

**Computer Science 411/611**  
**Virtual Reality Systems**  
**Fall 2003**  
**Syllabus**

**Instructor**

Dr. Timothy Davis  
437 Edwards Hall  
656-0309  
Office hours: W 3:00-4:00, Th 3:30-5:00  
tadavis@cs.clemson.edu  
<http://www.cs.clemson.edu/~tadavis>

**Class Meeting Times**

TTh 2:00-3:15 Jordan G32

**Class Cancellation**

Students are expected to wait for 15 minutes after the beginning of class before leaving if the instructor is late.

**Textbooks**

Grigore C. Burdea, Philippe Coiffet, *Virtual Reality Technology (Second Edition)*, John Wiley & Sons, 2003. (optional)

Alan Watt, *3D Computer Graphics (3<sup>rd</sup> Edition)*, Addison-Wesley, 1999. (optional)

Edward Angel, *OpenGL: A Primer*, Addison-Wesley, 2002. (optional)

Mason Woo, Jackie Neider, and Tom Davis, *OpenGL Programming Guide: The Official Guide to Learning OpenGL (Second Edition)*, Addison-Wesley, 1997. (optional)

**Grading**

Final grades will be based on programming and homework assignments, a midterm test, and a final exam with appropriate weights based on difficulty. The midterm and/or final may be an in-class test, a programming assignment, or an in-class presentation.

Projects/HW	60%
Midterm	20%
Final	20%

Letter grades will be based on a 10-point scale. Plus/minus grades will also be assigned (e.g., 87.0-89.999 B+, 83.0-86.999 B, 80.0-82.999 B-). These ranges may be changed somewhat, but only to your advantage.

### **Programming Assignments**

Programming assignments will constitute a significant portion of your grade for the course. Each of these assignments should follow the guidelines listed below.

- **Webpage** A webpage with your solution to the assignment must include:
  - description of the problem
  - description of the solution
  - user's guide
  - images produced by your code
- **Source Code** For each assignment, you will be notified on the method for submitting code.
- **Late Work** Late assignments will be accepted with penalty deemed appropriate.
- **Independent/Team Work** You must work on projects independently, unless specifically authorized to work in teams. Cheating of any kind will not be tolerated and will result in significant penalties.

### **411/611 Differences**

Those students registered for the 611 section of this course will be required to submit additional work on some homework and project assignments.

### **Course Description**

The course will cover various computer graphics topics in general and specific support of creating virtual environments. A rough outline of topics appears below:

- Introduction
- Tools and Equipment in VR
- Special Topics in Coding with OpenGL
- Color Models and Systems
- Mathematics of Virtual Environments
- The Rendering Equation
- Radiosity
- Texture Mapping
- Shadowing Techniques