

3D Modeling - Course Outline

3D Modeling Course Outline		Points Possible	Course Hours
Course Overview			4
Lab 1: Start the Course			
	Identify computer requirements.		
	Learn how to move through the course.		
	Switch between windows.		
Lab 2: Set Up Your Computer			
	Find files and folders on a computer.		
	Set up a computer to show the List folder view and file name extensions.		
	Make a course folder.		
Lab 3: Set Up a Browser and Install 7-Zip			
	Set up a Web browser.		
	Download and install a zip utility.		
Lab 4: Download Resources and Zip Assignments			
	Get the course resources.		
	Install software.		
	Learn about finding, completing, and turning in assignments.		
	Zip and unzip files and folders.		
Project 1: Make a Hat			9
Lab 1: Navigating 3D Space			
	Open a project.		
	Switch between Object and Edit Mode.		
	Switch between Preset Views using the number pad.		
	Zoom with the mouse and the keyboard.		
	Pan with the mouse and the keyboard.		
Lab 2: Transforming a 3D Object			
	Turn on and identify the 3D Transform Manipulator.		
	Define the following terms: translate, scale, and rotate.		
	Move a 3D object.		
	Move a 3D object along one axis.		
	Undo changes.		
	Stretch a 3D object.		
	Stretch a 3D object along one axis..		
	Rotate a 3D object.		
	Rotate a 3D object along one axis..		
Lab 3: Saving Files			
	Identify the File Navigation screen.		
	Define the parent directory.		
	Save a project using Save and Save As.		
Lab 4: Create a 3D Object			
	Define the following terms: meshes, plane, sphere, cylinder, cone, 3D Cursor, radius, and vertex.		
	Add a 3D object.		
	Join 3D Objects together.		

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Lab 5: Rendering 3D Objects			
	Define rendering.		
	Move the camera to change the rendered image.		
	Render a 3D object.		
Quiz Study Guide			
Quiz 1		5	
Assignment 1			
	See assignment description document for detailed instructions.	7	
Project 2: Build a House			11
Lab 1: Make the House			
	Use the 3D View grid as a modeling guide.		
	Shape a plane into a rectangular door.		
	Shrink a plane to window-size.		
	Move the planes onto the house.		
Lab 2: Create the Roof			
	Identify Vertex and Edge Select Mode.		
	Define edges.		
	Use Vertex and Edge Select modes to shape a cube into a triangular shape for a roof.		
Lab 3: Paint the House			
	Define material and texture.		
	Identify the Buttons Window, Material Editor, Shading Panel, Mini-Windows, and the Blender Lamp.		
	Add a material to a 3D object.		
	Add an image-based texture to a 3D object.		
	Move the light.		
Lab 4: Add Materials to the House			
	Identify the Color Picker and Map To mini-window.		
	Add color to a material.		
	Add a texture to a 3D object.		
	Change texture settings.		
	Change the color of a texture.		
Lab 5: Render the House			
	Define the following terms: Lamp, Area, Spot, Hemi, Sun, parent-child objects, and path constraint.		
	Change the Lamp's lighting type.		
	Set the camera's current view as the rendering frame.		
	Identify a path.		
	Constrain a camera to follow a path.		
	Modify a path's shape.		
	Reduce rendering time.		
	Render an animation.		
Quiz Study Guide			
Quiz 2		5	
Assignment 2			
	See assignment description document for detailed instructions.	7	

