CSCI-4965: Three-Dimensional Computer Graphics
Fall 2000

1 Course Information

Times: Monday and Thursday 10:00am–11:50am
Classroom: Low (CII) 3039
Credits: 4
Prerequisites: Data structures and algorithms (CSCI-2300), linear algebra, and Computer graphics (ECSE-4750), or permission of instructor.
WWW: http://www.cs.rpi.edu/courses/fall00/graphics

Instructor: Srinivas Akella
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Office hours: Monday, 1:00-2:00pm

Teaching Assistant: Xianfeng Zhao
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Office hours: Thursday 2:30-3:30pm

Textbooks:
Computer Graphics, C version, second edition. D. Hearn and M. P. Baker. Prentice Hall, 1997.
OpenGL Programming Guide, third edition. M. Woo, J. Neider, T. Davis, and D. Shreiner, Addison Wesley, 1999.
(Optional) *Computer Graphics: Principles and Practice. second edition in C.* J. D. Foley, A. van Dam, S. K. Feiner, and J. F. Hughes. Addison Wesley, 1996.

2 Course Description

This course is an introduction to the principles of 3D computer graphics modeling, rendering, and animation. Topics include an introduction to OpenGL, 3D geometric and modeling transformations, 3D viewing and projections, modeling of curves and surfaces, solid modeling, illumination models and shading, texture mapping, visibility algorithms, animation and physically based modeling. The course will involve substantial programming assignments using OpenGL.

3 Syllabus

This is the tentative list of topics to be covered. Be sure to check the course web page regularly for course announcements and the updated schedule.

1. Introduction to Computer Graphics
2. The OpenGL graphics library
3. 3D Geometric and Modeling transformations
4. 3D Viewing and Projections
5. Modeling of curves and surfaces
6. Solid modeling
7. Illumination models and Shading
8. Texture mapping
9. Visibility algorithms
10. Animation and Physically based modeling

4 Grading

Course grades will be determined as follows:
Programming assignments: 60%
(four assignments, 15% each)
Midterm exam: 15%
Final exam: 25%

Students will have access to a cluster of Sun Ultra10s in Amos Eaton 117 to work on their programming assignments.
Attendance policy: Students are responsible for knowing all material covered in class.

5 Academic Honesty

Students are encouraged to discuss class material and assignments. However they are expected to submit their own work for assignments and examinations. In particular, it is inappropriate for students to share code for programming assignments.

The Rensselaer Handbook defines various forms of academic dishonesty and procedures for responding to them. Students found in violation of academic honesty policies will receive a failing grade for the course.