School of Continuing Studies
Computer Science 351: Introduction to Computer Graphics

Instructor: Amy Gooch

This course is an introduction to computer graphics, including rasterization, modeling, viewing, lighting, texture mapping, and raytracing for students with a background in programming and linear algebra. We focus on the kind of 3D interactive graphics used in games, although we will spend some time on raytracing and writing shaders.

Class Meetings
Wednesday, 6pm to 9pm Library PC Lab, Northwestern University Evanston Campus
   First class: September 24th, 2003
   Last class: December 3rd, 2003
   Holiday: No class November 26th, 2003 (Thanksgiving Holiday)

Web page: http://www.cs.northwestern.edu/amygooch/cs351

Textbooks:
   Fundamentals of Computer Graphics
      Peter Shirley
      Publishers: AK Peters, Ltd

      by Mason Woo, Jackie Neider, Tom Davis, Dave Shreiner, OpenGL Architecture Review Board

Optional Textbooks:
   Realistic Ray Tracing, 2nd Edition
      Peter Shirley, R. Keith Morley
      Publishers: AK Peters, Ltd
      (We will write a ray tracer for the last project, wouldn’t suggest buying it yet)

Prerequisites: Programming in C/C++, COMP STU 110

Format:
At the beginning of each class, each student will bring in the following with regard to the reading assignment:
   • 1) What they found to be the most interesting in the reading
   • 2) What they were the most confused about or would like to know more about

There will be five programming projects and weekly quizzes which will cover the conceptual and mathematical material covered in lectures and reading.
Projects:

Projects may be done in either C or C++. The code fragments we hand out to get you started will probably be in C. Projects will be turned in via a method which has yet to be established (see web page for update). I must be able to compile your program and run it on those machines in order for you to receive a grade. Documentation, graphics design, performance and code design will all contribute to your project grades.

For some projects, we will define a minimum set of required features. A project which implements these features well will receive a grade of “B”. To get an “A”, you will need to improve the basic project in some way: new features, technical improvements, good design, better interaction, etc. We will discuss possible improvements in class and on the assignment web pages.

Unusually excellent or innovative projects may receive extra credit, which can be used to bring up your score on other projects.

Rules for Projects:

- Code obtained from elsewhere and used as part of a project must be documented in the README. Failure to do so will be treated the same as cheating. Course credit cannot be obtained for someone else’s work (obviously!).
- Ideas obtained from elsewhere, either from a printed paper or from online material, must be referenced in your project report.
- You may develop at home, but projects and assignments must be tested on the machines in the Library PCs Lab. Failure of a program to compile or execute properly in that environment will result in loss of marks.
- If you discover a link that you think would be helpful to current or future graphics students, feel free to send it to us and we’ll consider adding it to our web pages.

Late projects will lose 5% on the first 12 hours, 10% on each subsequent late 12 hours (to allow for minor bugs that come up at the last minute.)

Schedule: See Web page: http://www.cs.northwestern.edu/amygooch/cs351/

Grading:

- Class Participation and Attendance: 10% of grade
- Quizes: 30% of grade (Can drop 2 lowest quiz scores)
- Projects: 60% of grade