

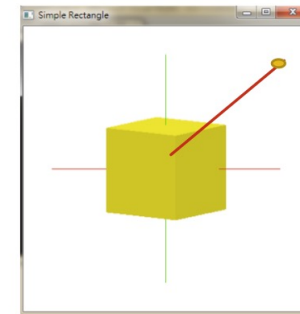
The slide features abstract green geometric shapes. On the left, a solid green triangle points downwards. On the right, a complex arrangement of overlapping translucent green triangles in various shades of green is visible. A thin, light gray line extends from the bottom left towards the right side of the slide.

Lab 04

Transformation Matrix

Lab 04 Goal - Transformation matrix

1. Arbitrary Rotation 80%
 - ▶ Read in the v1, v2 coordinate from the command line (30%)
 - ▶ Draw the line (arbitrary axis) between v1 and v2 (20%)
 - ▶ Rotate your object along the arbitrary axis (30%)
 - ▶ use your own key setting
 2. You will still need to be able to do the rotation, translation from previous lab
 3. Reset the object to origin 20%
 - ▶ use your own key setting
-
- ▶ Write comments in your code about your key setting
 - ▶ Do not use `glRotate`, `glTranslate` in your code
 - ▶ Turn in your code



Transformation Matrix

- All modeling transformations are represented as 4x4 matrices
- Identity matrix

```
GLfloat rotMatrix[] = {  
    1.0, 0.0, 0.0, 0.0,  
    0.0, 1.0, 0.0, 0.0,  
    0.0, 0.0, 1.0, 0.0,  
    0.0, 0.0, 0.0, 1.0 };
```

```
rotMatrix[0] = 1;  rotMatrix[4] = 0;  rotMatrix[8] = 0;  rotMatrix[12] = 0;  
rotMatrix[1] = 0;  rotMatrix[5] = 1;  rotMatrix[9] = 0;  rotMatrix[13] = 0;  
rotMatrix[2] = 0;  rotMatrix[6] = 0;  rotMatrix[10] = 1;  rotMatrix[14] = 0;  
rotMatrix[3] = 0;  rotMatrix[7] = 0;  rotMatrix[11] = 0;  rotMatrix[15] = 1;
```