

**Drawing 3D**

**Objects**

**CSCI 4229/5229**

**Computer Graphics**

**Fall 2024**

# 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

