

## Bachelor of Science in Computer Science (Games)

The goal of the B.S. in Computer Science (Games) program is to graduate students with a solid grounding in computer science and a cross-disciplinary background in game development. Topics covered in the cross-disciplinary game development portion of the degree program include game production, visual design for games and interactives, computer animation, video game programming, game hardware architectures, game engine programming, serious game development, introductory and intermediate game design, and two semester-long final game projects. Students graduating from this program will be capable of engineering next-generation games and simulations and their technologies in the entertainment and serious game fields. Additionally, graduates from this program will be able to further their education in graduate programs in game development and computer science. This degree will be offered by the College of Letters, Arts and Sciences

### Requirements for the B.S. in Computer Science (Games):

<b>Computer Science and Computer Engineering (36 units)</b>		<b>Units</b>
CSCI 101L	Fundamentals of Computer Programming	3
CSCI 102L	Data Structures	3
CSCI 200	Object-Oriented Programming	3
CSCI 201L	Principles of Software Development	3
CSCI 271	Discrete Methods in Computer Science	3
CSCI 303	Design and Analysis of Algorithms	3
CSCI 377	Introduction to Software Engineering	3
CSCI 402x	Operating Systems	3
CSCI 460	Introduction to Artificial Intelligence	3
CSCI 480	Computer Graphics	3
EE 352L	Computer Organization and Architecture	3
EE 450	Introduction to Computer Networks	3
<b>Game Development (40 units)</b>		<b>Units</b>
CSCI 180	Survey of Digital Games and Their Technologies	3
CSCI 281	Pipelines for Games and Interactives	3
CSCI 486	Serious Games Development	3
CSCI 491abL	Final Game Project	4-2
CTAN 452	Introduction to 3-D Computer Animation	2
CTIN 484L	Intermediate Game Development	2
CTIN 488	Game Design Workshop	4
CTIN 489	Intermediate Game Design Workshop	2
EE 452L	Game Hardware Architectures	3
ITP 280	Video Game Production	4
ITP 380	Video Game Programming	4
ITP 485	Programming Game Engines	4
<b>Math (11-12 Units)</b>		<b>Units</b>
MATH 125	Calculus I	4

MATH 126	Calculus II	4	
MATH 225	Linear Algebra and Linear Differential Equations, or	4	
EE 241	Applied Linear Algebra for Engineering	3	
<b>Science (4 units)</b>			<b>Units</b>
PHYS 151L*	Fundamentals of Physics I: Mechanics and Thermodynamics	4	
<b>Writing (7 units)</b>			<b>Units</b>
WRIT 140	Writing and Critical Reasoning	4	
WRIT 340	Advanced Writing	3	
<b>General Education (20 units)**</b>			<b>Units</b>
The major will comply with the university general education and diversity requirements.			20
*General Education requirements total 24 units. However, PHYS 151L also satisfies the GE Category III requirement.			
**The foreign language requirement will be waived for students in this program.			
<b>Technical Electives</b>			
Choose a minimum of 6 units from the following:			
CSCI 351	Programming and Multimedia on the World Wide Web	3	
CSCI 477ab***	Design and Construction of Large Software Systems	2-2	
CSCI 485	File and Database Management	3	
CSCI 490x	Directed Research	2-8	
CSCI 499	Special Topics	2-4	
CTAN 330	Animation Fundamentals	2	
CTAN 443L	3-D Animation and Character Design	2	
CTIN 401L	Interface Design for Games	2	
CTIN 403	Advanced Visual Design for Gamers	2	
CTIN 404L	Usability Testing for Games	2	
CTIN 405L	Design and Technology for Mobile Experiences	2	
CTIN 406L	Sound Design for Games	2	
CTIN 458	Business and Management of Games	2	
CTIN 459L***	Game Industry Workshop	4	
CTIN 462	Critical Theory and Analysis of Games	4	
CTIN 463	Anatomy of a Game	4	
CTIN 482	Designing Online Multiplayer Game Environments	2	
CTIN 483	Programming for Interactivity	4	
CTIN 492L	Experimental Game Topics	4	
EE 320	Digital Media Basics for Multimedia	3	
ENGR 395abc***	Cooperative Education Work Experience (students who take 3 units of Co-op may use it as one technical elective).	1 or 2, max 5	
	Free Electives	3-4	
Total units required for degree:			128

Other courses may be eligible subject to advisor approval.

\*\*\*highly recommended

Note: Students are strongly encouraged to take at least 1 unit of internship

Note: If a student chooses MATH 225 (4), then 3 units of free electives would be needed to complete the degree requirements. If EE 241 (3) is chosen, then the student would require 4 units of free electives.