

**Carnegie Mellon University**  
**HeinzCollege**

**INFORMATION SYSTEMS • PUBLIC POLICY • MANAGEMENT**

Student  
Handbook

2017 – 2018

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Master of Science in  
Information Security Policy  
and Management (MSISPM)

Updated June 13, 2017

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# 1 MASTER OF SCIENCE IN INFORMATION SECURITY POLICY AND MANAGEMENT (MSISPM) CURRICULUM

Students will normally complete the MSISPM program in four semesters. The MSISPM curriculum is structured with required courses, security electives, and general electives. In order to successfully complete the MSISPM program, students must complete the following:

- 192 units of course credit;
- all required courses (unless you exempt them);
- required summer internship (10 weeks / 40 hours per week)
- 30 units of security elective courses;
- 30 units of general elective courses if pursuing the capstone project option or 18 units of general electives if you choose the thesis option; and
- all other standards for graduation, including meeting a minimum grade point average of 3.0.

## 1.1 Required Courses

The following is a sample schedule with all the required courses students must complete in four academic semesters.

### ***First Semester: (Fall)***

90-812 Introduction to Python <sup>1</sup>	6 units
94-700 Organizational Design & Implementation	6 units
95-710 Economic Analysis	6 units
95-717 Writing for Information Systems Management <sup>2</sup>	6 units
95-752 Introduction to Information Security Management	12 units
95-760 Decision Making Under Uncertainty	6 units
95-796 Statistics for IT Managers	6 units

### ***Second Semester: (Spring)***

94-806 Privacy in the Digital Age <sup>3</sup>	6 units
95-718 Professional Speaking <sup>4</sup>	6 units
95-719 Accounting and Finance Foundations <sup>5</sup>	6 units
95-723 Managing Disruptive Technologies	6 units

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<sup>1</sup> Students may choose to take 95-880 (Python for Developers)

<sup>2</sup> International students may take 94-701 (Business English)

<sup>3</sup> Students may choose to take 95-818 (Privacy Policy, Technology, and Law)

<sup>4</sup> Students must complete 95-717 and 95-718 prior to the summer internship.

<sup>5</sup> Students are to take 95-719 in the spring semester. Fall offerings are reserved for other MISM programs.

95-748 Software and Security	6 units
95-758 Network and Internet Security	12 units
xx-xxx Security Electives	6 units

**Third Semester: (Fall)**

95-744 Cybersecurity Policy and Governance I	6 units
95-743 Cybersecurity Policy and Governance II	6 units
xx-xxx Security Electives	18 units
xx-xxx General Electives	18 units

**Fourth Semester: (Spring)**

95-720 <sup>6</sup> Capstone Project / Thesis	18/24 <sup>7</sup> units
95-755 Information Security Risk Management I	6 units
95-749 Cryptography	6 units
xx-xxx General Electives	12/0 units
xx-xxx Security Electives	6/0 units

During orientation week, in-coming students are provided an opportunity to take up to 3 exemption exams to demonstrate proficiency in a topic that is considered core to the MSISPM program. Upon passing an exam, a student will be granted an exemption from the class(es). A student will be required to select an alternate security or general elective course to replace the exempted course (and corresponding number of units) to reach the 192 units required for graduation. Exemption exams available to MSISPM students:

- 95-710 Economic Analysis (Does not require pre-registration)
- 95-756 Statistics for IT Managers (Does not require pre-registration)
- 95-719 Accounting and Finance Foundations (Requires pre-registration)

## 1.2 Elective Courses

Students in the MSISPM Program are required to take at least 30 units of security elective courses and at least 30 units of general electives (18 if pursuing the Thesis option). A number of courses offered by the MSISPM Program and the Heinz College will satisfy this requirement. Some of the courses are listed below. In addition, the School of Computer Science, and other Carnegie Mellon departments offer courses that may satisfy general electives requirement. Check with your advisor before registering for a course from another academic department if you wish that serve as an elective. Only graduate-level courses, those with a course number greater than 700, will satisfy the security and general elective requirements.

