



## Assignment # 3, CSCI 480

Fall 2015  
Due date: Friday, Dec 4, midnight.

**Castle.** Use OpenGL to make a real-time interactive castle. At a minimum your castle should have some towers and walls. For inspiration, you might want to have a look at White Castle, in Wales, above. It's very simple. There are hundreds of cool castles in Wales.

**Worley noise texture and bumpmap** Use Worley noise to create colors and normals for your castle walls. Since castles don't move in world space, you can use world space for the texture and make it appear that your towers and walls were assembled together. Seamless stones should flow between walls and towers.

**Terrain.** Put a large terrain under your castle colored and wrinkled with noise. You can use my noise image texture, or your own (or code up your noise function in glsl). Add fog to the terrain so that in the distance the terrain blends into your sky color.

**Skybox.** Surround your castle with a nice skybox. You can find many skybox textures on the internet (remember to acknowledge the source, if necessary), or render your own with something like Terragen.

**Camera.** Include my camera, so you can fly around and look at stuff, or your own camera, if you like.

**Optional moat.** Put a reflecting moat around your castle. A simple way to do this is to simply **discard** the fragments of your terrain where the moat is (can be determined by  $y$  value), and then *instance* your castle and terrain twice. The second copy would be flipped in the  $y$ -axis, and colored with your water color. Adding some noise would also help. Animated noisy ripples would be way cool. There's no end to this project...

