COMPUTER SCIENCE 470: Interactive Computer Graphics
INSTRUCTOR: Marc Thomas

OTHER REFS: Computer Graphics, Principles and Practice by Foley, van Dam, Feiner, and Hughes
Principles of Interactive Computer Graphics by Newman and Sproul

DESCRIPTION: This course is an introduction to the design principles involved in computer graphics. Particular attention will be given to the hardware-software interface and to using graphics on a network. In the book, we will plan to cover chapters 1–7, which includes overall graphics design and historical information, introduction to OpenGL programming, user input (including sample, request, and event modes of input), geometric primitives, orthogonal and projective geometry, viewing transformations, hidden-line and hidden-surface removal, light and shading, and rendering and scanline conversion algorithms.

This is a course in transition. Like the author of the text, in going from his first to second edition, we are also migrating from a GKS-type application programmer environment to an OpenGL-type application programmer environment. We will discuss some historically important graphics systems (such as vector graphical systems) but concentrate our attention on raster graphics with multiple bitplanes.

We have several Unix workstations available in our laboratory in Science I Room 414 for programming assignments. Operational problems should be expected since our newest 6 workstations have graphics cards with hardware accelerators which will greatly outperform the older workstations. It is also possible to write OpenGL programs on a Windows NT PC at home. All programming will be done in the C programming language since we want to investigate the lower levels and primitives, not hide them.

GRADING: Two midterms will be given, each worth 25%. I do not give make-up midterms; for an excused absence I count the other grades proportionately higher.

One final project, which will comprise a graphics application program of 1000 or more lines of C code will be required to be turned in on the day of the scheduled final (Monday, March 19th at 8:00am). You must inform me of your choice of project before the end of the 7th week of classes. This project is mandatory and is worth 25%. Homework and lab work are together worth the remaining 25%. We are required to inform all students that the drop date this quarter for a serious and compelling reason is February 21st.