



Course Syllabus

GAME 2342 – Game and Simulation Programming I

Catalog Description: Game and simulation programming. Includes advanced pointer manipulation techniques and pointer applications, points and vectors, sound, and graphics. Lecture hours = 3, Lab hours = 3.

Prerequisites: COSC 1436 recommended

Semester Credit Hours: 3

Lecture Hours per Week: 3

Contact Hours per Semester: 48

State Approval Code: 10.0304

Course Subject/Catalog Number: GAME 2342

Course Title: Game and Simulation Programming I

Course Rationale: This course provides an introduction to video game and simulation programming as part of the Game Development Certificate.

Instructional Goals and Purposes: The purpose of this course is to teach students to incorporate sound and graphics in programs; develop programs that utilize 2D graphics; develop a basic 2D game; and write programs using advanced pointer techniques and applications.

Learning Objectives:

1. Launch Gamemaker and become familiar with the user interface.
2. Understand the fundamentals of designing games
3. Describe the fundamental of action games
4. Design and create levels
5. Design and create interactive games
6. Use C++ and GML to add programming code to a game

Specific Course Objectives (includes SCANS):

After studying the material presented in the text and online, the student should be able to complete all behavioral/learning objectives listed below with a minimum competency of 70% on assignments and exams.

1. **Launch Gamemaker and become familiar with the user interface.** (1a-i, 1c-iv, 2c-i, 2c-ii, 2c-iv, 2e-ii)
 - a. Understand the process of creating games using objects and rooms
 - b. Understand the global user interface
 - c. Process player input using the keyboard and mouse
 - d. Use the file, edit, and add menus to manipulate sprites, sounds, and backgrounds
 - e. Write a Windows game program from scratch with Game Maker
2. **Understand the fundamentals of designing games.** (1a-i, 1a-iii, 1b-iii, 2c-ii, 2c-iv)
 - a. Load an image from disk and draw it as a sprite
 - b. Draw transparent sprites over a background
 - c. Understand the use of events including create, destroy, alarm, collision, keyboard, and mouse

- d. Use actions including move, control, score, and drawing
3. **Describe the fundamental of action games.** (1a-i, 1b-vi, 2c-ii, 2c-iv)
 - a. Load an image from disk and draw it as a sprite
 - b. Draw transparent sprites over a background
 - c. Understand the use of events including create, destroy, alarm, collision, keyboard, and mouse
 - d. Use actions including move, control, score, and drawing
4. **Design and create levels .** (1a-i, 1b-iv, 2c-iv)
 - a. Create rooms and instances of rooms
 - b. Add levels to a game
5. **Design and create interactive games.** (1a-i, 1b-iii, 2c-i, 2c-ii, 2c-iii, 2c-iv)
 - a. Design and create a simple cooperative game
 - b. Design and create a simple competitive game
6. **Use C++/GML to add programming code to a game. .** (1a-i, 1a-ii, 1b-vi, 2c-i, 2c-ii, 2c-iii, 2c-iv)
 - a. Understand the use of game loops using C++ and GML
 - b. Use C++ and GML to add programming code to a game

Course Content:

Students in all sections of this course will be required to do the following:

1. Students will submit an assignment each week. Each assignment stresses features and functions common to spreadsheet applications including creating formulas, formatting worksheets, working with multiple worksheets, creating charts, sorting and filtering lists, etc.
2. Students will assemble a portfolio of work to be submitted at the end of the semester.
3. Students will complete three hands-on, application exams using a spreadsheets program.

Methods of Instruction/Course Format/Delivery:

Students in both the traditional class and in the Internet class will have access to this course via WebCT. Students in the traditional class will meet regularly for lecture over the material. Students in the Internet class will only be required to meet with the instructor for testing; however, Internet students are always welcome to attend the traditional class (especially for exam reviews). Resources provided through WebCT include

- A calendar displaying assignments each week (please check often)
- Online assignments
- Chapter notes
- Email (totally contained within WebCT)

All assignments will be submitted through WebCT. After the assignment has been graded, the student will be able to view his or her grade by returning to the assignment and clicking the View Scores button or by clicking the My Grades link in the left banner. All exams will be hands-on application tests and students will not be able to view the answers to the exams online; however, they will be able to see their grade in My Grades and drop by the office to review their exams. I generally will have your work graded and posted within two days following the deadline.

Students in both the traditional and Internet classes should use the Email within WebCT to communicate with the instructor. Using WebCT email gives you access to the instructor and other classmates without having to remember or type email addresses—you just select a name from the list. If you are not able to contact me using email in WebCT, you may use my Panola College email address. I attempt to respond to all email within 24 hours. If you make an appointment with me through email to take an exam, for example, I will reply to your email—if I do not reply you should send your email to me again or call me. Please always include a subject line and your name in your email.

Assessment:

The following items will be assigned during the semester and used to calculate the student's final grade:

- **ASSIGNMENTS**

We will work through each of the learning modules which correspond to the chapters in your textbook. At the end of each learning module, you will complete a programming project demonstrating your knowledge of the programming concepts presented in the learning module. Program source code will be submitted to me according to the schedule provided using the online drop box in the Assignments link of WebCT.

- **PORTFOLIO**

The portfolio will be a collection of all program source code developed during the semester including a comprehensive programming project to be completed in the final weeks of the semester.

Portfolios are due by the scheduled deadline.

- **EXAMS**

There will be one assessment to verify that you have the comprehensive knowledge required to produce your portfolio. You will demonstrate this knowledge by conducting an interactive presentation of a comprehensive programming project subject to peer and instructor evaluation.

