

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.	