Computer Science and Game Development, BS (Boston)

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

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	First Year Seminar	1
or ARTF 1000	Art and Design at Northeastern	
CS 1210	Professional Development for Khoury Co-op	1
or EEAM 2000	Professional Development for Co-op	
Computer Science Fundamental 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 2100	5
Computer Science Required Courses		
CS 2386	Game Programming 1	4
CS 3000	Algorithms and Data	4
CS 3100 and CS 3101	Program Design and Implementation 2 and Lab for CS 3100	5
CS 3386	Game Programming 2	4
CS 3520	Programming in C++ (Integrative course)	4
CS 3650	Computer Systems	4
CS 4300	Computer Graphics (Integrative course)	4
CS 4530	Fundamentals of Software Engineering	4
or CS 4535	Professional Practicum Capstone	
CS 4700	Network Fundamentals	4
or CS 4730	Distributed Systems	
Khoury Approved Electives		
CS 4150	Game Artificial Intelligence (Integrative course)	4
or CS 2484	Principles of 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 4 semester hours of the following:		4
GAME 1850	Experimental Game Design	
GAME 3300	Game Interface Design	
GAME 4000	Topics in Game Design	
Khoury/Game-Related Approved Electives		
Complete 12 semester hours from within the following options:		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		
MATH 1342	Calculus 2 for Science and Engineering	
MATH 2331	Linear Algebra	
MKTG 4606	Digital, Analytics, Technology, and Automation Research Practicum	
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:		4
MATH 1341	Calculus 1 for Science and Engineering	
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
CS 1200 or ARTF 1000	1	CS 2100 and CS 2101	5	CS 3100 and CS 3101	5
CS 1800 and CS 1802	5	CS 2386	4	General Elective	4
CS 2000 and CS 2001	5	GAME 2500	4		
ENGW 1111	4	MATH 1260[1]	4		
GAME 1110	4	EEAM 2000 (For CAMD Students)	1		
	19		**18**		**9**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 3000	4	CS 1210 (For Khoury Students)	1	Math Elective	4	Co-op	0
CS 3520[1]	4	CS 3386	4	General Elective	4		
GAME 2950[1]	4	CS 3650	4				
GAME 3700	4	GAME 3400[1]	4				
		PSYC 1101	4				
	16		**17**		**8**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	CS 4300	4	Co-op	0	Co-op	0
		GAME 3800	4				
		ENGW 3302, 3315, or 3315	4				
		Khoury/Game Elective	4				
	0		**16**		**0**		**0**

Year 4

Fall	Hours	Spring	Hours
CS 4530 or 4535	4	GAME 4700	4
CS 4700 or 4730	4	Computer Science Elective	4
Game Design Elective[1]	4	Khoury/Game Elective	4

Khoury/Game Elective	4	General Elective	4
	16		**16**

Total Hours: 135

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