

B.S. in Cybersecurity Analytics & Operations/M.P.S. in Cybersecurity Analytics and Operations IUG Long-Range Planner

Name _____

PSU ID _____

| Core Curriculum (18 credits) |
|---|
| IST 543: Foundations of Software Security (<i>spring</i>) |
| IST 554: Network Management and Security (<i>spring</i>) |
| IST 815: Foundations of Information Security and Assurance (<i>fall</i>) |
| IST 820: Cybersecurity Analytics (<i>spring</i>) |
| IST 825: Technologies for Web and E-Commerce Application Security (<i>fall</i>) |
| IST 830: Cybersecurity Project Management (<i>spring</i>) |

| Elective Courses (12 credits) |
|---|
| Choose courses from the elective course list. |
| UG courses will count as 6 elective credits. |
| The elective courses are listed on the MPS Cybersecurity Analytics and Operations Audit Sheet |

| Capstone Experience (3 credits) |
|------------------------------------|
| Choose capstone option |
| Capstone Course - IST 894 |
| OR |
| Scholarly Paper - IST 594 |

Total Undergrad Units Completed to Date: _____
(Do not include in-progress courses, list in-progress courses below)

| Double-counted IUG Courses ¹ (UG/GR) |
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| (if retroactive, list course & semester completed) |
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JUNIOR YEAR

| Fall _____ | Cr. | UG/ GR/ IUG |
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| Undergrad (UG+IUG) | | |

| Spring _____ | Cr. | UG/ GR/ IUG |
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| Summer _____ | Cr. | UG/ GR/ IUG |
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| Undergrad (UG+IUG) | | |

SENIOR YEAR

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| Undergrad (UG+IUG) | | |
| Grad (GR+IUG) | | |

| Spring _____ | Cr. | UG/ GR/ IUG |
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| Grad (GR+IUG) | | |

| Summer _____ | Cr. | UG/ GR/ IUG |
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| Undergrad (UG+IUG) | | |
| Grad (GR+IUG) | | |

FINAL YEAR

| Fall _____ | Cr. | UG/ GR/ IUG |
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| Undergrad (UG+IUG) | | |
| Grad (GR+IUG) | | |

| Spring _____ | Cr. | UG/ GR/ IUG |
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| Undergrad (UG+IUG) | | |
| Grad (GR+IUG) | | |

| <u>Required Signatures</u> | |
|---|------|
| Student Signature | Date |
| Undergraduate Advisor Signature | Date |
| Graduate Director Signature | Date |
| Schreyer's Advisor Signature <i>(if necessary)</i> | Date |

- Notes:**
- Up to 12 credits/four courses may be "double-counted" on both the undergraduate and graduate transcripts. A minimum of 50% of the courses proposed to count for both degrees must be at the 500 or 800-level. When we talk about these courses, we talk about them as:
 - UG courses: appear only on the undergraduate transcript
 - IUG courses: courses that appear on both the undergraduate and graduate transcript.
 - GR courses: appear only on the graduate transcript.
 - Every semester, students must complete the "IUG Semester Report," obtain all signatures and submit to the Graduate School.
 - IUG students must maintain 12 credits to be a full-time student; 15 credits per semester is standard.

Courses eligible to double count for both Cybersecurity Analytics and Operations BS/Cybersecurity Analytics and Operations MPS

- GR courses used in either as application focus requirement OR replacing up to six credits from the following courses: IST 451, IST 454, or IST 456.
- UG courses used in the graduate elective requirement.

| Course | Title | Credits |
|---------|--|---------|
| IST 432 | Legal and Regulatory Environment of Information Science and Technology | 3.0 |
| IST 451 | Network Security | 3.0 |
| IST 454 | Computer and Cyber Forensics | 3.0 |
| IST 456 | Information Security Management | 3.0 |
| IST 554 | Network and Management Security | 3.0 |
| IST 815 | Foundations of Information Security and Assurance | 3.0 |
| IST 820 | Cybersecurity Analytics | 3.0 |

****Culminating Experience - Scholarly paper or Capstone course**

Students may choose a scholarly paper or capstone course to fulfill the culminating experience.

Scholarly Paper

Students who choose the scholarly paper option must register for 3 credits of IST 594 and complete the scholarly paper. Students are trained to identify a specific problem within a general topic area, frame a research question, conduct a literature review, and develop a research plan to collect and analyze data. Then students continue by implementing the research plan, actually collecting and analyzing a small amount of data, and presenting results in a formal research paper.

Capstone Course

Students who choose the capstone course option must register for IST 894 to complete the capstone course requirement. This course is a laboratory-based course that requires students to apply skills and knowledge from previous coursework to "real world" cybersecurity scenarios and problems. The course combines analyses of cybersecurity issues with the critical thinking required to resolve them. Students will be faced with a variety of laboratory assignments spanning a wide range of cybersecurity vulnerabilities and scenarios they must deal with. Each module's laboratory assignment requires a thorough analysis in order to apply the proper tools and techniques for a successful resolution. Peer reviews of work ensure that students grow in their understanding of the skills involved for a given exercise and in their ability to judge alternate approaches to resolution.