# CYBERSECURITY MASTER OF SCIENCE

## Leading to a Master of Science Degree in Cybersecurity

Security professionals' functions change along with the threat landscape in cyber security. The duties of chief information security officers (CISOs) and chief security officers (CSOs) are growing. It's becoming clear to other professionals—like security analysts and engineers—that they need to learn more about collaborating with different company departments. Newer positions like incident responder and malware analyst are emerging to better tackle threats. A broader range of expertise and abilities unites all of these difficulties. Our MS in Cybersecurity program will prepare you for a cybersecurity and digital forensics career.
The program will equip students to compete in today's competitive employment market, start earning a good salary, and progress their careers in one of the fastest expanding sectors.

## Program Educational Outcomes

The program educational outcomes for the Master of Science in Cybersecurity Analytics that align with the listed graduate student learning outcomes developed by the Office of Institutional Effectiveness are as follows:

- Apply predictive and probabilistic approaches to assess cyberrisk
- Design data-driven solutions that integrate cybersecurity concepts from the design phase through implementation
- Identify critical cybersecurity issues across different domains or industries
- Analyze and evaluate systems with respect to maintaining operations in the presence of risks and threats

## Student Outcomes

Wentworth published the following graduate student learning outcomes developed by the Office of Institutional Effectiveness in The Wentworth Model. Our graduate students will be able to demonstrate their mastery of these skills through the coursework required in the programs. The mapping of the Learning Outcomes to coursework will be as follows:

- Core Knowledge: advanced knowledge in a specialized area consistent with the focus of their graduate program, including critical thinking and problem-solving.
- Scholarly Communication: advanced proficiency in written and oral communication, appropriate to purpose and audience.
- Professionalism: advanced intellectual and organizational skills of professional practice, including ethical conduct.
- Research Methods and Analysis: quantitative and qualitative skills in the use of data gathering methods and analytical techniques used in typical research that is consistent with the focus of their graduate program.

### 4+1 Program (32 Credits)

**Senior Year**

| **Spring Semester** | **Credits** |
|---|---|
| COMPXXXX - INVESTIGATING WINDOWS ENDPOINTS | 4 |
| **Credits** | **4** |
| **Summer Semester** | |
| COMPXXXX - WINDOWS MEMORY INVESTIGATION | 4 |
| **Credits** | **4** |

**Year One**

| **Fall Semester** | | |
|---|---|---|
| COMP5600 | FOUNDATIONS OF CYBERSECURITY | 3 |
| TECHNICAL PROJECT DEVELOPMENT | | 3 |
| ELECTIVE | | 3 |
| ELECTIVE | | 3 |
| **Credits** | | **12** |
| **Spring Semester** | | |
| COMP6500 | ADVANCED NETWORK SECURITY | 3 |
| COMP6580 | DIGITAL FORENSICS AND INCIDENT RESPONSE | 3 |
| ELECTIVE | | 3 |
| ELECTIVE or CAPSTONE or THESIS | | 3 |
| **Credits** | | **12** |
| **Total Credits** | | **32** |

### One-Year Program (30 Credits)

**Year One**

| **Fall Semester** | | **Credits** |
|---|---|---|
| COMP5600 | FOUNDATIONS OF CYBERSECURITY | 3 |
| COMP6999 | TECHNICAL PROJECTS DEVELOPMENT | 3 |
| ELECTIVE | | 3 |
| **Credits** | | **9** |
| **Spring Semester** | | |
| COMP6500 | ADVANCED NETWORK SECURITY | 3 |
| COMP6580 | DIGITAL FORENSICS AND INCIDENT RESPONSE | 3 |
| ELECTIVE | | 3 |
| ELECTIVE | | 3 |
| **Credits** | | **12** |
| **Summer Semester** | | |
| ELECTIVE | | 3 |
| ELECTIVE | | 3 |
| DATA6999 or COMP7600 | CAPSTONE or THESIS | 3 |
| **Credits** | | **9** |
| **Total Credits** | | **30** |

### Two-Year program (30 credits)

**Year One**

| **Fall Semester** | | **Credits** |
|---|---|---|
| COMP5600 | FOUNDATIONS OF CYBERSECURITY | 3 |
| COMP6999 | TECHNICAL PROJECTS DEVELOPMENT | 3 |
| **Credits** | | **6** |
| **Spring Semester** | | |
| ADVANCED NETWORK SECURITY | | 3 |
| DIGITAL FORENSICS & INCIDENT RESPONSE | | 3 |
| **Credits** | | **6** |
| **Summer Semester** | | |
| ELECTIVE | | 3 |

| | | |
|---|---|---|
| ELECTIVE | | 3 |
| | **Credits** | **6** |
| **Year Two** | | |
| **Fall Semester** | | |
| ELECTIVE | | 3 |
| ELECTIVE | | 3 |
| | **Credits** | **6** |
| **Spring Semester** | | |
| ELECTIVE | | 3 |
| ELECTIVE or CAPSTONE or THESIS | | 3 |
| DATA6999<br>or COMP7600 | CAPSTONE<br>or THESIS | 3 |
| | **Credits** | **9** |
| | **Total Credits** | **33** |

## Electives

| Course | Title | Credits |
|---|---|---|
| COMP5725 | Applications of Cryptography | 3 |
| COMP6520 | MALWARE ANALYSIS | 3 |
| COMP6000 | INTRUSION DETECTION AND PREVENTION SYSTEM | 3 |
| COMP6420 | REVERSE ENGINEERING | 3 |
| COMP6100 | SECURE SOFTWARE DEVELOPMENT | 3 |
| COMP6550 | THREAT INTELLIGENCE | 3 |
| COMP5555 | Computer and Network Security | 3 |
| **Potential Electives** | | |
| MODERN CRYPTOGRAPHY | | 3 |
| LANGUAGE-BASED SOFTWARE SECURITY | | 3 |
| DEVOPS SOFTWARE SECURITY | | 3 |
| DATA PRIVACY AND SECURITY | | 3 |
| FILE SYSTEM FORENSICS | | 3 |
| IOT SECURITY | | 3 |