

Game Design and Development Planned Course Offerings & Electives

The following table shows the anticipated course offerings for the Spring 2016 through Fall 2017 semesters. Course offerings depend on enrollment and small adjustments may have to be made. Also, new courses may be developed in this time period and will be added if they become available. It is the program's goal to offer electives on a 2-year rotation, so it can be assumed that courses offered in Spring 2016 will likely be offered again in Spring 2018.

Required Course Offerings

Course Number	Course Title	Spring 2018	Fall 2018	Spring 2019	Fall 2019
GDD 1100	Introduction to Game Development		X		X
GDD 1200	Introductory Programming for Game Developers	X		X	
GDD 2100	Game Design for Diverse Populations		X		X
GDD 2150	Fundamental Game Design Concepts	X		X	
GDD 2200	Object-Oriented Analysis, Design, and Implementation		X		X
CS 2250	Advanced Data Structures in C++	X		X	
CS 3350	Introduction to Game Design and Development		X		X
GDD 3400	Artificial Intelligence for Games	X		X	
CS 4800	Computer Graphics		X		X
GDD 4900	Commercial Game Development Practicum	X		X	

Elective Course Offerings

Course Number	Course Title	Spring 2018	Fall 2018	Spring 2019	Fall 2019
GDD 3000	Game Testing	X			
GDD 3000	Level Design	X			
GDD 4000	Game Engine Design		X		
GDD 3000	Story and Narrative		X		
GDD 4000	3D Game Development			X	
GDD 3600	Serious Games			X	
GDD 3100	User Interface Design				X
GDD 4500	Online Game Development				X

Elective Course Descriptions

To help you decide which of the electives you would like to take and to ensure you don't miss an opportunity to take something that interests you, below are the course descriptions for the GDD elective offerings and special topics.

GDD3000: Game Testing

The purpose of this course is to teach the modern techniques that are most important in game testing. Course topics will include how game testing fits into the development process, what it means to be a

game testing, testing phases, testing techniques and approaches, regression testing, and other pertinent topics. The course encourages students to apply their testing knowledge to various large and small games.

Prerequisite: GDD1200 and GDD2150

[GDD3000: Level Design](#)

This course teaches students to analyze, design, and build game levels within a variety of genres. Students learn about teaching mechanisms for skill development, reward, immersion, audio design, puzzle integration, and cohesion within the overall design. Students also learn about balance, level pacing and flow, setting clear goals for a player, and the importance of visuals. Students will produce several levels using popular level-design editors in various genres.

Prerequisite: GDD1200 and GDD2150

[GDD4000: Game Engine Design](#)

This course provides students with an in-depth exploration of 2D and 3D game engine architecture. Students will learn state-of-the-art software architecture principles in the context of game engine design, investigate typical solutions used in real game engines and explore how genre impacts engine design. Students will develop components for their own game engine and explore and use several commercial game engines.

Prerequisite: CS2250

[GDD3000: Story and Narrative](#)

This course introduces students to interactive storytelling as a unique medium in contrast to traditional, linear storytelling. Students will study character development, narrative strategies, plot rhythms, and patterns of dialog in various genres. Students will analyze and apply storytelling techniques to develop background material, character stories, dialog, and plot for existing and their own games. This course is structured in a workshop style with an open context for collaboration and peer review.

Prerequisite: GDD 1200 and GDD2150

[GDD4000: 3D Game Development](#)

This course introduces students to the development techniques and technologies required to create 3D games. Topics include team composition, 3D process and workflow, modeling, texturing, lighting, rigging, animation, sound, optimization, and procedural rendering. Students will develop assets, shaders, and a game using 3D tools and technologies.

Prerequisite: CS2250

[GDD3600: Serious Games](#)

This course teaches students about the issues associated with developing serious games – games that “have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement.” Serious Games include military games, government games, educational games, healthcare games, and other classes of games.

Prerequisite: GDD1200 and GDD2150

GDD3100: User Interface Design

This course introduces students to the design, implementation, and evaluation of human-computer interfaces, with an emphasis on games and immersive environments. Topics include traditional and non-traditional interfaces, design and evaluation of interactive systems, psychological considerations of interaction, interactive hardware design and special input/output techniques.

Prerequisite: GDD 1200 and GDD2150

GDD4500: Online Game Development

This course teaches students about the important issues associated with developing and launching online games. Topics include both the technical challenges associated with online games and gameplay issues such as forming an online community and developing effective player interaction models. The course also includes a significant review of both successful and unsuccessful online games.

Prerequisite: CS2250