1 |

Practicum or Occupational Work Experience *

Credit Hours: (1 Required)

| | | |
|------------|--------------------------------------|---|
| CIS 225 or | Information Systems Skills Challenge | 1 |
|------------|--------------------------------------|---|

**National Cyber League (NCL) season competition required as part of CIS 225*

Cybersecurity – CodePath Recommended Sequence of Preparatory Courses

1. CIS 005, 006, or 007 - Intro. Comp Sci., Intro Programming, Control Struct. & Objects

Pathway Skill #1 – Scripting & Programming fundamentals

The ability to identify scriptable processes, create correct designs, and execute implementation with minimal acceptable defects. The ability to Interpret a specification and explain design concepts through design statements expressed in naive human readable language. Implementation handles unexpected run-time conditions.

2. CIS 071 or 072 Intro. to Info. Sys. Security, Systems and Network Administration

Pathway Skill #2 – Understanding System Security; Implement or Defeat

Fundamental principles of Information Technology, Security and Risk Management: Hardware, software, processes, communications, applications, and policies and procedures of organizational cyber security and risk management. Design, development and support of server hardware and software technologies: Disaster recovery and security administration.

3. CIS 055 Hacker Techniques, Exploits & Incident Handling

Pathway Skill #3 Red Team/Blue Team Defense, Penetration, Capture The Flag (CTF)

Cutting-edge insidious attack vectors: Responding to computer incidents and hands-on techniques for discovering security vulnerabilities.

4. MATH 230 Elementary and Intermediate Algebra for Business or STEM majors

Pathway Skill #4: Use of Functions, Graphs, and Rational Expressions

A combined course in algebra: Systems of equations: inequalities, graphs and functions; radicals, quadratic polynomials, rational expressions; exponential and logarithmic functions, and problem solving. Applied to Cybersecurity through the use of mathematical functions to provide Authentication and Authorization (Auth/Auth). Project based instruction in the use of hash functions to identify tampering and maintain system integrity, the use of cryptographic functions to encrypt and decrypt data before transmittal or storage on a device, best practices in the use of Cryptographic frameworks, algorithms and third party libraries.

5. CIS 060 Computer Forensics Fundamentals

Pathway Skill #5 – Discover and Analyze System Artifacts and Related Activities

Overview of computer forensics: Computer investigation processes; operating systems boot processes and disk structures; data acquisition and analysis; technical writing; review of computer forensics tools; ethics; and objectives of International Association of Computer Investigative Specialists (IACIS) certification.

6. CIS 221 Information Systems Skills Challenge (CodePath Cybersecurity Practicum)

Hands-on demonstration of integrated skills

Laboratory: Complete a set of exercises using the CodePath Cybersecurity Course Portal

7. CIS 225 Information Systems Skills Challenge - National Cyber League (NCL)

Laboratory: Complete one season of NCL competition