

3D Art II - Animation - Course Outline		Points Possible	Course Hours
Course Overview			4
Lab 1: Start the Course			
	<i>Identify computer requirements.</i>		
	<i>Learn how to move through the course.</i>		
	<i>Switch between windows.</i>		
Lab 2: Set Up Your Computer			
	<i>Find files and folders on a computer.</i>		
	<i>Set up a computer to show the List folder view and file name extensions.</i>		
	<i>Make a course folder.</i>		
Lab 3: Set Up a Browser and Install 7-Zip			
	<i>Set up a Web browser.</i>		
	<i>Download and install a zip utility.</i>		
Lab 4: Download Resources and Zip Assignments			
	<i>Get the course resources.</i>		
	<i>Install software.</i>		
	<i>Learn about finding, completing, and turning in assignments.</i>		
	<i>Zip and unzip files and folders.</i>		
Project 1: Bounce a Ball			13
Lab 1: Create a Ball			
	<i>Set up the Blender interface.</i>		
	<i>Define sphere, UVsphere, segments, and rings.</i>		
	<i>Create a UVsphere.</i>		
	<i>Use the Transform Properties panel to set an object's location and rotation properties.</i>		
	<i>Save a new version of a Blender file.</i>		
Lab 2: Add a Lattice and Plane			
	<i>Create and scale a lattice.</i>		
	<i>Identify how lattices can be used to deform 3D objects.</i>		
	<i>Make the lattice a parent of the UVsphere.</i>		
	<i>Use the lattice to position the sphere.</i>		
	<i>Add a plane.</i>		
Lab 3: Animate the Ball			
	<i>Define animation, frame, and keyframe.</i>		
	<i>Identify the main types of keyframes.</i>		
	<i>Change the length of an animation.</i>		
	<i>Create starting, ending, and bounce keyframes.</i>		
	<i>Preview the animation.</i>		
Lab 4: Adjust the Bounce			
	<i>Define script, trajectory, IPO curve, curve point, curve handle, and vector handle.</i>		
	<i>Turn on a script.</i>		
	<i>Select and change IPO curves.</i>		
Lab 5: Squash and Stretch			
	<i>Define squashing and stretching.</i>		
	<i>Stretch and squash the ball.</i>		
	<i>Adjust IPO curves.</i>		
Lab 6: Finalize the Animation			
	<i>Decorate the sphere and plane.</i>		
	<i>Change render settings.</i>		
	<i>Test render the animation.</i>		
	<i>Render the animation.</i>		
Quiz Study Guide			
	<i>Review the quiz study guide before taking the quiz.</i>		
Quiz 1			
	<i>Quiz on Project 1</i>	5	
Assignment 1			
	<i>See assignment description document for detailed instructions.</i>	10	

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Project 2: Light a Stage			15
Lab 1: Light the Main Lamp			
	<i>Add a spot lamp as the main light for a stage.</i>		
	<i>Use the Preview Render panel to see how the light will look.</i>		
Lab 2: Adjust the Main Lamp			
	<i>Define energy and additive color mixing.</i>		
	<i>Change the main lamp's brightness and color.</i>		
	<i>Define SpotSize, SpotBlur, and Distance.</i>		
	<i>Define ray tracing.</i>		
	<i>Change the shape and shadow of the main lamp.</i>		
Lab 3: Put Up the Fill Lights			
	<i>Define fill lights, No Specular, and linked duplicates.</i>		
	<i>Add, name, and position a fill lamp.</i>		
	<i>Remove shadows.</i>		
	<i>Create a linked duplicate of the fill light.</i>		
Lab 4: Add Overhead, Ambient, and Backlights			
	<i>Define backlight, overhead light, and ambient light.</i>		
	<i>Add and adjust a backlight.</i>		
	<i>Add texture to a lamp.</i>		
	<i>Add overhead and ambient lights.</i>		
Lab 5: Place the Spotlight			
	<i>Define spotlight.</i>		
	<i>Add and adjust a spotlight.</i>		
	<i>Identify the purpose of the Track to Constraint option.</i>		
	<i>Set the light to track the movement of a ball.</i>		
Lab 6: Animate the Lights			
	<i>Define types of lighting keyframes, including RGB and Energy.</i>		
	<i>Set the IPO Curve Editor to show Energy and RGB curves.</i>		
	<i>Define default lighting.</i>		
	<i>Add default keyframes for all of the lamps.</i>		
	<i>Add a color and brightness animation to the main lamp.</i>		
Lab 7: Finish the Animation			
	<i>Add keyframes for the other lamps.</i>		
	<i>Define negative light.</i>		
	<i>Add a negative light.</i>		
	<i>Render the animation.</i>		
	<i>Add a color and brightness animation to the main lamp.</i>		
Quiz Study Guide			
	<i>Review the quiz study guide before taking the quiz.</i>		
Quiz 2			
	<i>Quiz on Project 2</i>	5	
Assignment 2			
	<i>See assignment description document for detailed instructions.</i>	12	

