

Drawing 3D Objects

**CSCI 4229/5229
Computer Graphics
Summer 2025**

Hints

- Build objects around origin and transform
- Form objects out of polygons
 - Make sure the edges match
 - Watch for holes
 - Watch front/back when using GL_CULL_FACE
- Build complex objects from simpler objects
- Intersecting objects may be simpler
 - Needs Z-buffering

glPolygonOffset(factor,units)

- Modifies the depth stored in the Z-buffer
- Offset = $m \cdot \text{factor} + r \cdot \text{units}$
 - m maximum slope relative to viewing direction
 - r minimum resolvable difference in Z-buffer
- Separate settings for POINT/LINE/FILL
 - glEnable(GL_POLYGON_OFFSET_POINT)
 - glEnable(GL_POLYGON_OFFSET_LINE)
 - glEnable(GL_POLYGON_OFFSET_FILL)
- Typically **glPolygonOffset(1,1)** works

Offset Uses

- Hidden line removal in wireframes
- Drawing lines on polygons
- Resolving z-fighting

