CS 455 - Fall 2015

Program #5

**Ray Tracing**

Dr. Egbert

Due Thursday October 29

(150 points)

For this program you will write a ray-tracer. This ray tracer will have basic functionality, but you are certainly welcome to add more advanced features, if you wish. Your ray tracer must have the following capabilities:

1. The ability to ray trace spheres.
2. The ability to ray trace polygons.

3. The ability to trace one ray per pixel.

4. At least one directional light source in the scene.

5. The ability to handle a single shadow ray per intersection.

6. The ability to trace reflection rays at intersections.

7. The ability to trace refraction rays at intersections.

8. A decent illumination model for intensity calculations, allowing for ambient, diffuse, and specular components.

We will give you two test scenes that you need to render. In addition, you will need to render a scene that you create which is more complicated than the ones we give you.