

Cybersecurity and Economics, BS (Boston)

The cybersecurity and economics combined degree applies a multidisciplinary approach integrating fundamental economics courses with a strong programming foundation. Students will study both the behavior of individuals and the collective behavior of industries and governments, utilizing computing skills to ensure the reliability and security of cyberspace.

Program Requirements

Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified and complete any additional courses needed beyond specific college and major requirements to satisfy graduation credit requirements.

Universitywide Requirements

All undergraduate students are required to complete the Universitywide Requirements (<https://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/>).

NUPath Requirements

All undergraduate students are required to complete the NUPath Requirements (<https://catalog.northeastern.edu/undergraduate/university-academics/nupath/>).

Cybersecurity Major Requirements

Code	Title	Hours
Computer Science Overview		
CS 1200 or ECON 1000	First Year Seminar Economics at Northeastern	1
CS 1210 or EESH 2000	Professional Development for Khoury Co-op Professional Development for Co-op	1
Computer Science Fundamentals Courses		
All students can take a self-assessment to attempt to place out of CS 2000 and CS 2001. Students who place out of CS 2000 and CS 2001 will instead substitute 4-5 semester hours of CS, CY, or DS coursework at the 3000 level or higher not otherwise required in the degree.		
CS 1800 and CS 1802	Discrete Structures and Seminar for CS 1800	5
CS 2000 and CS 2001	Introduction to Program Design and Implementation and Lab for CS 2000	5
CS 2100 and CS 2101	Program Design and Implementation 1 and Lab for CS 2101	5
Computer Science Required Courses		
CS 3000	Algorithms and Data	4
CS 3100 and CS 3101	Program Design and Implementation 2 and Lab for CS 3101	5
CS 3650	Computer Systems	4
CS 4700 or CS 4730	Network Fundamentals Distributed Systems	4
Cybersecurity Required Courses		
CY 2550	Foundations of Cybersecurity	4
CY 3740	Systems Security	4
CY 4170 or CY 5240	The Law, Ethics, and Policy of Data and Digital Technologies Cyberlaw: Privacy, Ethics, and Digital Rights	4
CY 4740	Network Security	4
Cybersecurity Elective		
Complete one of the following:		4
COMM 2551	Free Speech in Cyberspace	
CRIM 2340	Corporate Security: Securing the Private Sector	
CRIM 3030	Global Criminology	
CRIM 4040	Crime Prevention	
CS 2484	Principles of Human-Computer Interaction	

CS 2800	Logic and Computation
CS 4400	Programming Languages
CS 4500 or CS 4530	Software Development Fundamentals of Software Engineering
CY 4100	AI Security and Privacy
CY 4760	Security of Wireless and Mobile Systems
CY 4770	Foundations of Cryptography
CY 4775	Applied Cryptography
CY 5200	Security Risk Management and Assessment
CY 5210	Information System Forensics
DS 4300	Large-Scale Information Storage and Retrieval
DS 4400	Machine Learning and Data Mining 1
EECE 2310 and EECE 2311	Introduction to Digital Design and Computer Architecture and Lab for EECE 2310
EECE 3324	Computer Architecture and Organization
EECE 4534 and EECE 4535	Microprocessor-Based Design and Lab for EECE 4534
LPSC 1101	Introduction to Law
LPSC 2301	Introduction to Law, Policy, and Society
LPSC 3303	Topics in Law and Public Policy
MATH 3527	Number Theory 1
MATH 4575	Introduction to Cryptography
PHIL 1145	Technology and Human Values
POLS 2390	Science, Technology, and Public Policy
POLS 3307	Public Policy and Administration
POLS 3324	Law and Society
POLS 3406	International Law
POLS 3420	U.S. National Security Policy
POLS 3423	Terrorism and Counterterrorism

Supporting Course

Code	Title	Hours
MATH 1231	Calculus for Business and Economics (It is highly recommended that students who take MATH 1231 take sections devoted to econ students only.)	4
or MATH 1241	Calculus 1	
or MATH 1245	Calculus with Applications	
or MATH 1251	Calculus and Differential Equations for Biology 1	
or MATH 1340	Intensive Calculus for Engineers	
or MATH 1341	Calculus 1 for Science and Engineering	

