

CS 392 Special Topics: Game Engine Design
Fall 2024
TTH 9:00-10:15, Lab Wednesday 3:00-5:45

Instructor Information

Name: S. Seth Long, Ph.D
Office: MLH 216 (temporary), later TJH 204
Email: sslong@lcsc.edu
Office Hours: Monday 1:30-3:00, Thursday 10:30-12:00

Class Website

The class website is located at <https://isoptera.lcsc.edu/seth/cs392gd>. Look here for assignment information, lecture notes, etc.

Course Goals

At the end of the course, students should:

- Understand the internal workings of game engines
- Understand 3D graphics, including related math and practical implementation
- Have gained experience in developing significantly large and complex software
- Have a basic understanding of the skills required of game developers

Textbook

“Game Engine Architecture”, by Jason Gregory, second edition (later is fine, first probably is too).

Grading

Your grade will be calculated based on the following items:

Item	Percentage of grade
Midterm	20%
Final	20%
4 Projects	20% total
Final Project	20%
Lab	10% total
Active Learning	10% total

Lab assignments will be due at the beginning of the next lab session, thus providing a week to finish them.

Grades will be assigned according to a standard curve, that is:

- A: 90% +
- B: 80%- 90%
- C: 70%- 80%
- D: 60%- 70%
- F: less than 60%

Use of + or - grades (such as B+ or A-) and curves will be at the instructor’s discretion.

Deadlines and late work

Late work will not be accepted. However, partial credit will be given for partially-completed work. It is better to turn in an unfinished assignment for partial credit than to not turn in something on time and receive a 0.

Attendance

Attendance will not be taken in this class except as required for financial aid purposes. However, all material presented during lecture and student presentations is “fair game” for the midterm and final, and some of this material may not be in the book as well. Therefore I recommend that you always attend class.

Academic Dishonesty

Cheating on any assignment will result in failing the class. Some things which constitute cheating in this class are:

- Copying another student's homework
- Turning in homework created by another student
- Reading another student's answers on a test
- Sharing all or part of your completed homework with another student before the assignment is due

Appropriate collaboration on homework involves sharing ideas with other students only, not source code! Although it is often tempting to help another student by showing them how your completed program works, this is not helpful to their learning. However, this does not mean you cannot collaborate with other students on homework. Sharing of ideas, principles, and algorithms is permitted and encouraged.

Tentative Course Calendar

Highly Tentative Fall 2024 CS392 Game Engine Design		
This is a special topics course. Expect the plan to change as we go.		
Week	Course Content	Book Chapter
Aug 19	Course Intro, C++ Review for Game Development	1-3
Aug 26	3D Graphics	Red Book
Sep 2	No class Monday, Blender and Exporting Models	
Sep 9	3D Math, anything more on graphics	4
Sep 16	Game engine architecture decisions	4, online (red book?)
Sep 23	Beginning an Actual Game	7
Sep 30	Physics and Collision Detection (probably)	5
Oct 7	Midterm	1-6
Oct 14	Improved Memory Management	5
Oct 21	Improving our game engine in a TBD way	5 or 7
Oct 28	Level Editing	
Nov 4	Lighting	
Nov 11	Ray Tracing with the GeForce RTX	
Nov 18	Optimization and general speed improvement	
Nov 25	Thanksgiving Break	
Dec 2	Project presentation	
Dec 9	Final Exam is Thursday, December 12, at 9:00 in MLH 310	