

CSC 9000 – Guided Study: Computer Game Design & Development

Syllabus

Instructor	Dr. Thomas Way Mendel Science Center 160A thomas.way@villanova.edu
Prerequisites	CSC 4700 or CSC 8540 or equivalent

Course Description

The main goals of this course are to establish an understanding of the techniques and processes used in professional computer game development, and to survey the common education-oriented and professional software tools used in this field. Students will perform a guided study of background in the area of computer game development, focusing on game development project management topics, including specification, team management, market analysis and testing. Students will also apply this knowledge in 1-3 computer game development projects, culminating with either the completion of a fully specified and implemented game or the completion of a number of prototype and proof-of-concept software demonstrations of various advanced components of computer games (i.e. AI behaviors, animation, morphing storylines, realistic physics engines, etc.). Critical to the students continued progress will be weekly study meetings with the instructor who will evaluate the students' progress and provide guidance and instruction for continued learning. Grading will be based on evaluation of the student learning and work accomplished during the semester, as measured through a series of informal, oral examinations, document reviews and software demonstrations.

The student also will be encouraged to present the results of their work one or more times during the semester to undergraduate student who are studying in the Computer Game Development (CSC 5930) course. If the work undertaken by the student is sufficiently research-oriented, the student will be encouraged to produce and submit a conference research paper.

Student Learning Outcomes

1. The student will demonstrate a breadth of knowledge in computer game development terminology and techniques, and demonstrate an ability to perform guided study in computer game development processes, practices and software tools.
2. The student will demonstrate an ability to critically review existing computer games and apply that analysis to development of new games.
3. The student will demonstrate an ability to analyze, plan and manage a computer game development project.
4. The student will successfully develop and write a computer game specification that includes appropriate software engineering concepts, and successfully implement a complete computer game from that specification, or a number of computer game components that demonstrate aspects needed to implement the specification.
5. Optionally, the student will successfully write a conference style research paper if the individual topic pursued is sufficiently research-oriented.

Course Requirements

1. **Background Study/Progress Reviews.** The student will perform a guided study of relevant academic and professional material in the area of computer game development techniques, technology and existing games. The instructor will provide ample required reading material from online resources, and the student will supplement these readings with the results of his or her own online information gathering. The results of this effort will be the accumulation of significant knowledge about the techniques and tools of professional computer game development. Weekly meetings with the instructor will include an informal oral examination and review of student materials to assess student progress and learning.
2. **Game Specification.** The student will apply background study and learning to the design of a computer game through the completion of a game design specification, which will include a plan for managing and implementing the proposed game.
3. **Game Implementation.** The student will implement the game specified in the formal game specification, or implement a number of essential components of the game using professional-quality, industry-standard tools and techniques.
4. **Instruction.** The student will present the results of study and development efforts one or more times to the undergraduate Computer Game Development course.
5. **Research Paper.** Optionally, and if the student work is of a sufficiently research-oriented nature, the student will produce of a 5-7 page conference-style research paper of high quality for submission to an appropriate outlet.

Tentative Grading Procedure

The following allocation of points is tentative and may change during the semester:

Background Study/Progress Reviews	40%
Game Specification	20%
Game Implementation	30%
Instruction	10%
Research Paper	n/g

Academic Integrity

The student is responsible for and will be expected to follow standard industry, academic and University guidelines for academic integrity. Any deviation from these policies will be dealt with accordingly.