

# Course Syllabus: *Computer Graphics* Fall, 2018, SWE3008

Instructor: Prof. Sungkil Lee (이성길)  
Computer Graphics Lab.  
College of Software, Sungkyunkwan University

**Time and Place:** Mon. 10:30–11:45, Wed. 09:00–10:15, 26312

**Office Hour:** Wed., 10:30–11:30 at my office (27328)

**Teaching Assistants (TAs):** Hyojin Jung (정효진), cglab.skku@gmail.com

**Course Web page:** <http://cg.skku.edu/course/cg/>

**Official language:** English

## Course Summary

Computer graphics is a fundamental tool for creating and manipulating visual media including games, animation, virtual reality, and web, and is also a crucial component for science and engineering software. This course covers basic theory and practical techniques of computer graphics for digital media. This course particularly deals with modern-style GPU shader programming for its implementation.

**Prerequisites:** Data structures, Algorithms, Linear Algebra, C++

## Textbook and References

- *Interactive Computer Graphics: A Top-Down Approach with Shader-Based OpenGL*, 6th Edition, Edward Angel and Dave Shreiner, 2011.
- *OpenGL Programming Guide: The Official Guide to Learning OpenGL, Versions 4.5* (aka Red Book), Dave Shreiner, 2013.
- <http://www.opengl.org>: Documentation and sample codes

## Grading Policy

Attendance and attitude: 10%  
Assignments: 40%  
Mid-term exam: 20%  
Final exam: 30%

- When you are absent in the class more than 5 times, you will fail to pass this course.
- Absence with any reasons will not be considered presence.
- Two late attendances are equivalent to one absence.

## Schedule

Week	First (Monday)	Second (Wednesday)	Assn.	Due	Notes
1	Course overview	OpenGL: Introduction			
2	Images and displays	OpenGL: Installation			
3	OpenGL: Hello triangles	—	A1		
4	<b>Holiday (9/24)</b>	<b>Holiday (9/26)</b>			Thanksgiving day
5	OpenGL: Hello triangles	<b>Graphics Systems (Make-up)</b>			National Foundation Day (10/3; Wed.)
6	Geometric Modeling	OpenGL: Circle Modeling	A2		
7	<b>Business travel (10/15)</b>	<b>Business travel (10/17)</b>		A1	
8	<b>Midterm exam</b>	—			
9	Transformations	OpenGL: Transformations			Make-up lecture; Viewing (11/3; Sat.)
10	Projection	OpenGL: Camera	A3	A2	
11	Shading	OpenGL: Shading			
12	Textures	OpenGL: Textures	A4	A3	
13	Ray Tracing	Ray Tracing			
14	Global Illumination	<b>Business travel (12/5)</b>		A4	
15	Global Illumination	Intro to VR			
16	<b>Final exam</b>	—			

\* Make-up classes, compensating for business travels, will cover special topics and advanced techniques

## Programming Assignments

ID	Name	Percentages	Subjects
A1	Moving circles	25%	A simple 2D animation with collision detection
A2	Planet in space	25%	Geometric modeling of a 3D sphere
A3	Solar system I: moving planets	25%	3D transformations with a camera interaction
A4	Solar system II: full system	25%	Shading textures, and more