

## Lab 11 – csc 471: Texture mapping

Today's lab we will play with texture mapping

- 1) Download `tex_release.tar` (this includes a `.cpp` file and the associated `bmp` image files needed for the assignment) – This file contains a base program which includes a 24-bit `bmp` image loader and a texture mapped cube and texture mapped sphere. Notice that in order to apply texture mapping, we must provide texture coordinates for every vertex in the model (unless we are using quadrics like the sphere, in which case `opengl` will automatically generate the texture coordinates for us). Use the “c” key on the keyboard to toggle through the two current drawing modes.
- 2) Add a new mode – also linked to the “c” key, which will draw a “cube-world” that is – a cube with the image of the world stretched across 4 adjacent faces (as shown when the example program was run). Also make sure to apply the cloud texture to the top and bottom faces.
- 3) Find a new image online that you like and download it. Save it as a 24-bit `bmp` that is  $2^n$  by  $2^m$  in size (i.e. its height and width are both a power of 2, for example: 64, 128, 256, 512, etc.). Alter the code so that it reads in this new image file and texture maps it on one of the cubes faces.
- 4) Not required: Change the viewing from orthographic to perspective and observe what happens.