

CS 392 Special Topics: Game Engine Design
Fall 2020
MW 12:00-1:15, Lab Monday 3:00-6:00

Instructor Information

Name: S. Seth Long, Ph.D
Office: MLH 216
Email: sslong@lcmail.lcsc.edu
Office Hours: Monday 2:00-3:00, Wednesday 11:00-12:00

Class Website

The class website is located at <http://isoptera.lcsc.edu/~seth/cs392>. 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	15%
Final	15%
4 Projects	60% total
Lab	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.

Highly Tentative Fall 2020 CS392 Game Engine Design		
This is a special topics course in a time of uncertainty. Expect the plan to change.		
Week	Course Content	Book Chapter
Aug 24	Course Intro, C++ Review for Game Development	1-3
Aug 31	3D Graphics	Red Book
Sep 7	No class Monday, Blender and Exporting Models	
Sep 14	3D Math	4
Sep 21	More on 3D Graphics	4, online (red book?)
Sep 28	Beginning an Actual Game	7
Oct 5	Physics and Collision Detection (probably)	5
Oct 12	Midterm	1-6
Oct 19	Improved Memory Management	5
Oct 26	Improving our game engine in a TBD way	5 or 7
Nov 2	Level Editing	
Nov 9	Vulkan Introduction (if time allows)	
Nov 16	Ray Tracing with the GeForce RTX	
Nov 23	Thanksgiving Break	
Nov 30	No regular lecture. Focus on your game	
Dec 7	No regular lecture. Focus on finishing and debugging your game	
Dec 14	Final Exam is Wednesday, December 16, at 12:00 (noon)	