Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (http://gradschool.psu.edu/prospective-students/how-to-apply/). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (http://gradschool.psu.edu/graduate-education-policies/).

Master of Professional Studies (M.P.S.)

Applicants to the M.P.S. program are required to submit three letters of reference, and a one-three page personal statement of relevant experience and goals.
Degree Requirements

Master of Professional Studies (M.P.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-700 Professional Degree Policies (http://gradschool.psu.edu/graduate-education-policies/).

The M.P.S. program requires a minimum of 33 credits, 24 of which must be earned at Penn State. A maximum of 9 transfer credits of high-quality graduate work may be applied toward the requirements for the degree, subject to restrictions outlined in GCAC-309 Transfer Credit (http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-309-transfer-credit/). At least 18 credits must be courses at the 500 or 800 level, with at least 6 credits at the 500 level.

The 33 credits are distributed among the following requirements. A student first takes 21 credits of core courses. The student then takes 9 credits of electives. Lastly, the student must complete a master's project guided by the student's advisor and completed while enrolled in IST 594.

Elective Courses

The elective courses for the M.P.S. will be selected from a list maintained by the program office.

Master's Project

The project requires all students in the M.P.S. to focus on a well-defined issue or problem relevant to the information sciences and technology. The student will submit a research proposal to his/her faculty advisor for approval. Upon completion of the project, the student will share or present the project results at a final presentation as a component of IST 594.

Electives

Choose 9-12 Credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 543</td>
<td>Foundations of Software Security</td>
<td>3</td>
</tr>
<tr>
<td>IST 554</td>
<td>Network Management and Security</td>
<td>3</td>
</tr>
<tr>
<td>IST 815</td>
<td>Foundations of Information Security and Assurance</td>
<td>3</td>
</tr>
<tr>
<td>INSC 561</td>
<td>Web Security and Privacy</td>
<td>3</td>
</tr>
</tbody>
</table>

These 30 credits are distributed among the following requirements:

Culminating Experience

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 594</td>
<td>Research Topics (Master's Project)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 33

Master of Science (M.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (http://gradschool.psu.edu/graduate-education-policies/)

The M.S. in Cybersecurity Analytics and Operations requires a minimum of 30 credits at the 400, 500, 600, or 800 level, with at least 18 credits in the 500 or 600 series combined; 27 of the 30 credits must be earned at Penn State. Students will be able to complete the proposed Master's program in one calendar year (including summer) or two academic years. All of the courses listed below are three credit hour courses, unless otherwise noted. Students pursuing the one-year format must complete the non-thesis track (IST 594). In addition, the one-year M.S. track must adhere to the following conditions:

- Students must take at least one credit of research (IST 594) for each of the three semesters (Fall, Spring, and Summer).
- A research advisor must be assigned to students in their first semester, as selection and discussion of the student's research topic must begin as soon as possible.
- Students who need more time to complete the final paper must be allowed to complete the paper, and have it reviewed and approved after the third semester (Summer) has ended. Students are not required to remain in residence while they complete the final paper. However, extensions granted to students in this program must comply with the Graduate Council policy on deferred grades (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-400/gcac-401-grading-system/).

These 30 credits are distributed among the following requirements:

Culminating Experience

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 594</td>
<td>Research Topics (Scholarly Paper)</td>
<td>3-6</td>
</tr>
<tr>
<td>IST 600</td>
<td>Thesis Research</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 30

Students can choose to complete a thesis or a scholarly paper as the culminating experience for the degree. Students who choose to complete a thesis must complete at least 6 credits in thesis research (IST 600 or IST 610). The thesis must be accepted by the advisers and/or committee members, the head of the graduate program, and the Graduate School, and the student must pass a thesis defense. Students in the non-thesis track must write a satisfactory scholarly paper while enrolled in IST 594 and complete at least 18 credits at the 500 level.
Student Aid

Refer to the Tuition & Funding (http://gradschool.psu.edu/graduate-funding/) section of The Graduate School’s website. Students in this program are not eligible for graduate assistantships.

World Campus students in graduate degree programs may be eligible for financial aid. Refer to the Tuition and Financial Aid section (http://www.worldcampus.psu.edu/tuition-and-financial-aid/) of the World Campus website for more information.

Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Information Sciences and Technology (IST) Course List (https://bulletins.psu.edu/university-course-descriptions/graduate/ist/)

Learning Outcomes

Master of Professional Studies (M.P.S.)

1. [KNOW] Recognize, understand, identify and assess potential threats, vulnerabilities, and consequences in a context from local to global environments.
2. [APPLY/CREATE] Integrate the use of disciplinary methods, techniques, and knowledge to solve practical, real-world problems.
3. [COMMUNICATE] Present scientific evidence and best practice to inform and improve practical, real-world decisions.
4. [THINK] Search, evaluate, and synthesize literature to integrate cyber security principles into disciplines and professional fields.
5. [PROFESSIONAL PRACTICE] Make use of ethical standards and principles of integrity as a foundation in decision-making.

Master of Science (M.S.)

1. [KNOW] Demonstrate appropriate breadth and depth of interdisciplinary knowledge and comprehension of the major issues in cybersecurity analytics and operations.
2. [APPLY/CREATE] Use interdisciplinary knowledge and methods of cybersecurity analytics and operations to plan and conduct a research thesis or scholarly paper.
3. [COMMUNICATE] Communicate the major issues of cybersecurity analytics and operations effectively.
4. [THINK] Demonstrate analytical and critical thinking within cybersecurity analytics and operations, including across discipline.
5. [PROFESSIONAL PRACTICE] Know and conduct themselves in accordance with the highest ethical standards, values, and, where these are defined, the best practices of cybersecurity analytics and operations (as expressed in SARI training modules).

Contact

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Program Website
View (https://ist.psu.edu/prospective/graduate/)

World Campus
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