# CYBERSECURITY (MS)

The MS in Cybersecurity is intended for students who wish to specialize in the security aspects of Information Technology. Students will learn how to design, implement and maintain software systems designed to support security policy and network architecture consistent with mitigating risk and preventing hostile attacks.

## Concentrations

### Artificial Intelligence Engineering Concentration

The Artificial Intelligence (AI) Engineering concentration provides students with foundational knowledge and expertise in both Artificial Intelligence (AI) and Cybersecurity and trains students on cutting-edge AI developments in the domain of Cybersecurity. This program is uniquely crafted to cover foundational concepts in AI, as it applies to social engineering, secure software development, AI-assisted network hardening, and next-generation multi-agent cybersecurity challenges. The program will allow professionals to develop and employ modern AI tools to help solve cybersecurity challenges, protect infrastructure, detect malware and bad actors as well as assist cybersecurity responses and investigations. It will also equip future cybersecurity and AI engineers to develop robust adversarial tests of detection, protection, and predictive modeling of future cybersecurity threats.

### Computer Security Concentration

The Computer Security concentration focuses on fundamental security topics that arise in the design, analysis, and implementation of distributed systems. This concentration provides in-depth coverage of the theory and application of identity, authentication, access control, auditing, assessment & prevention of software vulnerabilities, and cryptography, in the context of modern enterprise-scale & web-based systems.

### Governance, Risk Management and Compliance Concentration

The Governance, Risk Management, and Compliance concentration focuses on enterprise-level information security risk management, IT audit, and regulatory compliance. This cross-disciplinary concentration focuses on how to:

- develop an information security program;
- assess security risk in business processes;
- identify and implement a system of controls for security governance and regulatory compliance;
- plan and conduct IT audits; and
- develop business continuity and disaster recovery plans.

### Networking and Infrastructure Concentration

The Networking and Infrastructure concentration focuses on the network infrastructure and network security management aspects of information security. This concentration will provide in-depth coverage of network security infrastructure technologies such as firewalls, Virtual Private Networks (VPN), Intrusion Detection and Prevention Systems (IDS/IPS), vulnerability assessment tools, as well as overall security infrastructure engineering and design.

| Program Requirements | Quarter Hours |
|---|---|
| Introductory Courses | 0-24 |
| Degree Requirements | 48 |
| **Total hours required** | **48-72** |

## Learning Outcomes

Students will be able to:

- Identify the information security services provided by "Confidentiality," "Integrity," and "Availability" (CIA).
- Develop a security awareness program adapted to the different stakeholder of an enterprise.
- Evaluate sets of security controls to enforce security policies.
- Select appropriate tools and methods to conduct a proper incident response and forensic investigation in an enterprise environment.

## Degree Requirements

### Course Requirements

No Introductory Course may be substituted for any other course at any level.

The Introductory, Foundation, Advanced and Major Elective course selections are determined by the concentration chosen.

### Introductory Courses

Introductory courses may be waived for any of the following conditions:

- The student has the appropriate course work to satisfy an Introductory Course.
- The student has appropriate and verified professional experience to satisfy an Introductory Course.
- If an exam is available, the student passes a Graduate Assessment Examination (GAE) in the Introductory Course area.

### Foundation Courses

Students must achieve an average GPA of 3.0 or better in the five Foundation Courses. Students who do not meet the Foundation Courses' GPA requirement must retake the course with the lowest grade. If a number of such courses exist, it is up to the student to choose which class to retake. Only the higher grade will count toward the average grade for the purpose of completing the GPA Requirement. Students who do not meet the GPA requirements are encouraged to talk to their faculty advisor to discuss their options. To progress to the Advanced Courses of the degree, a student must complete the Introductory and Foundation Courses.

### Degree Requirements

Students in this degree program must meet the following requirements:

- Complete a minimum of 48 graduate credit hours in addition to any required introductory courses of the designated degree program.
- Complete all graduate courses and requirements listed in the designated degree program.
- Earn a grade of C- or better in all courses of the designated degree program.
- Achieve a GPA of 3.0 or better among the five foundation courses.
- Maintain a cumulative GPA of 2.5 or higher.
- Students pursuing a second (or more) graduate degree may not double count or retake any course that applied toward the completion

of a prior graduate degree. If a required course in the second degree was already completed and applied toward a previous degree, the student must meet with a faculty advisor to discuss a new course to be completed and substituted in the new degree. This rule also applies to cross-listed courses, which are considered to be the same course but offered under different subjects.

- Students pursuing a second master's degree must complete a minimum of 48 graduate credit hours beyond their first designated degree program in addition to any required introductory courses in their second designated degree program.

Students with a GPA of 3.9 or higher will graduate with distinction.

## Concentration Requirements

Concentrations, tracks and specializations provide focus to the degree. In addition to any degree requirements, students are required to choose one of the following:

- Artificial Intelligence Engineering Concentration, Cybersecurity (MS) (https://catalog.depaul.edu/programs/cybersecurity-ms/artificial-intelligence-engineering-concentration-cybersecurity-ms/)
- Computer Security Concentration, Cybersecurity (MS) (https://catalog.depaul.edu/programs/cybersecurity-ms/computer-security-concentration-cybersecurity-ms/)
- Governance, Risk Management and Compliance Concentration, Cybersecurity (MS) (https://catalog.depaul.edu/programs/cybersecurity-ms/governance-risk-management-compliance-concentration-cybersecurity-ms/)
- Networking and Infrastructure Concentration, Cybersecurity (MS) (https://catalog.depaul.edu/programs/cybersecurity-ms/networking-infrastructure-concentration-cybersecurity-ms/)