The computer science and game development combined major focuses on the specific skills needed to succeed in the highly competitive game industry. You’ll 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 you to develop your 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.

University-Wide Requirements
All undergraduate students are required to complete the University-Wide Requirements (http://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements).

NUpath Requirements
All undergraduate students are required to complete the NUpath Requirements (http://catalog.northeastern.edu/undergraduate/university-academics/nupath).

Computer Science Courses

Computer Science Overview
- **CS 1200**: Computer Science/Information Science 1
- **CS 1210**: Computer Science/Information Science Overview 1: Co-op Preparation 1

Computer Science Fundamental Courses
A grade of C– or higher is required:
- **CS 1800**: Discrete Structures and Seminar for CS 1800 5
  - or **CS 1802**: Recitation 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

Upper-Level Computer Science Courses
- **CS 3500**: Object-Oriented Design 4
- **CS 3520**: Programming in C++ (Integrative course) 4
- **CS 3540**: Game Programming (Integrative course) 4
- **CS 3650**: Computer Systems 4
- **CS 3700**: Networks and Distributed Systems 4
- **CS 4300**: Computer Graphics (Integrative course) 4
- **CS 4500**: Software Development 4
- **CS 4800**: Algorithms and Data 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 4

Computer Science Senior Seminar
- **THTR 1170**: The Eloquent Presenter 1

Game Design Courses

Game Design
- **GAME 1110**: Games and Society 4
- **GAME 2010**: The Business of Games 4
- **GAME 2500**: Foundations of Game Design 4
- **GAME 3700**: Rapid Idea Prototyping for Games 4
- **GAME 3800**: Game Concept Development and Production 4
- **GAME 4700**: Game Design Capstone 1 4
- **GAME 4701**: Game Design Capstone 2 4

Game Design Elective
Complete one GAME course other than GAME 2150, GAME 3150, or GAME 3250.

Computer Science/Game-Related Electives
Complete two courses from the following:
- Any course in GAME subject area except GAME 2150, GAME 3150, or GAME 3250
- Any course in the ARTD, ARTE, ARTF, ARTG, ARTH, and ARTS subject areas
- **CS 2500** or higher, except **CS 5010**
- **IS 2000** or higher, except **IS 4900**
- **DS 2000** or higher, except **DS 4900**
- **MATH 1342**: Calculus 2 for Science and Engineering 4
  - **ECON 2350**: Statistics 4
  - or **PSYC 2320**: Statistics in Psychological Research 4

Supporting Courses

Psychology
- **PSYC 1101**: Foundations of Psychology 4

Mathematics
A grade of C– or higher is required:
- **MATH 1260**: Math Fundamentals for Games (Integrative course) 4
- **MATH 1341**: Calculus 1 for Science and Engineering 4

Computer Science Writing Requirement

College Writing
- **ENGW 1111**: First-Year Writing 4

Advanced Writing in the Disciplines
Students are strongly encouraged to take Advanced Writing in the Technical Professions (ENGW 3302) but may substitute Interdisciplinary Advanced Writing in the Disciplines (ENGW 3315).
- **ENGW 3302**: Advanced Writing in the Technical Professions 4
Required General Electives

Complete four general electives.

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 Pattern, Four Years, Two Co-ops

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer 1</th>
<th>Hours</th>
<th>Summer 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 1200</td>
<td>1</td>
<td>CS 2510</td>
<td>5</td>
<td>CS 3500</td>
<td>4</td>
<td>Vacation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>CS 1800</td>
<td>5</td>
<td>MATH 1260</td>
<td>4</td>
<td>MATH 1341</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 2500</td>
<td>5</td>
<td>Elective</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GAME 2500</td>
<td>4</td>
<td>GAME 1110</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGW 1111</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>17</td>
<td>8</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer 1</th>
<th>Hours</th>
<th>Summer 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 4800</td>
<td>4</td>
<td>CS 1210</td>
<td>1</td>
<td>Elective</td>
<td>4</td>
<td>Co-op</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 3520</td>
<td>4</td>
<td>CS 3540</td>
<td>4</td>
<td>Elective</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GAME 2010</td>
<td>4</td>
<td>CS 3650</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GAME 3700</td>
<td>4</td>
<td>GAME 3800</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CS/game elective</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>17</td>
<td>8</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer 1</th>
<th>Hours</th>
<th>Summer 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-op</td>
<td>0</td>
<td>CS 4850</td>
<td>4</td>
<td>Co-op</td>
<td>0</td>
<td>Co-op</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CS 4300</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ENGW 3302</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PSYC 1101</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>THTR 1170</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 4</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAME 4700</td>
<td>4</td>
<td>GAME 4701</td>
<td>4</td>
<td>Vacation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>CS 3700</td>
<td>4</td>
<td>Computer science elective</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 4500</td>
<td>4</td>
<td>Game elective</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS/game elective</td>
<td>4</td>
<td>Elective</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 134

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