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Project 3: Grab a Ball			11
Lab 1: Set Up the Animation			
	<i>Define pivot point.</i>		
	<i>Move pivot points.</i>		
	<i>Create a chain of parent/child relationships to link the robot arm's parts together.</i>		
Lab 2: Add a Ball			
	<i>Define layers.</i>		
	<i>Create two spheres, and move them to different layers.</i>		
	<i>Show and hide different layers.</i>		
	<i>Color and position the balls.</i>		
	<i>Make the claw a parent of a ball, so the ball is attached to the claw.</i>		
Lab 3: Animate the Claw			
	<i>Define looping animations.</i>		
	<i>Create start and end keyframes.</i>		
	<i>Create keyframes for picking up and raising the ball.</i>		
	<i>Preview and render the animation.</i>		
Lab 4: Animate the Dropping Ball			
	<i>Position the ball for the drop and animate it to drop.</i>		
	<i>Add Layer keyframes to make the balls appear and disappear at the right times.</i>		
	<i>Decorate the robot arm with new textures.</i>		
Lab 5: Animate the Ball Bounce			
	<i>Animate the ball to bounce.</i>		
	<i>Define data and datablocks.</i>		
	<i>Create a lattice that shares the bouncing ball's IPO datablock.</i>		
	<i>Add a new ball, make the lattice its parent, and squash and stretch it.</i>		
	<i>Show and hide the balls at the right times.</i>		
	<i>Render the animation.</i>		
Quiz Study Guide			
	<i>Review the quiz study guide before taking the quiz.</i>		
Quiz 3			
	<i>Quiz on Project 3</i>	5	
Assignment 3			
	<i>See assignment description document for detailed instructions.</i>	15	

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Project 4: Make a Walk Cycle			15
Lab 1: Move the Body Parts			
	<i>Open a 3D character model and read notes about it.</i>		
	<i>Use controller bones to move the model's body into different poses.</i>		
Lab 2: Prepare the Rig			
	<i>Arrange the Blender workspace and windows.</i>		
	<i>Hide layers that aren't needed.</i>		
	<i>Turn on Automatic Keyframe insertion.</i>		
Lab 3: Start the Contact Pose			
	<i>Identify the main poses in a walk cycle.</i>		
	<i>Adjust the character's head.</i>		
	<i>Lower the character's center of gravity.</i>		
	<i>Move the character's feet into a contact pose.</i>		
Lab 4: Finish the Contact Pose			
	<i>Pose the arms so they swing as the character walks.</i>		
	<i>Rotate the shoulders and hips to match the arm and leg movement.</i>		
	<i>Flip the contact pose to create a mirrored keyframe of the original.</i>		
	<i>Add forward motion.</i>		
Lab 5: Add the Other Poses			
	<i>Fix any slippage that happened in the walk cycle.</i>		
	<i>Add passing, high-point, and recoil poses to the walk cycle.</i>		
Lab 6: Complete the Cycle			
	<i>Add the rest of the poses for a looping walk cycle animation.</i>		
	<i>Render the animation.</i>		
Lab 7: Speed Up the Animation			
	<i>Convert an animation to an action strip.</i>		
	<i>Repeat action strips to increase the length of the animation.</i>		
	<i>Add an offset bone.</i>		
	<i>Scale action strips to change the walk cycle's speed.</i>		
Quiz Study Guide			
	<i>Review the quiz study guide before taking the quiz.</i>		
Quiz 4			
	<i>Quiz on Project 4</i>	5	
Assignment 4			
	<i>See assignment description document for detailed instructions.</i>	18	
Project 5: Make an Explosion			5
Lab 1: Explode an Object			
	<i>Turn a UVsphere into a particle emitter system.</i>		
	<i>Make the faces of a UVsphere explode outward.</i>		
Lab 2: Make the Fiery Sphere			
	<i>Add a second sphere particle emitter to create a fiery explosion effect.</i>		
	<i>Put a lamp inside the two spheres to increase the brightness of the explosion.</i>		
Assignment 5			
	<i>See assignment description document for detailed instructions.</i>	4	
Project 6: Pour Liquid			5
Lab 1: Splash Water			
	<i>Add a fluid simulation inside a shape.</i>		
	<i>Bake a simulation.</i>		
Lab 2: Render the Simulation			
	<i>Make the fluid look like realistic water.</i>		
	<i>Render the simulation.</i>		
Assignment 6			
	<i>See assignment description document for detailed instructions.</i>	4	

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Project 7: Make Fireworks			5
Lab 1: Make Fireworks			
	<i>Make an emitter particle system that sends out rocket-like particles.</i>		
	<i>Make a reactor particle system that makes the particles explode into fireworks.</i>		
Lab 2: Color the Fireworks			
	<i>Add another explosion of fireworks.</i>		
	<i>Make the fireworks colorful.</i>		
	<i>Render the animation.</i>		
Assignment 7			
	<i>See assignment description document for detailed instructions.</i>	4	
Project 8: Fill a Fountain			5
Lab 1: Fill a Fountain			
	<i>Make a half-sphere particle emitter that sprays particles out of a fountain.</i>		
	<i>Make the fountain solid, so particles bounce off of it.</i>		
Lab 2: Decorate the Particles			
	<i>Make the particles look watery by basing them on a 3D object.</i>		
	<i>Render the animation.</i>		
Assignment 8			
	<i>See assignment description document for detailed instructions.</i>	4	
Project 9: Start a Fire			12
Lab 1: Start a Fire			
	<i>Create a random vertex group from the vertices of a log model.</i>		
	<i>Turn the random vertex group into a particle emitter system.</i>		
Lab 2: Animate the Flames			
	<i>Add a fire sphere with a shrinking animation.</i>		
	<i>Give the fire sphere a colorful material.</i>		
	<i>Use the fire sphere as the base for the particles.</i>		
Lab 3: Add a Force Field			
	<i>Create a texture for a force field.</i>		
	<i>Add an empty object and a turbulence force field to make the fire flicker.</i>		
	<i>Bake the turbulence field into the particle animation.</i>		
Lab 4: Add a Node System			
	<i>Turn on a node system to make the fire spheres look more like fire.</i>		
	<i>Render the animation.</i>		
Quiz Study Guide			
	<i>Review the quiz study guide before taking the quiz.</i>		
Quiz 5			
	<i>Quiz on Project 5, Project 6, Project 7, Project 8, and Project 9</i>	5	
Assignment 9			
	<i>See assignment description document for detailed instructions.</i>	4	
Total		100	90