

CS 1566 — Introduction to Computer Graphics

Department of Computer Science
University of Pittsburgh
Fall 2019

Catalog Description

This course offers an in-depth exploration of fundamental concepts in 2D and 3D computer graphics. The bulk of the course is devoted to 3D modeling, geometric transformations, and 3D viewing and rendering.

Instructor Information

Name: Dr. Thumrongsak Kosiyatrakul (Tan)
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Office: 6215 SENSQ
Office Hours: (MW) 9:30 am – 12:00 pm

Teaching Assistant Information

Name: TBA
Email: TBA
Office: TBA
Office Hours: TBA

Note: For more up-to-date information about TA's email, office hours, and office location, please check the CourseWeb under Faculty Information section.

Meeting Time and Location

Lecture: (TH) 4:00pm – 5:15pm; 208B CL

Course Web Address

We will use CourseWeb for announcements, lecture slides, examples, projects, labs, pop quizzes solutions, and exam solutions. Make sure you are able to access the CourseWeb via `my.pitt.edu`.

Textbook

Edward Angel and Dave Shreiner. *Interactive Computer Graphics. A Top-Down Approach with Shader-Based OpenGL*, Sixth or Seventh Edition. Addison-Wesley (Pearson).

Course Objective

In this class, we will learn how to use mathematics (matrices, vectors, etc) to manipulate objects in 3D including animation. The same mathematic will be used to create a lighting model to give a realistic look. This class will use OpenGL and C program as a tool to visualize results. By the end of the semester, you should be familiar enough to understand:

- how 3D objects are modeled in computer and use textures
- how to transform objects into a desire shape, size, location, and orientation using

transformation matrices

- how to view 3D world with orthogonal viewing and perspective viewing
- how to apply shading, texture mapping, and rendering

Prerequisites

Completed CS 0447 or COE 0447 — Computer Organization and Assembly Language. C Programming and MATH 0280 — Linear Algebra is recommended.

Outcome Measurement

Your final grade is based on the following:

- **Projects** (80% of final grade): There will be 4 projects (20% each) Projects and their instructions will be posted on the CourseWeb. **No late submission will be accepted.**
- **Labs/Recitation** (20% of final grade): There will a number of very small programming assignments (labs) throughout the semester. Each lab assignment will be posted on Monday morning and you must submit it on CourseWeb by its due date/time. **No late submission will be accepted.** Each lab is a very small programming assignment which will get you up to speed with C programming and OpenGL. Your TA will explain some details/hints about each lab during recitation and help you if you have any problems. Note that it is a good idea for you to take a look at each lab and start working on it as soon as possible.

These labs are mandatory. TA will check your name at the end of every lab. If you submit a lab but you do not attain that lab, 50% will be deducted from that lab. If you finish your lab early, you can show your result to your TA and let your TA checks your name right away.

Note that the above weight may be changed during the semester. The scale for the term based on the class average at 75% is shown below (curve down is possible if the average of midterm exam and final exam are lower than 75%):

Percentage	≥ 90	≥ 89	≥ 88	≥ 80	≥ 79	≥ 78	≥ 70	≥ 69	≥ 60	< 60
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D	F

List of Topics

- Introduction
- OpenGL
- Geometry Shapes/Objects
- Texture Mapping
- Transformation
- Viewing

- Lighting Model

Other Information

See Syllabus section on the CourseWeb for additional information about **Academic Policies, Academic Integrity, Disability Services, Accessibility, Copyright Notice, and Statement on Classroom Recording.**