

# Lighting in OpenGL

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## 1 Administrivia

### Announcements

Take-home exam will be distributed Monday. Due beginning of class Wednesday.

Project 3 due now.

### Assignment

Read 6.7–9 (6.1–5).

Do/finish the lab, run `lightLab.c` with flat shading rather than smooth shading.

### From Last Time

Project day.

### Outline

1. Walk-through of lighting calls in `lightLab.c`.
2. Lighting lab.

## Coming Up

Continuation of lab.

## 2 Lighting in OpenGL

Pertinent functions (line numbers refer to code handout):

1. `glShadeModel()` (269): `GL_SMOOTH`, `GL_FLAT`
2. `glMaterial*()` (271–274):
  - (a) Face: `GL_BACK`, `GL_FRONT_AND_BACK`
  - (b) Parameter name:
    - i. Shininess range: 0–128.
    - ii. `GL_AMBIENT_AND_DIFFUSE`
    - iii. `GL_EMISSION`
  - (c) Parameter: scalar for shininess, vector for other parameters.
3. `glLight*()` (145, 276–278):
  - (a) Light: 8 lights.
  - (b) Parameter name: see man page for other names
  - (c) Parameter: some scalar, some vector.

The fourth value in a light's position.
4. `glEnable()` (280–285):
  - (a) `GL_LIGHTING`

(b) `GL_LIGHTx`

(c) `NORMALIZE`

`glDisable()`

These are all modal.

Can turn lighting on and off.

Normal normals and non-normal normals.

### **3 Hands-On Lab**

Grab a copy of `lightLab.c` from class Web page and begin experimenting.