MASSACHVSETTS INSTITVTE OF TECHNOLOGY
Department of Electrical Engineering and Computer Science
6.837 — Computer Graphics
Fall Semester, 1996

General Information

Overview:

6.837 is a comprehensive first course in 3D computer graphics, for undergraduates with an interest, and reasonable proficiency, in geometric computation. It can be taken for "G" credit by graduate students.

The course begins with the classical rendering pipeline, then examines, in depth: modeling hierarchies, coordinate transformations, clipping, local and semi-local shading operations, and rasterization. Advanced topics, including algorithms for antialiasing, global illumination (ray tracing and radiosity), visible surface identification, morphing, and image compression are covered, as are several modern graphics hardware architectures. General interaction and optimization techniques are also considered.

The course concludes with an overview of graphics packages and applications, both 2D and 3D, and a discussion of career paths in graphics, both industrial and academic. Occasional guest lectures will be given by industry experts.

Lectures:

TR 2:30-4pm, 3-270

Lecturer:

Prof. Seth Teller, `seth@graphics.lcs.mit.edu`, NE43-208, 258-7885
Office Hours: TR 4-5 and by appointment.

Course Secretary:

Mitch Mitchell, `mitch@abp.lcs.mit.edu`, NE43-209, 253-6837

Teaching Assistants:

Kavita Bala, `kaybee@graphics.lcs.mit.edu`, NE43-219, 253-8835
Office Hours: TBA.
David Gupta, `gupta@theory.lcs.mit.edu`
Office Location, Phone, and Hours: TBA
Justin Legakis, `legakis@graphics.lcs.mit.edu`, NE43-219, 253-8835
Office Hours: TBA.

Lab Assistant:

David Weitzberg, `davidw@graphics.lcs.mit.edu`, 225-7363
On-duty hours: TBA.

Course Page:

`http://graphics.lcs.mit.edu/6.837/f96`

SGI Workstations (96 Total):

W20-575	(25)	4-035†	(20)
2-225	(13)	1-142	(10)
66-080	(10)	Rotch Library	(8)
37-312	(4)	11-113	(3)
11-116	(3)		

† = reservable, but otherwise public

SGI's are currently being installed in 10-250 and 3-133. The public combination is currently 25048*, but it will change in October. The command `cview` should give a list of machines in public clusters and how many are available at the moment.

Course Exams:

This course has no exams.

Course Text:

This course has no text.

Course Resources:

Foley et al: *Introduction to Computer Graphics*
Glassner, Ed.: *Graphics Gems*
Hearn and Baker: *Computer Graphics*
Neider et al: *OpenGL Programming Guide*
OpenGL Architecture Review Board: *OpenGL Reference Manual*
Rogers and Adams: *Mathematical Elements of Computer Graphics*
All are on reserve at the LCS Reading Room in NE43.

Prerequisites (substitutions allowed):

6.046J (Introduction to Algorithms)
18.06 (Linear Algebra)
Some C language experience.
All students **must** complete the online registration form at

`http://graphics.lcs.mit.edu/6.837/f96/problem_sets/ps0.html`

to be registered for this course!

Course grading:

Course grades will be derived from four programming assignments (60%) and a final project(40%).

Programming assignments should be completed by individual students, with no collaboration on coding (although discussing the assignment is fine). All assignments are due Fridays at 5pm (as time-stamped by `turnin` or its equivalent). **Absolutely no late work will be accepted**, except if accompanied by a letter from the Dean.

Students should work in teams of two or three for the final project. Projects can encompass offline (photorealistic) or online (interactive) rendering and/or simulation, as well as creative alternatives to the above. All projects must be preceded by a written statement of goals, and accompanied by a short written report of what was attempted and achieved. Project brainstorming is planned for week 9; team groupings and written proposals are due week 10. The projects must be completed by week 14, with demos for the teaching staff by appointment throughout week 15.

Course calendar:

A course calendar summarizing all lectures and assignment due dates is posted at `http://graphics.lcs.mit.edu/6.837/f96/Cal/sep.html`.