Cyber Defense and Information Assurance, P.S.M.

COLLEGE OF SCIENCE AND TECHNOLOGY (http://cst.temple.edu)

About the Program

As our physical and digital worlds become more deeply interwoven, a web of interdependence is increasingly fading away the distinction between physical and cyberspace infrastructures. One consequence is that citizens are rendered extremely vulnerable to threats against our cyberinfrastructure by cybercriminals who can inflict crippling blows to pockets of society or even the entire nation. With projections that the dearth of a global information security workforce will reach a staggering 1.5 million by 2021, the federal government has expressed its support to meet this urgent need.

In designing the Professional Science Master's (P.S.M.) program in Cyber Defense and Information Assurance (CyberDIA), the dynamic and cross-cutting nature of the current and continuously evolving cyberspace and the barrage of ever-increasing and never-ceasing threats it faces was addressed. The program is designed for aspiring technical professionals at all career levels – entry-level, mid-career, and senior executives – who want to equip themselves with skills necessary to protect their organization and the nation from increasing cyberthreats. The multidisciplinary program design borrows knowledge, skills, and expertise from different academic disciplines, including business, computer and information sciences, electrical and computer engineering, and law. The key focus is on a holistic cybersecurity framework, i.e., one that is built around the core principles of preventive, detective, and corrective security mechanisms. While the CyberDIA curriculum is technology intensive, focusing on network security and digital forensics, it also bridges the ever-increasing gap between cybersecurity technology and cybersecurity policies.

Time Limit for Degree Completion: 2 years

Campus Location: Main

Full-Time/Part-Time Status: The degree program can be completed on a full- or part-time basis. Most of the classes are offered in the evenings or on weekends to enable full-time working professionals to be enrolled in the program. International students are required to register as full-time students.

Interdisciplinary Study: The CyberDIA curriculum addresses four core knowledge areas:

- Technology (60%)
- Laws, regulations, and governance (15%)
- Policies, procedures, and compliance (15%)
- Leadership and ethics (10%)

Accreditation: Temple University is fully accredited by the Middle States Commission on Higher Education.

Job Prospects: Official job placement is not offered, but prospects are excellent given the projected dearth in "Infosec" professionals. Positions include:

- Computer Security Forensic Investigator
- Cybersecurity Systems Engineer
- Information Security Officer
- IT Network Security Penetration Tester
- Security Analyst/Cybersecurity Analyst

Licensure: Successful completion of the CyberDIA P.S.M. program equips students with the necessary knowledge, skills, and tools to appear for the following professional certifications:

- Certified Ethical Hacker (CEH) offered by EC-Council
- Certified Information Systems Security Professional (CISSP®) offered by (ISC)^2
- Computer Hacking Forensic Investigator (CHFI) offered by EC-Council

Non-Matriculated Student Policy: Non-matriculated students may enroll in a total of three courses (9 credits) with permission of the instructor and the Department of Computer and Information Sciences.

Financing Opportunities: Financial assistance in the form of Research or Teaching Assistantships is not offered.

Admission Requirements and Deadlines

Application Deadline:

Fall: March 1; December 15 international

Spring: Open only to non-matriculated students who successfully completed P.S.M. coursework in the Fall term
Late applications may be considered for admission.

**APPLY ONLINE to this graduate program.**

**Letters of Reference:**

*Number Required:* 3

*From Whom:* Letters should be obtained from college/university faculty or faculty who are familiar with the applicant’s competency. If the applicant has an established career in the field, the applicant’s immediate supervisor should provide one of the letters.

**Coursework Required for Admission Consideration:** Applicants should have a strong background in one or more STEM fields: Science, Technology, Engineering, and Mathematics. The following prerequisites must also be met:

- a course in data structures, such as Temple’s CIS 2168, and
- a course in computer architecture, operating systems, and networking, such as Temple’s CIS 2229.

