Topic 11:

Texture Mapping

• Motivation
• Sources of texture
• Texture coordinates
• Bump mapping, mip-mapping & env mapping
Texture sources: Photographs

Texture sources: Procedural
Texture sources: Solid textures
Texture sources: Synthesized

(e) 
(f) 
(g) 
(h) 
(i) 
(j)
Texture coordinates

How does one establish correspondence? (UV mapping)

For each triangle in the model establish a corresponding region in the phototexture.

During rasterization interpolate the coordinate indices into the texture map.
Aliasing During Texture Mapping
Given a polygon, use the texture image, where the projected polygon best matches the size of the polygon on screen.
Bump mapping
Environment Map

Render a 3D scene as viewed from a central viewpoint in all directions (as projected onto a sphere or cube). Then use this rendered image as an environment texture... an approximation to the appearance of highly reflective objects.
Environment Mapping Cube
Environment Mapping