<sup>6</sup> Capstone requirement is satisfied by the Information Security Project or Master Thesis.

<sup>7</sup> Fall 2017, Capstone projects reduced from 24 units to 18; Thesis reduced from 36 units to 24.

### 1.2.1 (Sample) Security Electives

95-702 Distributed Systems	12 units
95-736 Advanced Relational Database Management	6 units
95-756 Information Security Risk Management II	6 units
95-757 Information Security Policy & Management	6 units
95-855 Network Situational Awareness	12 units
95-883 Ethical Penetration Testing	6 units
95-884 Network Defenses	6 units
95-889 Applied Threat Analytics	12 Units

### 1.2.2 (Sample) General Electives

94-800 Negotiation	6 units
94-801 Acting for Management	6 units
94-802 Geographic Information Systems	12 units
94-823 Measurement & Analysis Social Media Initiatives	12 units
94-832 Business Intelligence & Data Mining SAS	6 units
94-840 Lean Entrepreneurship	6 units
95-702 Distributed Systems for IS Management	12 units
95-703 Database Management	12 units
95-705 Telecommunications Management	12 units
95-712 Object Oriented Programming in JAVA	12 units
95-722 Digital Transformation	6 units
95-729 E-Commerce Tech, Analytics, and Bots	6 units
95-733 Internet of Things	6 units
95-737 NoSQL Database Management	6 units
95-771 Data Structures and Algorithms	12 units
95-775 IT Business Leadership	6 units
95-791 Data Mining	6 units
95-797 Data Warehousing	6 units
95-799 Linux and Open Source	6 units
95-808 IT Project Management	6 units
95-818 Privacy, Policy Law & Technology	12 units
95-859 Innovation & Technology	6 units
95-869 Big Data and Large-scale Computing	6 units

## 2 INTERNSHIP REQUIREMENT

MSISPM students are required to pursue an internship, to be completed during the summer between their first and second years. Minimally, the internship is ten weeks (280 hours) of full-

time employment that has formal supervision, is professional in nature, includes work that is of importance to the organization, and has significant educational value.

Before beginning the internship, students must complete the online [Career Services Internship Reporting Form](#) for approval.

The internship will be verified with the students' supervisors and then approved. Students must notify their Academic Advisor and Heinz Career Services of any significant changes in their internships, such as length, location, hours of work, etc.

Once the internship has been approved, students will be registered for the internship course. The internship will be reflected on the transcript as a course with Pass/Fail grade. If a student plans to exempt<sup>8</sup> the internship, they will need to complete the [Petition for Course Exemption](#) form. Near the end of the internship, the Career Services Office will request supervisors to complete a Student Performance Evaluation Form.

Students are required to complete 95-717 Writing for Information Systems Management and 95-718 Professional Speaking prior to enrolling in the internship.

**F1 Visa Students:** You must apply for Curricular Practical Training (CPT) employment authorization for your summer internship. CPT authorization is required regardless of the internship being paid or unpaid. CPT is only available to F-1 students who have not graduated and who have been enrolled on a full-time basis for one full academic year (i.e. fall and spring.) If your degree program requires you to complete a summer internship, you can qualify for CPT. Processing CPT may take up to 2 weeks and you cannot begin employment until you receive authorization. Guidelines, forms and instructions can be found at the [Office of International Education's website](#).

## 2.1 Securing an Internship

Students are responsible for securing a suitable internship. Career Services will provide assistance through counseling, workshops on resume preparation and interview skills, and listings of potential internships. Students can make an appointment to discuss their situation and are encouraged to come to workshops that cover the essential skills for finding the right internship.

## 3 PROJECT / THESIS

The ***MSISPM Project*** or ***Thesis*** is designed to capture the essence of knowledge gained by the students from the coursework and apply it towards research or new application initiatives. The project or thesis should be on a topic in an area of research or application that is interesting and

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<sup>8</sup> A (possible) reason for exemption is when a student is on a sabbatical from an organization to pursue a master's degree and they will return to that organization after graduation.

relevant to information security. Research may include working on existing projects, designing new areas of research, or assisting faculty with their current research.