Project 3: Make a Creature			14
Lab 1: Make an Arm and a Leg			
	Define the following terms: symmetry, faces, subdivide, and extrusion.		
	Use a background image as a picture guide.		
	Subdivide a cube.		
	Select vertices using Box Select mode.		
	Extrude cubes to create an arm and a leg.		
Lab 2: Make a Head			
	Extrude cubes to create a neck and head.		
	Box select and move vertices to shape the head.		
	Box select vertices to extrude an ear from the head.		
	Remove a background image.		
Lab 3: Add Body Parts			
	Identify Face Select mode.		
	Box select and move vertices to shape a hand.		
	Select a face and extrude to create a basic foot.		
	Select a face and move it to create a rounded belly and nose.		
	Select a face, extrude, and move it to create a tail.		
Lab 4: Mirror the Body			
	Define the following terms: mirror, merge limit, and subsurf.		
	Delete faces to prepare a 3D object for mirroring.		
	Add the Mirror and Subsurf modifiers.		
	Identify the Set Smooth and Apply buttons.		
Lab 5: Add the Face			
	Add new objects while in Edit mode.		
	Identify mirrored objects.		
	Add 3D objects as mirrored objects.		
	Shrink, move, and rotate mirrored planes to create eyes and teeth.		
	Shrink, move, and rotate mirrored cylinders to create eyebrows and a mouth.		
	Assign names to specific vertex groups.		
	Apply modifiers.		
Lab 6: Make the Creature Colorful			
	Define Nor.		
	Assign materials and textures to specific vertex groups.		
	Add bumpiness to a texture.		
Quiz Study Guide			
Quiz 3		5	
Assignment 3			
	See assignment description document for detailed instructions.	8	
Project 4: Animate the Creature			10
Lab 1: Add Bones			
	Define the following terms: rigging, bones, body, root, and tip.		
	Identify Wireframe Viewport Shading.		
	Switch to Wireframe View.		
	Add bones to create an armature.		
	Duplicate and flip an armature to create mirrored bones.		
Lab 2: Name the Bones			
	Define armature.		
	Name bones.		

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Lab 3: Attach the Bones		
	Define skinning.	
	Make the bones in an armature parents of selected vertices.	
Lab 4: Create Keyframes		
	Define the following terms: pose, keyframe, and LocRot.	
	Fix bone rotation so Paste Flipped Pose works.	
	Insert a keyframe.	
	Copy and paste poses.	
Lab 5: Render Your Animation		
	Render the animation.	
Quiz Study Guide		
Quiz 4		5
Assignment 4		
	See assignment description document for detailed instructions.	8
Project 5: Create Terrain		10
Lab 1: Make Hills and Valleys		
	Erase an object.	
	Add a grid.	
	Identify the Transform Properties Panel.	
	Define the following terms: proportional edit, falloff, constant - no falloff, root falloff, random falloff, sphere falloff, linear falloff, smooth falloff, and sharp falloff.	
	Make hills and valleys.	
Lab 2: Add Grass and Dirt		
	Define the following terms: specularly and stencil texture.	
	Change a material's specularly.	
	Add a stencil texture.	
	Change texture settings.	
Lab 3: Add a Sky Backdrop		
	Create a sky.	
	Add a sun lamp.	
Lab 4: Add a Moon		
	Define the following terms: IcoSphere, ZTransp button, colorband, and color gradient.	
	Identify the Ramps mini-window and the colorband.	
	Create a Colorband.	
	Add a light inside the moon to make it glow.	
	Add stars to the 3D scene.	
Quiz Study Guide		
Quiz 5		5
Assignment 5		
	See assignment description document for detailed instructions.	8
Project 6: Build a Car		10
Lab 1: Make a Tire		
	Extrude a circle to make a tire.	
	Define the terms library and append.	
	Append a material.	
Lab 2: Build a Car		
	Add a subdivided grid.	
	Stretch a grid's vertices to match a background image.	
	Extrude a grid shape into three dimensions.	

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Lab 3: Paint the Car			
	Append materials.		
	Add materials to specific vertex groups.		
Lab 4: Move the Car			
	Append objects.		
	Join 3D Objects together.		
	Animate the car driving.		
Quiz Study Guide			
Quiz 6		5	
Assignment 6			
	See assignment description document for detailed instructions.	8	
Project 7: Make a Scene			10
Lab 1: Bring the House and Creature Together			
	Append objects, armatures, and animations.		
	Shrink an armature and its child object.		
Lab 2: Follow the Path			
	Create an animation of the creature walking towards the house.		
Lab 3: Adjust the Animation			
	Identify the Animation Screen.		
	Switch between the Animation and Modeling Screens.		
	Identify the Outliner, Timeline, and Action Editor Windows.		
	Increase an animation's length with the Action Editor.		
Lab 4: Open the Door			
	Create an animation of a door opening.		
	Insert rotation keyframes.		
Lab 5: Finish the Scene			
	Define the following terms: tweening, Bezier curve, and curve handles.		
	Modify an animation's Bezier curve.		
	Modify the shape of an animation's Bezier curve.		
Quiz Study Guide			
Quiz 7		5	
Assignment 7			
	See assignment description document for detailed instructions.	9	
Final Assignment			12
	See assignment description document for detailed instructions.	10	
	Total	100	90