Course Grade:

The grading scale for this course is as follows:

- Assignments – 20%
- Portfolio – 50%
- Exams – 30%

All of your grades including a mid-semester and final grade will be posted to My Grades in WebCT.

Texts, Materials, and Supplies:

- *The Game Maker's Apprentice*, Jacob Habgood and Mark Overmars, APRESS Books, 2007, ISBN number: 1-59059-615-3
- Access to a computer and the Internet.
- Program development software and student data files are bundled with the textbook.

Other:

- For current texts and materials, use the following link to access bookstore listings: <http://www.panola.edu/collegestore.htm>
- For testing services, use the following link: <http://www.panola.edu/instruction/dl/testing.htm>

SCANS CRITERIA

- 1) **Foundation skills are defined in three areas: basic skills, thinking skills, and personal qualities.**
 - a) **Basic Skills:** A worker must read, write, perform arithmetic and mathematical operations, listen, and speak effectively. These skills include:
 - i) Reading: locate, understand, and interpret written information in prose and in documents such as manuals, graphs, and schedules.
 - ii) Writing: communicate thoughts, ideas, information, and messages in writing, and create documents such as letters, directions, manuals, reports, graphs, and flow charts.
 - iii) Arithmetic and Mathematical Operations: perform basic computations and approach practical problems by choosing appropriately from a variety of mathematical techniques.
 - iv) Listening: receive, attend to, interpret, and respond to verbal messages and other cues.
 - v) Speaking: Organize ideas and communicate orally.
 - b) **Thinking Skills:** A worker must think creatively, make decisions, solve problems, visualize, know how to learn, and reason effectively. These skills include:
 - i) Creative Thinking: generate new ideas.
 - ii) Decision Making: specify goals and constraints, generate alternatives, consider risks, and evaluate and choose the best alternative.
 - iii) Problem Solving: recognize problems and devise and implement plan of action.
 - iv) Visualize ("Seeing Things in the Mind's Eye"): organize and process symbols, pictures, graphs, objects, and other information.
 - v) Knowing How to Learn: use efficient learning techniques to acquire and apply new knowledge and skills.
 - vi) Reasoning: discover a rule or principle underlying the relationship between two or more objects and apply it when solving a problem.
 - c) **Personal Qualities:** A worker must display responsibility, self-esteem, sociability, self-management, integrity, and honesty.
 - i) Responsibility: exert a high level of effort and persevere toward goal attainment.
 - ii) Self-Esteem: believe in one's own self-worth and maintain a positive view of oneself.
 - iii) Sociability: demonstrate understanding, friendliness, adaptability, empathy, and politeness in group settings.
 - iv) Self-Management: assess oneself accurately, set personal goals, monitor progress, and exhibit self-control.
 - v) Integrity and Honesty: choose ethical courses of action.
- 2) **Workplace competencies are defined in five areas: resources, interpersonal skills, information, systems, and technology.**
 - a) **Resources:** A worker must identify, organize, plan, and allocate resources effectively.
 - i) Time: select goal-relevant activities, rank them, allocate time, and prepare and follow schedules.
 - ii) Money: Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.
 - iii) Material and Facilities: Acquire, store, allocate, and use materials or space efficiently. Examples: construct a decision time line chart; use computer software to plan a project; prepare a budget; conduct a cost/benefits analysis; design an RFP process; write a job description; develop a staffing plan.
 - b) **Interpersonal Skills:** A worker must work with others effectively.
 - i) Participate as a Member of a Team: contribute to group effort.
 - ii) Teach Others New Skills.
 - iii) Serve Clients/Customers: work to satisfy customer's expectations.

- iv) **Exercise Leadership:** communicate ideas to justify position, persuade and convince others, responsibly challenge existing procedures and policies.
- v) **Negotiate:** work toward agreements involving exchange of resources, resolve divergent interests.
- vi) **Work with Diversity:** work well with men and women from diverse backgrounds.

Examples: collaborate with a group member to solve a problem; work through a group conflict situation, train a colleague; deal with a dissatisfied customer in person; select and use appropriate leadership styles; use effective delegation techniques; conduct an individual or team negotiation; demonstrate an understanding of how people from different cultural backgrounds might behave in various situations.

- c) **Information:** A worker must be able to acquire and use information.

- i) **Acquire and Evaluate Information.**
- ii) **Organize and Maintain Information.**
- iii) **Interpret and Communicate Information.**
- iv) **Use Computers to Process Information.**

Examples: research and collect data from various sources; develop a form to collect data; develop an inventory record-keeping system; produce a report using graphics; make an oral presentation using various media; use on-line computer data bases to research a report; use a computer spreadsheet to develop a budget.

- d) **Systems:** A worker must understand complex interrelationships.

- i) **Understand Systems:** know how social, organizational, and technological systems work and operate effectively with them.
- ii) **Monitor and Correct Performance:** distinguish trends, predict impacts on system operations, diagnose deviations in systems' performance and correct malfunctions.
- iii) **Improve or Design Systems:** suggest modifications to existing systems and develop new or alternative systems to improve performance.

Examples: draw and interpret an organizational chart; develop a monitoring process; choose a situation needing improvement, break it down, examine it, propose an improvement, and implement it.

- e) **Technology:** A worker must be able to work with a variety of technologies.

- i) **Select Technology:** choose procedures, tools or equipment including computers and related technologies.
- ii) **Apply Technologies to Task:** understand overall intent and proper procedures for setup and operation of equipment.
- iii) **Maintain and Troubleshoot Equipment:** Prevent, identify, or solve problems with equipment, including computers and other technologies.

Examples: read equipment descriptions and technical specifications to select equipment to meet needs; set up and assemble appropriate equipment from instructions; read and follow directions for troubleshooting and repairing equipment.