A **MSISPM Project** will consist of a group of 4 or more students working on a security related problem. Projects are held during the final semester of study and are subject to approval from the Associate Dean and Program Director. Students can work with:

- A Carnegie Mellon faculty member on his/her research interests related to security
- A vendor of security related products sponsored /advised by a faculty member
- Or, an outside firm be it consulting, government or any other organization working on a security related problem sponsored/advised by a faculty member

A **MSISPM Thesis** will consist of a student working by himself/herself on research related topics with sponsorship from a Carnegie Mellon faculty member. A thesis can be taken during the Fall, Spring, or Summer semesters. It is the responsibility of the student to complete required paperwork, receive approval of thesis topic, and obtain a faculty advisor.

#### 4 **NUMBER OF UNITS PER SEMESTER**

Students typically take between 48 – 54 units per semester, with a maximum of 54 units per semester. If students are interested in taking an excess of 54 units, then they need to petition the Program Director by completing the Online General Petition Form.

#### 5 **SUMMER COURSES**

Students who are completing their internship in Pittsburgh during the summer semester are permitted to take one, in-person (non-distance) Heinz College course, either 6 units or 12 units. Prior to enrolling in the course, please obtain approval from the Program Director, and after enrollment, please inform the Program Director to ensure proper crediting of your student bill for the summer tuition. There is no additional cost to take the one course during the summer semester.

#### 6 **ACADEMIC POLICIES**

##### 6.1 Adding / Dropping Courses

Students may choose to add or drop a course after the beginning of the semester. Please note that the add/drop deadline for mini courses (6 units) is 5 days after the beginning of the semester and 10 days after the beginning of the semester for a full-semester (12 units) course. You must obtain approval from your faculty advisor prior to adding or dropping a core course for the MSISPM program. Additions or dropping of classes after the posted deadlines must be approved by the program director and are generally not permitted except under extenuating circumstances. A General Petition Form (Count course as selective, late add/drop a course, increase in units) is available on the Heinz Website.

## 6.2 Independent Study

Twelve (12) units of an independent study that will count towards the 192 units required for graduation are permitted, but must be approved by the program director prior to enrolling. It is the responsibility of the student to identify a faculty member to supervise the independent study and submit an Independent Study Contract, available on the Heinz Website.

## 6.3 Pass / Fail

Twelve (12) units of courses may be taken with a grading option of Pass / Fail that may count towards the 192 units required for graduation. These courses will not impact the QPA of the student and ONLY elective courses are eligible. A separate request is to be made for each course by completing the "Request for P/F" form to be reviewed and approved by the program director. Failure to submit the P/F form will result in the course being taken for a grade rather than P/F. It is suggested that students consider taking P/F courses during their busiest semester.

## 6.4 Audits

Students are permitted to audit courses and any non-core or elective course is eligible. Courses that are taken with the audit option do not count towards the 192 units required to graduate and require approval from the course instructor. Students must request approval from the program director by completing the "Petition to Audit a Heinz College Course" form. Failure to obtain approval from the course instructor and program director will result in the course being taken with a grade option. Courses approved for audit will not affect a student's QPA.

## 6.5 Receiving an Incomplete

If extenuating circumstances beyond a student's control prevent them from completing all requirements for a course by the end of the semester, a student may ask the instructor for permission to take an incomplete and complete the work after the semester. Students should submit a signed contract **BEFORE** the end of the semester and must complete the work by the end of the following semester. Failure to do so will result in the student receiving the default grade for the course.

## 6.6 Course Approval for non-ISM Courses

Students may take courses elsewhere on campus as elective courses (security or general) but may not request that a non-Heinz course replace any of the core-MSISPM courses. Students must obtain approval from the program director prior to registering for the course by completing and submitting the "General Petition Form". Most, but not all, graduate courses will be approved, provided the course meets the criteria for a security or general elective.

## 7 CONTACT INFORMATION

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