# **CSC418** Computer Graphics

- Raytracing
- Shadows
- Global Illumination



### Local vs. Global Illumination

Local Illumination Models

- e.g. Phong
- Model source from a light reflected once off a surface towards the eye
- Indirect light is included with an ad hoc "ambient" term which is normally constant across the scene

**Global Illumination Models** 

- e.g. ray tracing or radiosity (both are incomplete)
- Try to measure light propagation in the scene
- Model interaction between objects and other objects and objects and their environment

# All surfaces are not created equal Specular surfaces e.g. mirrors, glass balls An idealized model provides 'perfect' reflection Incident ray is reflected back as a ray in a single direction No scattering (unrealistic) Diffuse surfaces e.g. flat paint, chalk Lambertian surfaces Incident light is scattered in all directions Also unrealistic for most surfaces

# **Categories of light transport**

- Specular-Specular
- Specular-Diffuse
- Diffuse-Diffuse
- Diffuse-Specular





























































































# Where to next?

- The general rendering equation (not part of this course!)
- Next class...Curves and Surfaces