**Bachelor’s Degree in Discipline/Related Discipline:** The CyberDIA P.S.M. program has been designed for recent graduates and professionals who have a bachelor’s degree or equivalent in a STEM field.

**Statement of Goals:** Approximately 250 to 500 words include your interest in Temple’s program, your research goals, and your academic and research achievements.

**Standardized Test Scores:**

**GRE:** Required. A combined minimum score of 300 on the quantitative and verbal reasoning sections of the new test is expected.

For applicants whose native language is not English, the TOEFL, IELTS, or PTE Academic exam is required:

- TOEFL: 85 iBT or 563 PBT minimum
- IELTS: 7.0 minimum
- PTE Academic: 53 minimum

**Interview:** An in-person or SKYPE interview with the Program Director or members of the CyberDIA P.S.M. Steering Committee is required.

**Transfer Credit:** Graduate credits from an accredited institution may be transferred into the CyberDIA P.S.M. program. The credits must be equivalent to coursework offered by the Department of Computer and Information Sciences at Temple University. A grade of “B” or better must have been earned for the credits to transfer. The CyberDIA P.S.M. Steering Committee makes recommendations to the Department Chair for transferring credit on an individual basis. The maximum number of credits a student may transfer is 6.

**Program Requirements**

**General Program Requirements:**

*Number of Credits Required Beyond the Baccalaureate:* 30

**Required Courses:**

<table>
<thead>
<tr>
<th>Core Courses</th>
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<tbody>
<tr>
<td>CIS 5003</td>
<td>Networking &amp; Operating Systems</td>
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<tr>
<td>CIS 5107</td>
<td>Comp Systems Security &amp; Privacy</td>
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<tr>
<td>CIS 5405</td>
<td>3</td>
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<tr>
<td>CIS 5415</td>
<td>3</td>
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<tr>
<td>CIS 5425</td>
<td>3</td>
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**Electives**

Select four courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CIS 5210</td>
<td>Seminar in Information Science and Technology 1</td>
</tr>
<tr>
<td>CIS 5637</td>
<td>Network &amp; Information Security</td>
</tr>
<tr>
<td>CIS 9182</td>
<td>Independent Study 1</td>
</tr>
<tr>
<td>CIS 9282</td>
<td>Independent Study 1</td>
</tr>
<tr>
<td>ECE 5528</td>
<td>Introduction to Cryptography and Information Security</td>
</tr>
<tr>
<td>JUDO 0433</td>
<td>Cyberspace</td>
</tr>
<tr>
<td>JUDO 0478</td>
<td>Cyberprivacy Law</td>
</tr>
<tr>
<td>MIS 5211</td>
<td>Introduction to Ethical Hacking</td>
</tr>
</tbody>
</table>
Capstone Course
CIS XXXX

Total Credit Hours

1 Course requires prior approval from the Program Director and CyberDIA P.S.M. Steering Committee. To receive approval, the student must satisfactorily document in writing the potential impact the course can have on the student's professional career and why other electives cannot meet the need.

Additional Requirements: All graduate-level courses must be passed with a "B-" or better.

Culminating Events:
Capstone Project:
Each student is given a real security problem. Phase 1 relates to compliance: identifying how the security problem affects the organization and which regulations/standards are to be considered. Phase 2 is the technical piece: identifying network and application vulnerabilities; performing forensics (chain of custody); and documenting findings. In Phase 3, all findings from Phases 1 and 2 are presented to the executive body of the affected organization and the faculty mentor(s).

Contacts
Program Web Address:
https://cis.temple.edu/PSMCyberDefense

Department Information:
Dept. of Computer and Information Sciences
313 Science and Education Research Center
1925 N. 12th Street
Philadelphia, PA 19122-1801
CyberDIA@temple.edu
215-204-8450

Mailing Address for Application Materials:
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313 SERC (035-10)
1925 N. 12th Street
Philadelphia, PA 19122-1801

Mailing Address for Application Materials from International Applicants:
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