

CSCI-4962: Three-Dimensional Computer Graphics  
Class 8: September 23, 2002  
**Illumination and Shading**

## **Today's Class**

We will wrap up our discussion of quaternions from last class, and then move on to illumination and shading. Today we will focus on a conceptual understanding of how lighting and shading are modeled.

1. Using quaternions for rotation: Transforming quaternions to rotation matrices and vice versa
2. Composition of rotations using quaternions
3. Local and global illumination
4. Illumination: ambient, diffuse, specular, and emissive components
5. Shading: Flat shading, Goraud (smooth) shading, Phong shading

## **Reading**

Chapters 6 of the Angel textbook.

Chapter 5 of the OpenGL red book.

## **Activity**

Try Nate Robins' OpenGL *lightmaterial* and *lightposition* tutorials.

## **Next Class**

Shading and illumination (continued).