

Computer Science and Game Development, BS

The computer science and game development combined major focuses on the specific skills needed to succeed in the highly competitive game industry. Students will engage in building and developing games and playable media experiences while completing courses in computer science and specialized game technology and design. Interdisciplinary courses enable students to develop their creative and entrepreneurial abilities, as well as create a strong portfolio of game pieces.

Program Requirements

- Concentrations and course offerings may vary by campus and/or by program modality. Please consult with your advisor or admissions coach for the course availability each term at your campus or within your program modality.
- Certain options within the program may be *required* at certain campuses or for certain program modalities. Please consult with your advisor or admissions coach for requirements at your campus or for your program modality.

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
Computer Science Overview		
Must be taken in alignment with your home college:		
CS 1200 or ARTF 1000	First Year Seminar Art and Design at Northeastern	1
CS 1210 or EEAM 2000	Professional Development for Khoury Co-op Professional Development for Co-op	1
Computer Science Fundamental Courses		
CS 1800 and CS 1802	Discrete Structures and Seminar for CS 1800	5
CS 2500 and CS 2501	Fundamentals of Computer Science 1 and Lab for CS 2500	5
CS 2510 and CS 2511	Fundamentals of Computer Science 2 and Lab for CS 2510	5
Computer Science Required Courses		
CS 3000	Algorithms and Data	4
CS 3500 and CS 3501	Object-Oriented Design and Lab for CS 3500	5
CS 3520	Programming in C++ (Integrative course)	4
CS 3540	Game Programming (Integrative course)	4
CS 3650	Computer Systems	4
CS 4300	Computer Graphics (Integrative course)	4
CS 4500 or CS 4530	Software Development Fundamentals of Software Engineering	4
CS 4700 or CS 4730	Network Fundamentals Distributed Systems	4
CS 4850	Building Game Engines (Integrative course)	4
Computer Science Elective Course		

CS 4150	Game Artificial Intelligence (Integrative course)	4
or IS 4300	Human Computer Interaction	

Game Design Courses

Code	Title	Hours
Game Design Required		
GAME 1110	Games and Society	4
GAME 2500	Foundations of Game Design	4
GAME 2950	Game Studio	4
GAME 3400	Level Design and Game Architecture	4
GAME 3700	Rapid Idea Prototyping for Games	4
GAME 3800	Game Concept Development	4
GAME 4700	Game Design Capstone	4

Game Design Elective

Complete one of the following:

GAME 1850	Experimental Game Design	4
or GAME 3300	Game Interface Design	
or GAME 4000	Topics in Game Design	

Khoury/Game-Related Electives

Complete three of the following:

12

Any course in ARTD, ARTE, ARTF, ARTG, ARTH, or EXRE (EXRE 5011 and 5010, EXRE 5020, EXRE 5030), or GAME subject areas as long as prerequisites have been met.

If GAME 4000 (or any other topics course in the subjects listed above) is completed more than once, the additional completions may be allowed toward the Game Design electives.

CS 2500 or higher, except CS 5010

CY 2000 or higher, except CY 4930

DS 2500 or higher, except DS 4900

IS 2000 or higher, except IS 4900

MATH 1342 Calculus 2 for Science and Engineering

MATH 2331 Linear Algebra

ECON 2350 Statistics for Economists

or PSYC 2320 Statistics in Psychological Research

Supporting Courses

Code	Title	Hours
Psychology		
PSYC 1101	Foundations of Psychology	4
Mathematics		
MATH 1260	Math Fundamentals for Games (Integrative course)	4
Complete one course from the following:		
MATH 1341	Calculus 1 for Science and Engineering	4
MATH 1342 or higher		

Computer Science Writing Requirement

Code	Title	Hours
College Writing		
ENGW 1111	First-Year Writing	4
Advanced Writing in the Disciplines		
ENGW 3302	Advanced Writing in the Technical Professions	4
or ENGW 3314	Advanced Writing in the Arts, Media, and Design	
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

Required General Electives

Code	Title	Hours
	Complete 12 semester hours of general electives.	12

Khoury College GPA Requirements

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

NUpath Requirements Satisfied

- Engaging with the Natural and Designed World
- Exploring Creative Expression and Innovation
- Conducting Formal and Quantitative Reasoning
- Analyzing and Using Data
- Writing in the First Year
- Advanced Writing in the Disciplines
- Writing-Intensive in the Major
- Understanding Societies and Institutions
- 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

Year 1								
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours	Hours
CS 1200 or ARTF 1000		1 CS 2510 and CS 2511		5 CS 3500 and CS 3501		5 Vacation		0
CS 1800 and CS 1802		5 GAME 2500		4 Elective		4		
CS 2500 and CS 2501		5 PSYC 1101		4				
ENGW 1111		4 Math Elective		4				
GAME 1110		4						
		19		17		9		0
Year 2								
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours	Hours
CS 3000		4 CS 1210 or EEAM 2000		1 Math Elective		4 Co-op		
CS 3520 ¹		4 CS 3540 ¹		4 Elective		4		
GAME 2950 ¹		4 CS 3650		4				
GAME 3700		4 GAME 3400		4				
		Khoury/game elective		4				
		16		17		8		0
Year 3								
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours	Hours
Co-op		0 CS 4300		4 Co-op		0 Co-op		0
		CS 4850 ¹		4				
		GAME 3800		4				
		ENGW 3302		4				
		0		16		0		0
Year 4								
Fall	Hours	Spring	Hours	Summer 2	Hours	Hours	Hours	Hours
CS 4500 or 4530		4 GAME 4700		4		Vacation		0

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CS 4700 or 4730	4 Computer science elective	4	
Game design elective ¹	4 Khoury/game elective	4	
Khoury/game elective	4 Elective	4	
	16	16	0

Total Hours: 134

¹ Indicates courses that must be taken in the semester listed.