Game Development
C SC 465/565

Description
This course provides an introduction to video game development. We will explore game design (not just computer games, but all games) and continue with an examination of game prototyping. Once we have working prototypes, we will continue with the development of a complete 2D computer game. The remaining course topics include: designing the game engine, rendering the graphics to the screen, and artificial intelligence.

Students will be given periodic homework that reinforces what was learned in class. Homework will include developing a game prototype, game design documentation, some programming tasks. Students will work in small teams to develop a working game as a term project. Grades will be primarily based on the term project with some small amount of weight to homework.

The examples provided in class will be programmed in Java and available for execution on any operating system. Programming homework assignments will be done in either Java or the language chosen by the instructor. The term project can be written in any programming language with instructor permission.

Instructors:
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Office Hours:
Tuesday - 10:00am-12:00
Wednesday - 2:00pm 3:00
By appointment (email)
Phone Number: 520-906-1734

Website:
http://cgi.cs.arizona.edu/classes/cs465/spring10/

Textbooks:
Required: None
Recommended:
Killer Game Programming in Java (Paperback)
Andrew Davison (Author)
ISBN-10: 0596007302
Fundamentals of Game Design (2nd Edition) (Paperback)
Ernest Adams (Author)
ISBN-10: 0321643372
Prerequisites: CSC 345 and CSC 335 or instructor permission
Examinations: None, but there will be a term project.
Class size: 18-24

Grading:
A - 90% - 100%
B - 80% - 89%
C - 70% - 79%
D - 60% - 69%
F - 0% - 59%

Assignments:
20% homeworks (3 -4)
80% term project
Term Project (Incremental feedback)

Undergraduates
Concept and Design Document 10%
Gameplay Prototype 10%
Technical Prototype 10%
Final Documents 10%
Final Presentation 10%
Final Release 20%
Team Grades 10%

Graduates
Concept and Design Document 10%
Team Reports 5%
Gameplay Prototype 10%
Technical Prototype 10%
Final Documents 10%
Final Presentation 10%
Final Release 20%
Team Grades 5%

Graduate Students
On top of regular assignments, graduate students will be the team leader of a group of undergraduate students. They will be responsible for biweekly reports on the progress of the team and game.

On all homework, graduate students will be responsible for extra problems.

Course Objectives:
Introduction to game development
Hands on learning experiences
Cover many areas related to game development

**Expected Learning Outcomes**
- Ability to design and implement a 2D video game
- Familiar with the development process for video games
- Ability to work with Soar architecture and code

**Absence Policy:**
- Students are expected to be in class but not formally graded on it.
- All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion.
- Absences pre-approved by the UA Dean of Students (or Dean’s deignee) or instructor will be honored.

**Cheating policy:**
- Every student is responsible for their own work.
- Discussions about homework are allowed, but homework must be done alone.
- Cite references and other classmates if help is received from either.
- Follow the Student Code of Academic Integrity:
  - [http://dos.web.arizona.edu/uapolicies](http://dos.web.arizona.edu/uapolicies)

**Students With Disabilities:**
- If you anticipate issues related to the format or requirements of this course, please meet with me. I would like us to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Resources (621-3268; drc.arizona.edu) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.
Topics
Game Design
Prototyping
Game Engine Design
Art
2D Graphics
Particle Systems
AI
Physics (Time permitting)

Potential Outline (professor reserves right to change)
Week 1 - Game Discussion (only one class)
Week 2 - Game Design
Week 3 - Game Design (cont.)
Week 4 - Prototyping
Week 5 - Game Engine Design
Week 6 - Art and 2D Graphics
Week 7 - 2D Graphics
Week 8 - 2D Graphics & Particle Systems
Week 9 - Demo
Week 10 - AI (search)
Week 11 - AI (rule based)
Week 12 - AI Behaviors
Week 13 - AI Behaviors
Week 14 - Competition
Week 15 - Topics
Week 16 - Topics