



| Outcomes  | HW<br>0129 | HW<br>0212 | HW<br>0226 | HW<br>0319 | HW<br>0326 | HW<br>0404 | HW<br>0418 | So Far |
|---|------------|------------|------------|------------|------------|------------|------------|--------|
| <b>1 Represent, model, and create visual information digitally.</b>                           |            |            |            |            |            |            |            |        |
| <b>1a</b> ...in terms of pixels and geometric primitives.                                     |            | +          |            |            |            |            |            |        |
| <b>1b</b> ...in terms of polygon meshes: vertices, edges, and faces.                          |            |            |            | /          |            |            |            | /      |
| <b>1c</b> ...as a composition of multiple discrete objects (scenes).                          |            |            |            | /          |            | o          | o          | o      |
| <b>2 Manipulate and display visual information in 2D and 3D.</b>                              |            |            |            |            |            |            |            |        |
| <b>2a</b> Apply transforms to 2D and 3D objects.  |            |            |            |            |            | o          | o          | o      |
| <b>2b</b> Project 3D objects onto a 2D viewport.  |            |            |            |            |            | o          |            | o      |
| <b>2c</b> Perform color and light computations.   |            |            | /          |            |            |            |            | /      |
| <b>2d</b> Perform clipping and hidden surface removal (HSR).                                  |            |            |            |            |            |            |            |        |
| <b>3 Use and develop computer graphics APIs in both 2D and 3D.</b>                            |            |            |            |            |            |            |            |        |
| <b>3a</b> Animate scenes in 2D and 3D.  |            |            |            |            |            | o          | o          | o      |
| <b>3b</b> Implement 2D graphics primitives such as line segments, circles, and polygon fills. |            |            | /          |            |            |            |            | /      |
| <b>3c</b> Perform bit-level color manipulation.   |            |            | +          |            |            |            |            | +      |
| <b>3d</b> Develop a library of geometric primitives, operations, and matrix transformations.  |            |            |            | /          |            | o          |            | o      |
| <b>3e</b> Render a 3D scene using programmable shaders.                                       |            |            |            |            |            | o          | o          | o      |
| <b>4 Follow academic and technical best practices throughout the course.</b>                  |            |            |            |            |            |            |            |        |
| <b>4a</b> Write syntactically correct, functional code.                                       |            | /          | /          | -          | +          | o          | o          | o      |
| <b>4b</b> Demonstrate proper separation of concerns.  |            | +          | /          | +          | +          | o          | o          | o      |
| <b>4c</b> Write code that is easily understood by programmers other than yourself.            |            | +          | /          |            | +          | o          | o          | o      |
| <b>4d</b> Use available resources and documentation to find required information.             | +          | +          | /          | /          | +          | o          | o          | o      |
| <b>4e</b> Use version control effectively.  |            | +          | /          |            |            | o          | o          | o      |
| <b>4f</b> Meet all designated deadlines.  | +          | +          |            | /          |            | -          | -          | /      |

## Totals

|   |    |
|---|----|
| + | 1  |
|   | 1  |
| / | 4  |
| - | 0  |
| o | 11 |
|   |    |