

CS425 Computer Graphics I  
Lab 3: Raytracing  
Due Friday, December 7, 2018 at 11:59 PM

**Objectives**

- Render a scene using raytracing
- Understand the global illumination equation, hidden surfaces, materials and shading

**Tasks**

In this project, you will be using raytracing to render several different solids. The scene information will be provided as a text file. You may parse the file input or hardcode the data into your program. You should only need to use GL\_POINTS to render your scene. You should not use any shader libraries. Your viewport should be at least 400 x 400 pixels wide. Recurse to at least 3 bounces.

**Tips**

Running the full program may take some time. When testing, it may be expedient to initially limit the number of bounces to 1 or to render a lower-resolution image.

**Graduate students**

You will also need to render shadows for the objects in the scene.

**Submission**

Your code should run on either a Mac or Windows operating system. Submit your source code and any header files in a single zipped folder to Blackboard. Please name the folder 425\_Lab3\_<your name>. Also, please attach a screenshot of your final output.

**Grading and late policy**

This project is worth 7% of your total grade. Non-submitted or non-functional work without substantial output will result in a -7% penalty to your total grade. It must be simple to run your code for you to receive ANY points.

Late submissions receive -50% for every 24 hours that the submission is delayed, for up to 2 days. Labs will not be accepted more than 2 days (48 hours) after the due date.

Your code MUST be your own work. Cheating is not acceptable and will be reported to the Professor. MOSS will be used to check code.

**Lab 3 breakdown:**

10% Program compiles and runs without me having to look at your code

8% for correct setup of VRC

9% for each surface (*8 in total: 4 planes, 3 spheres, 1 cone*)

- 3% for 3+ bounces

- 2% for geometry

- 4% for accurate lighting

10% Programming style (comments, indentation)