B.S. in Human-Centered Design and Development/M.S. in Cybersecurity Analytics and Operations

IUG Long-Range Planner

Name _____   PSU ID _____

30 Total credits for M.S.
At least 18 credits must be in the 500 or 600 series, combined.

Core Curriculum
(15 credits)

IST 543: Foundations of Software Security *(fall)*

IST 554: Network Management and Security *(spring)*

IST 815: Foundations of Information Security and Assurance *(fall)*

IST 820: Cybersecurity Analytics *(spring)*

IST 825: Technologies for Web & E-Commerce Application Security *(spring)*

Elective Courses
(9-12 credits)

Choose courses from the elective course list.

UG courses will count as 6 elective credits.

The elective courses are listed on the **Cybersecurity Analytics and Operations Audit Sheet**

Capstone Experience
(3-6 credits)

Choose capstone option

Capstone Course - IST 584
OR
Scholarly Paper - IST 594
OR
Thesis - IST 600

Double-Counted Courses - 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 double count must be at the 500 or 800-level.

IUG Semester Reports - Every semester, students must complete the "IUG Semester Report," obtain all signatures and submit to the Graduate Program Office at istgradprograms@psu.edu.

Course Labels
- **UG** courses: appear only on the undergraduate transcript
- **GR** courses: appear only on the graduate transcript
- **IUG** courses: courses that appear on both the undergraduate and graduate transcript

Total Undergraduate Credits (towards your major) Completed to Date:
_____

(Do not include in-progress courses, list in-progress courses below)

Expected Undergraduate Graduation Semester: _____

(indicate the semester you would complete the undergraduate degree if you did not pursue an IUG)

Double-counted IUG Courses
(if retroactive, list course & semester completed)

_____   _____

_____   _____

JUNIOR YEAR

Fall ____	Cr.	UG/GR/IUG
Total Credits		

Spring ____	Cr.	UG/GR/IUG
Total Credits		

Summer ____	Cr.	UG/GR/IUG
Total Credits		

SENIOR YEAR

Fall ____	Cr.	UG/GR/IUG
Total Credits		

Spring ____	Cr.	UG/GR/IUG
Total Credits		

Summer ____	Cr.	UG/GR/IUG
Total Credits		

FINAL YEAR

Fall ____	Cr.	UG/GR/IUG
Total Credits		

Spring ____	Cr.	UG/GR/IUG
Total Credits		

Required Signatures

_____	_____
Student Signature	Date
_____	_____
Undergrad Advisor Signature	Date
_____	_____
Graduate Director Signature	Date
_____	_____
Schreyer's Advisor Signature *(if necessary)*	Date

Please be advised that any changes to your finalized plan could potentially affect the completion timeline. It is important to review and discuss any proposed changes with your academic advisor/graduate program before implementing a change.

Courses eligible to double count for both
Human-Centered Design and Development BS/Cybersecurity Analytics and Operations MS

- GR courses used in the HCDD application focus area.
- UG courses used in the graduate elective course requirement.

Course	Title	Credits
IST 402	Emerging Issues and Technologies	3.0
IST 411	Distributed-Object Computing	3.0
IST 412	The Engineering of Complex Software Systems	3.0
IST 504	Foundations of Theories and Methods of Information Sciences and Technology Research	3.0
IST 543	Foundations of Software Security	3.0
IST 815	Foundations of Information Security and Assurance	3.0
IST 820	Cybersecurity Analytics	3.0

**Culminating Experience - Thesis, Scholarly paper, or Capstone course (3-6 credits)

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

Thesis

Students who choose the thesis option must register for 6 credits of IST 600, write a satisfactory thesis accepted by the master's committee, the head of the graduate program, and the Graduate School, and pass a thesis defense. Selecting the thesis option may require more than 1-year to complete. Students who choose the thesis option must also complete IST 505.

Scholarly Paper

Students who choose the scholarly paper option must register for 3 credits of IST 594 and complete the scholarly paper. The scholarly paper will be a focused piece of technical work that applies the student's expertise and knowledge base, and that is documented and presented as a scholarly paper report.

Capstone Course

Students who choose the capstone course option must register for IST 584 to complete the capstone course requirement. This course uses a Cyber event simulation (often referred as Cyber Range), which by its nature, allows for a variety of real-world Cybersecurity scenarios/problems to be simulated for students. Students are expected to utilize the knowledge and skills gained in previous coursework to solve each Cybersecurity scenario/problem in a given week of the class.

Typical Course Offerings*	
Fall Offerings	**Spring Offerings**
IST 504 – Foundations of Theories and Methods	DS 560 E/O
IST 520 – Foundations in Human-Centered Design	IST 503 – Foundations of IST Research
IST 530 – Foundations in Social Informatics	IST 505 – Foundations of Research Design
IST 543 – Foundations of Software Security	IST 510 – Foundations in Computational Informatics
IST 557 – Data Mining: Techniques and Applications	IST 521 – Human-Computer Interaction: The User and Technology
IST 577 – Human Factors of Security & Privacy	IST 525 – Computer-Supported Cooperative Work
IST 597 – Topics Vary	IST 526 – Development Tools and Visualizations for Human-Computer Interactions
IST 815 – Foundations of Information Security and Assurance	IST 541 – Qualitative Research in IST
IST 830 E/O – Cybersecurity Project Management – next offerings Fall 2025, Fall 2027, Fall 2029.	IST 554 – Network Management and Security
	IST 558 – Data Mining II
	IST 561 – Data Mining Driven Design
	IST 564 – Crisis, Disaster, Risk Management
	IST 584 (also summer) – Cyber Simulation Event
	IST 594 (also summer) – Research (Scholarly Paper)
	IST 597 – Topics Vary
	IST 820 – Cybersecurity Analytics
*Course offerings subject to change	IST 825 – Technologies for Web and E-Commerce Application Security