

# Computer Science and Economics, BS (Oakland)

The combined major in computer science and economics integrates fundamental economics courses with a strong programming foundation. Studying both the behavior of individuals and the collective behavior of industries and governments, students will utilize computing skills to address complex issues within the field.

## 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/>).

## Computer Science Courses

Code	Title	Hours
<b>Computer Science Overview</b>		
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
<b>Computer Science Fundamental Courses</b>		
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 2100	5
CS 2800	Logic and Computation	4
<b>Computer Science Required Courses</b>		
CS 2484 or CS 4220	Principles of Human-Computer Interaction Information Retrieval	4
CS 3000	Algorithms and Data	4
CS 3100 and CS 3101	Program Design and Implementation 2 and Lab for CS 3100	5
CS 3200	Introduction to Databases	4
CS 4530 or CS 4535	Fundamentals of Software Engineering Professional Practicum Capstone	4
<b>Khoury Approved Electives</b>		
With advisor approval, directed study, research, project study, and appropriate graduate-level courses may also be taken as upper-division electives.		
Complete 8 credits from the following:		8
CS 2500 or higher, except CS 5010		
CY 2000 or higher, except CY 4930		
DS 2500 or higher, except DS 4900		
MKTG 4606	Digital, Analytics, Technology, and Automation Research Practicum	

## Economics Requirements

Code	Title	Hours
<b>Required Economics Courses</b>		
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
ECON 2560	Applied Econometrics	4
<b>Economics Electives</b>		
Complete four ECON elective courses from the following ranges with no more than two at the ECON 1200–1999 range (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		
<b>Economics Capstone</b>		
ECON 4692	Senior Economics Seminar	4
or ECON 4997	Senior Economics Thesis	

## Integrative Course Requirement

Code	Title	Hours
The following course is used in other areas of the major:		
ECON 2560	Applied Econometrics	

## Supporting Courses

Code	Title	Hours
<b>Mathematics</b>		
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	
<b>Computing and Social Issues</b>		
Complete one of the following:		4
AFCS 2600	Issues in Race, Science, and Technology	
CY 4170	The Law, Ethics, and Policy of Data and Digital Technologies	
CY 5240	Cyberlaw: Privacy, Ethics, and Digital Rights	
DS 1300	Knowledge in a Digital World	
or PHIL 1300	Knowledge in a Digital World	
HIST 2220	History of Technology	
INSH 2102	Bostonography: The City through Data, Texts, Maps, and Networks	
JRNL 3700	Data Storytelling	
PHIL 1145	Technology and Human Values	
SOCL 1280	The Twenty-First-Century Workplace	
SOCL 2485	Environment, Technology, and Society	
SOCL 4528	Technology and Society	

## English Requirement

Code	Title	Hours
<b>College Writing</b>		
ENGW 1111	First-Year Writing	4
or ENGW 1102	First-Year Writing for Multilingual Writers	
<b>Advanced Writing in the Disciplines</b>		
Complete one of the following:		4
ENGW 3302	Advanced Writing in the Technical Professions	
ENGW 3308	Advanced Writing in the Social Sciences	
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 required ECON 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
- Analyzing and Using Data
- Exploring Creative Expression and Innovation
- Understanding Societies and Institutions
- 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.

## Computer Science and Economics Major Credit Requirement

Minimum of 100 semester hours required in the major

## Program Requirement

133 total semester hours required

## Plan of Study

### Sample Plans of Study

#### FOUR YEARS, TWO CO-OPS IN SPRING/SUMMER FIRST-HALF

Year 1							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 1200		1 CS 2100 and CS 2101		5 CS 3100 and CS 3101		5 General elective	4
CS 1800 and CS 1802		5 ECON 1116		4 ECON 2315		4 General elective	4
CS 2000 and CS 2001		5 MATH 1231, 1241, 1245, 1251, 1340, or 1341		4			
ECON 1115		4 General elective		4			

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ENGW 1111	4							
	19			17		9		8
<b>Year 2</b>								
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>	<b>Summer 1</b>	<b>Hours</b>	<b>Summer 2</b>	<b>Hours</b>	
CS 1210		1 Co-op		0 Co-op		0 ECON elective		4
CS 2800	4					General elective		4
CS 3000	4							
ECON 2350	4							
ECON elective	4							
	17			0		0		8
<b>Year 3</b>								
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>	<b>Summer 1</b>	<b>Hours</b>	<b>Summer 2</b>	<b>Hours</b>	
CS 3200		4 Co-op		0 Co-op		0 ENGW 3302, 3308, or 3315		4
ECON 2316	4					General elective		4
ECON 2560	4							
ECON elective	4							
	16			0		0		8
<b>Year 4</b>								
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>					
Computing and social issues requirement		4 CS 2484 or 4220		4				
ECON elective	4	CS 4530 or 4535		4				
Khoury elective	4	ECON 4692 or 4997		4				
General elective	4	Khoury elective		4				
	16			16				

**Total Hours: 134**

#### FOUR YEARS, TWO CO-OPS IN SUMMER SECOND-HALF/FALL

<b>Year 1</b>								
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>	<b>Summer 1</b>	<b>Hours</b>	<b>Summer 2</b>	<b>Hours</b>	
CS 1200		1 ECON 1116		4 ECON 2315		4 General elective		4
CS 1800 and CS 1802	5	CS 2100 and CS 2101		5 CS 3100 and CS 3101		5 General elective		4
CS 2000 and CS 2001	5	General elective		4				
ECON 1115	4	MATH 1231, 1241, 1245, 1251, 1340, or 1341		4				
ENGW 1111	4							
	19			17		9		8
<b>Year 2</b>								
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>	<b>Summer 1</b>	<b>Hours</b>	<b>Summer 2</b>	<b>Hours</b>	
CS 2800		4 CS 1210		1 ECON elective 3		4 Co-op		0
CS 3000	4	CS 3200		4 General elective		4		
ECON 2350	4	ECON 2316		4				
ECON elective 1	4	ECON 2560		4				
		ECON elective 2		4				
	16			17		8		0
<b>Year 3</b>								
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>	<b>Summer 1</b>	<b>Hours</b>	<b>Summer 2</b>	<b>Hours</b>	
Co-op		0 Computing and social issues requirement		4 ENGW 3302, 3308, or 3315		4 Co-op		0
		ECON elective 4		4 General elective		4		
		Khoury elective		4				

General elective		4		
	0	16	8	0
Year 4				
Fall	Hours	Spring	Hours	
Co-op	0	ECON 4692 or 4997	4	
		Khoury elective	4	
		CS 2484 or 4220	4	
		CS 4530 or 4535	4	
	0	16		

Total Hours: 134