

CYBERSECURITY ANALYTICS AND OPERATIONS, B.S. (INFORMATION SCIENCES AND TECHNOLOGY)

Begin Campus: Any Penn State Campus

End Campus: University Park

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2021-22 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

Cybersecurity Analytics and Operations, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100/100S ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#}	3 IST 220 ^{*#}	3
CAS 100 [‡]	3 SRA 111 [*]	3
MATH 110 ^{*‡}	4 ENGL 15 or 30H [‡]	3
General Education Selection	3 Application Focus Selection 1 (GS/GHW)	3
	16	15

Second Year

Fall	Credits Spring	Credits
CYBER 262 [*]	3 IST 261 [*]	3
IST 242 ^{*#}	3 SRA 211 [*]	3
STAT 200 ^{*‡#}	4 SRA 221 [*]	3
General Education Selection	3 IST 230 [*]	3
Application Focus Selection 2	3 General Education Selection	3
	16	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
CYBER 362 [*]	3 CYBER 342W [*]	3 IST 495 ^{*1}	1
IST 451 [*]	3 IST 454 [*]	3	
SRA 231 [*]	3 SRA 311 [*]	3	
SRA 365 [*]	3 CYBER 366 [*]	3	
ENGL 202C or 202D [‡]	3 Application Focus Selection 3	3	
General Education Selection	1.5		
	16.5	15	1

Fourth Year

Fall	Credits Spring	Credits
IST 456 [*]	3 CYBER 440 [*]	3
SRA 472 [*]	3 Application Focus Selection 4	3
IST 432 [*]	3 General Education Selection	3
General Education Selection	3 Elective or US Cultures (US) or International Cultures (IL)	3
General Education Selection	3 General Education Selection	3
General Education Selection	1.5	
	16.5	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ 1 credit of IST 495 is required. A grade of C or better must be earned in this course. This requirement can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits.

Advising Notes:

Students pick one of the four tracks below or create a custom 4-course application focus. Students should take one course that meets the GS requirements. Students must pick six (6) credits at the 400 level. All 12 credits must be in the same application focus area.

Application Development

Code	Title	Credits
IST 110	Information, People and Technology	3
IST 311	Object-Oriented Design and Software Applications	3
IST 331	Foundations of Human-Centered Design	3
IST 361	Application Development Design Studio II	3
IST 402	Emerging Issues and Technologies	3
IST 411	Distributed-Object Computing	3
IST 412	The Engineering of Complex Software Systems	3

Geopolitics

Understanding the geopolitical landscape is key to understanding and modeling cyberthreats from nation-states and other threat actors. The Geopolitics focus is for students who have an interest in pursuing cybersecurity careers in government or related consulting sectors.

Code	Title	Credits
GEOG 160	Mapping Our Changing World	3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
IB 440	Globalization and Its Implications	3
PLSC 14	International Relations	3
PLSC 461	Politics of the European Union	3
PLSC 467	International Relations of the Middle East	3
PLSC 481	Global Political Economy	3
GEOG 333	Human Dimensions of Natural Hazards	3
GEOG 363	Geographic Information Systems	3
AFR/PLSC 440	Globalization and Its Implications	3
SRA 450	Cyber-Crime and Cyber-Warfare	3
SRA 480	Crisis Informatics	3

Law and Policy

Cybersecurity careers in law enforcement require knowledge of laws and policies focused on the handling of evidence related to digital forensics and monitoring. Individuals in the private sector and government agencies must also understand and adhere to these topics as they involve cybersecurity. The Law and Policy focus is for students who want to understand law and policy as they relate to digital data.

Code	Title	Credits
COMM 180	Survey of Electronic Media and Telecommunications	3

COMM 404	Telecommunications Law	3
CRIM/CRIMJ 100	Introduction to Criminal Justice	3
CRIM/CRIMJ 113	Introduction to Law	3
PLSC 14	International Relations	3
PLSC 140	Contemporary Controversies in International Relations	3
PLSC 438	National Security Policies	3
PLSC 442	American Foreign Policy	3
PLSC/STS 460	Science, Technology, and Public Policy	3
PLSC 467	International Relations of the Middle East	3
CRIM/CRIMJ/ SOC 467	Law and Society	3
HLS/PADM 401	Introduction to Homeland Security (offered by Harrisburg and World Campus only)	3
PLSC/CRIMJ 439	The Politics of Terrorism	3
PLSC 487	International Law and Organizations (not offered at University Park)	3

Economics

The Economics focus is for students who have an interest in pursuing cybersecurity careers in the financial services sector or government. Designed to help students understand today's financial and economic environments, this focus highlights the importance of translating the financial and economic impact of cybersecurity activities to effectively manage any program.

Code	Title	Credits
ECON 102	Introductory Microeconomic Analysis and Policy	3
BLAW 243	Legal Environment of Business	3
BA 301	Finance	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 402	Decision Making and Strategy in Economics	3
ECON 409	Economics of Terrorism	3
ECON 445	Health Economics	3
ECON 470	International Trade and Finance	3
FIN 301	Corporation Finance	3
HPA 445	Health Economics	3
PLSC 412	International Political Economy	3
PLSC 481	Global Political Economy	3

Health Care

Hospitals, pharmaceutical companies, and government agencies are just a few of the sectors that have strict requirements around protecting health care data. The Health Care focus is for students who have an interest in pursuing cybersecurity careers in a health care environment. Understanding how information is managed in these environments will help students thrive in a health care-related career.

Code	Title	Credits
HPA 101	Introduction to Health Services Organization	3
BBH 101	Introduction to Biobehavioral Health	3
ECON 445	Health Economics	3
HPA 332	Health Systems Management	3
HPA 445	Health Economics	3
HPA 450	Healthcare Policies and Politics	3
IST 110	Information, People and Technology	3

NURS 357	Introduction to Nursing Informatics (offered at Commonwealth and World Campuses; not at University Park)	3
HPA/BBH 440	Principles of Epidemiology	3
HPA 470	Health Care Information Management	3
NURS 458	Ethical Challenges in Healthcare Informatics (offered at Commonwealth and World Campuses; not at University Park)	3

Custom Application Focus

There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of cybersecurity content. It should contain three credits of GS coursework and must contain six credits of 400-level coursework. It must be selected in consultation with a teaching CYBER faculty member and an academic adviser.