

GDD Course Descriptions

CS 110-3. Problem Solving through Game Creation.

An introductory course that combines problem-solving techniques with computer game design and implementation to introduce the student to basic gaming and computer science topics. Students design, implement and test computer games using drag-and-drop tools. A very small amount of programming is required.

CS 335-3. Introduction to Game Design and Development.

Includes game mechanics, feedback systems, game programming fundamentals, game math and physics, artificial intelligence, 2D and 3D graphics and animation, and audio programming. Students complete a team project developing a complete game.

CS 478-3. Advanced 3D Games and Digital Content Creation.

Populating virtual worlds with characters and objects. Concentrates on current technology and advanced topics using graphics and VR technology. Typical topics included are graphics engines, landscape specializations, wrapping techniques, complex scenes, lighting, shadows, motion control, collision, dynamics, image-based rendering, multi-player games, etc... plus advanced features from SIGGRAPH and others. Prer., CS 480.

CS 480-3. Computer Graphics.

Fundamental areas of modern raster computer graphics: hardware, software, data structures, mathematical modeling, user interface and manipulation of graphical objects, A subset of the two-dimensional GKS is examined and implemented with emphasis placed upon segmented display files and instance modeling. Basic to all graphics programs written are the ergonomic requirements of the user. Required programs are in the areas of animation, paint systems, polygon filling and clipping, and curve generation.

GDD 120-3. Introductory Programming for Game Developers.

Introduction to programming in the context of game development. Develops methods for problem solving, including the effective use of abstraction. Develops programming proficiency in a modern, object-oriented programming language. Students design, implement, and test various games and game components.

GDD 220-3. Data Structures and Algorithms for Game Developers.

This course teaches fundamental data structures and algorithm analysis concepts in the context of game development. Students will learn how to implement a variety of data structures and to evaluate the algorithmic complexity of various searching and sorting algorithms. Students will also empirically evaluate a variety of algorithms implemented using standard collections. Prer., GDD 120.

GDD 330-3. Modeling and Simulation for Games.

This course teaches students about the issues associated with simulating worlds and experiences in conjunction with the modeling of specific events in those worlds. The course takes a practical approach to how game developers in particular can perform effective modeling and simulation. The foundations laid in this course are particularly important in serious games, where accurate modeling tends to be critical, though the concepts apply for games designed for entertainment as well. Prer., GDD 220.

GDD 340-3. Artificial Intelligence for Games.

The purpose of this course is to teach the Artificial Intelligence techniques that are most important in game development. Course topics will include Finite State Machines, pathfinding, emergent behavior, and other pertinent topics. The course also shows how these concepts apply to the most common game genres, as well as addressing the specific issues associated with each genre. Prer., GDD 220.

GDD 360-3. Developing 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. Prer., CS 335 and GDD 330.

GDD 410-3. Advanced Game Design Concepts.

This course teaches advanced game design concepts, including character development, storytelling and narrative, game balancing, and general level design principles. The course also shows how these concepts apply to the most common game genres, as well as addressing the specific issues associated with each genre. Prer., CS 335.

GDD 450-3. 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. Prer., CS 335 and GDD 220.

GDD 499-3. Independent Study in Game Design and Development.

Independent study of a student-selected topic in the game design and development domain. Prer., Instructor Consent.

WMST 201-3. Gaming and Society: Gender and Ethnicity.

This class is designed to present information regarding contemporary gaming and the issues of gender and ethnicity within that venue. It will explore how the gaming industry has portrayed women and ethnic minorities and the effects of gaming within and without the gaming population. This class will focus on current gaming media, how it is largely targeted for a specific population, and how the casual games domain is broadening those target markets.