

Computer Animation I (syllabus)

CS/HACU 174, Fall 2001

Class and Assignment Schedule

| Date | # | Class Topic | Assignment |
|------------|----|---|--|
| Wed Sep 5 | 1 | First day stuff (class overview, student information forms). Overview of history of 3D animation and discussion of the pipeline from the perspective of the camera. | Read Kerlow chapter 1 and 6, skipping sections 6.4, 6.5, 6.7, 6.8, and 6.9. Be sure to focus on the rendering technique called <i>ray tracing</i> . |
| Mon Sep 10 | 2 | Introductions, tour of syllabus. Discuss reading. Ray tracing in detail, putting modeling, shading, animation, and lighting in context. Numerical representation of color. | Read Kerlow chapter 7 (pp. 181-196). |
| Wed Sep 12 | 3 | Discuss reading. Lenses and lens selection in detail (screening?). Simple transformations (translate, rotate, scale). Lightwave: running, loading a scene, camera settings, camera transformations, rendering images. How to hand in assignments. | Assignment 1, for Monday: set up 3 cameras to match any 3 images from Kerlow, page 189. Render a still from each and hand them all in. It may help to read the relevant sections of the LW manual (pdf). |
| Mon Sep 17 | 4 | Hand in and discuss assignment 1. Orthographic and perspective views. How not to get lost in 3D. The polygon as a modeling primitive. | Read Kerlow chapter 3 (pp. 77-100). Don't worry too much about section 3.5. |
| Wed Sep 19 | 5 | Discuss reading. Modifying primitives (SRT on part or whole). LW: using primitives (sphere, box, cone), managing selections, transforming points and polys. | Assignment 2, for Monday: start with a spherical primitive and move points to create a stylized head. Again, consult the LW manual for assistance. |
| Mon Sep 24 | 6 | Hand in and discuss assignment 2. The math that happens when rays hit objects during rendering. Naming the parameters in the Phong illumination model. Smooth vs. faceted shading. LW: material assignment and surface panel. | Read Kerlow sections 9.1, 9.2, 9.4 (skip Reflection Maps and Environment Maps), the first part of 9.5 (skip Color Maps), the first part of 9.7 (skip Transparency Maps). |
| Wed Sep 26 | 7 | Discuss reading. Layout, composition, building a scene. LW: using multiple primitives, importing models, positioning models. | Assignment 3, for Wednesday: build a model of a tree using primitives. Modify surface assignments and values as appropriate (color, diffuse, specular, transparency). Create a scene with your tree and render two views of it from two different cameras. |
| Mon Oct 1 | 8 | Q&A for assignment 3. | Finish assignment 3 for Wednesday. |
| Wed Oct 3 | 9 | Hand in and discuss assignment 3. Basics of lighting outside of the computer (key, fill, rim, etc.). Lighting theory from Calahan. | Read Kerlow chapter 8 (pp. 197-223). |
| Mon Oct 8 | - | NO CLASS (October Break) | |
| Wed Oct 10 | 10 | Lighting on the computer. Light types, cheats to simulate diffuse reflection, shadows. LW: light creation, control. | Assignment 4, for Monday: Add lights to your tree scene and light it for shape. |

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| Mon Oct 15 | 11 | Hand in and discuss assignment 4. Expose the wizard behind the curtain: Animating numerical values using keyframes. Curve control, ease-in and ease-out. | Read Kerlow sections 10.1, 10.2, 11.1. Read about the graph editor in the LW manual. Perhaps supplemental handout on curve editing. |
| Wed Oct 17 | - | NO CLASS (Exam/Advising Day) | |
| Mon Oct 22 | 12 | Discuss reading. Keyframe and curve review, principles of animation (timing, squash and stretch, ease in and ease out). LW: graph editor, rendering movies. | Assignment 5, for Monday: build a floor, a ball, and animate a cycle of the ball bouncing. Don't forget a light and a shadow! |
| Wed Oct 24 | 13 | Q&A for assignment 5. The layered approach to animating. | Finish assignment 5. |
| Mon Oct 29 | 14 | Hand in and discuss assignment 5. Modeling and animating with hierarchies. LW: parents and children. | Read Kerlow section 11.5, redo assignment 5 for Wednesday if necessary. |
| Wed Oct 31 | 15 | More principles of animation (secondary motion, overlapping action, arcs). LW: mechanics of pivots, building hierarchies. | Assignment 6, for Monday: Simple animation with follow-through. |
| Mon Nov 5 | 16 | Hand in and discuss assignment 6. Final project introduced. Storytelling, working within your limits. The short treatment. | Assignment 7, for Wednesday: write three short treatments for your final project. |
| Wed Nov 7 | 17 | Hand in and share final project ideas. Storyboarding and shot breakdown. Animatics. | Assignment 8, for Monday: choose your final project storyline, storyboard it, make a model list and shot breakdown. |
| Mon Nov 12 | 18 | Hand in and discuss assignment 8. More on modeling: creating your own polygons. Triangles and quads, shared and unshared points. Planarity, surface normals, 1- and 2-sided polys. LW: creating polys from points, working with polys. | Read Kerlow section 2.1 and chapter 4 (skipping section 4.7). Start building models for your final project. Animatics due Wednesday, November 28. |
| Wed Nov 14 | 19 | Discuss reading. Tools for poly mesh editing. LW: revolution, extrusion, smooth shift, using backdrops. | Get your major model(s) to a point where they can be reviewed in class. |
| Mon Nov 19 | 20 | Model review, design critique and discussion. | Continue working on your animatic. |
| Wed Nov 21 | - | NO CLASS (Thanksgiving Break) | Continue working on your animatic. |
| Mon Nov 26 | 21 | More complex surfaces. Transparency, reflection, bump, simple procedural textures. | Finish your animatic for Wednesday. |
| Wed Nov 28 | 22 | Hand in and screen animatics, comments and critique from class. | Finish final projects for Wednesday, December 12. |
| Mon Dec 3 | 23 | TBD | |
| Wed Dec 5 | 24 | TBD | |
| Mon Dec 10 | 25 | TBD | |
| Wed Dec 12 | 26 | Hand in and screen final projects. | |