Economics Requirements

Code	Title	Hours
Required Courses		
ECON 1115	Principles of Macroeconomics	4
ECON 1116	Principles of Microeconomics	4
ECON 2315	Macroeconomic Theory	4
ECON 2316	Microeconomic Theory	4
ECON 2350	Statistics for Economists	4
Electives		
Complete four ECON electives that are found in the following range with, at most, two at the 1000 level. Unless otherwise noted in specific combined majors, required core economics courses cannot be counted as electives by students completing Department of Economics programs:		16
ECON 1200 to ECON 1999		
ECON 2990 to ECON 3559		
ECON 3561 to ECON 4689		

ECON 4900 to ECON 4996

ECON 5200 to ECON 5999

Integrative Requirement

Code	Title	Hours
Capstone		
Complete one of the following:		4
CY 4930	Cybersecurity Capstone	
ECON 4692	Senior Economics Seminar	
or ECON 4997	Senior Economics Thesis	
Integrative Requirement		
ECON 2560	Applied Econometrics	4

Writing Requirement

Code	Title	Hours
College Writing		
Complete one of the following:		4
ENGW 1102	First-Year Writing for Multilingual Writers	
ENGW 1111	First-Year Writing	
Advanced Writing in the Disciplines		
Complete one of the following:		4
ENGW 3302	Advanced Writing in the Technical Professions	
ENGW 3308	Advanced Writing in the Social Sciences	
ENGW 3311	Advanced Writing for Prelaw	
ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

Required General Electives

Code	Title	Hours
Complete 24 semester hours of general electives.		24

Khoury College GPA Requirement

Minimum cumulative 2.000 GPA required in all CS, CY, DS, and IS courses

Economics GPA Requirement

Grades in the following four Economics courses must average to a minimum of C (2.000):

Code	Title	Hours
ECON 2315	Macroeconomic Theory	
ECON 2316	Microeconomic Theory	
ECON 2350	Statistics for Economists	
ECON 2560	Applied Econometrics	

NUpath Requirements Satisfied

- Engaging with the Natural and Designed World
- Conducting Formal and Quantitative Reasoning
- Understanding Societies and Institutions
- Analyzing and Using Data
- Writing in the First Year
- Advanced Writing in the Disciplines
- Writing-Intensive in the Major
- Demonstrating Thought and Action in a Capstone

Integrating Knowledge and Skills Through Experience is satisfied through co-op.

Program Requirement

133 total semester hours required.

Plan of Study**Sample Plan of Study****FOUR YEARS, TWO CO-OPS IN SUMMER SECOND HALF/FALL**

Year 1							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 1200		1 CS 2100 and CS 2101		5 CY 2550		4 General Elective	4
CS 1800 and CS 1802		5 General Elective		4 General Elective		4 General Elective	4
CS 2000 and CS 2001		5 ECON 1116		4			
ECON 1115		4 MATH 1231, 1241, 1245, 1251, 1340, or 1341		4			
ENGW 1111		4					
	19		17		8		8
Year 2							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 3100 and CS 3101		5 CS 1210		1 ECON elective 1		4 Co-op	0
CS 3650		4 CS 3000		4 General Elective		4	
ECON 2315		4 CS 4700 or 4730		4			
ECON 2350		4 ECON 2316		4			
		General Elective		4			
	17		17		8		0
Year 3							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op		0 CY 3740		4 ECON elective 3		4 Co-op	0
		ECON 2560		4 ECON elective 4		4	
		ENGW 3302, 3308, 3311, or 3315		4			
		ECON elective 2		4			
	0		16		8		0
Year 4							
Fall	Hours	Spring	Hours				
Co-op		0 CY 4170 or 5240		4			
		CY 4740		4			
		Capstone		4			
		Cybersecurity Elective		4			
	0		16				

Total Hours: 134