ASSIGNMENTS AND RECOMMENDED STUDENT HOURS

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<td>Week 10</td>
<td>Turning, 90 or 180 Degrees</td>
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<td>Week 11</td>
<td>(turn in previous week’s work)</td>
<td>3</td>
<td>5</td>
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<td>43</td>
<td>135</td>
<td>178</td>
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CLASS COMPETENCIES:
By the end of the Introduction to 3D Animation class:
- The student will be expected to have a very good understanding of the 12 principles of animation, especially timing and spacing.
- The student will be expected to understand the basic concepts of balance and locomotion on a two-legged character.
- The student will be expected to have good time management and be able to address supervisory notes in an efficient manner.
WEEK 1 – 2: Bouncing Ball

Concepts:
- The basic principles of animation.
- Timing and spacing. Create the illusion of a bouncing ball.
- Examples of the bouncing ball in animation generally (i.e. the hips of a walk, or the head).
- How the bouncing ball applies to real life.

Assignment: Using the provided rig, create a simple ball bounce from one side to the other. The ball may come to rest or continue off screen. Video should be QuickTime movie with a size of 640x360 (you can post avi’s but they won’t display properly for others to see). If possible, compress with the H.264 codec. Please hide curves in your Maya viewport and make sure things like Camera Safe action and stuff like that are NOT visible.

Frame Limit: 120 (To prepare for the limits of real-world production, don't go past the frame limit, or you may risk getting a lower grade.)

OT: Overtime. Did you breeze through the assignment? Try a different ball trajectory.

Scene Assets: A stage and ball rig (with no deformation). Camera set up for side view. You can hide the "walls" if needed.

Week 1 Thumbnailing for Bouncing Ball:
Make thumbnail drawings planning the trajectory and path of your ball. Along that path, draw the ball where it will appear on each frame. Upload your planning drawings to the assignment slot for "WEEK 1 Thumbnailing for Bouncing Ball".

NOTE: To upload drawn artwork, you can either:
- Scan it, using a scanner
- Take a digital photo, then load it onto your computer
- Take a cell phone picture and email it to yourself.
- Hold it up to your webcam and take a screen capture. You can see your web camera by going to a website like: http://www.sillywebcam.com/others/?demo=test-your-webcam&size=large
- You can take a screen capture on the PC by using "Snipping Tool"

Week 1 and 2 Reading Assignment:
This week, we will read about the principles of animation, and about the bouncing ball.

Illusion of Life:
- Chapter 3, starting on page 47
- page 51 - Bouncing Ball example

Animators Survival Kit:
- page 36-39 - Timing and Spacing & Bouncing Ball example
WEEK 2: Varying Ball Weights

Concepts:
- Timing and Spacing can create the feeling of weight.
- How the different weight and materials of a ping pong ball, basketball, and bowling ball are simulated using the tools of 3D animation.
  - How timing and spacing can effectively sell an emotion.
    (IE, a serious moment, a gag, etc.)

Assignment: Using the provided scene, animate a ping pong ball, basketball, and bowling ball dropping or rolling into frame and bouncing. The balls may come to rest or continue off screen.

Frame Limit: 160 (To prepare for the limits of real-world production, don't go past the frame limit, or you may risk getting a lower grade.)

OT: Overtime. Did you breeze through the assignment? Try having the balls thrown to the opposite side and bounce back toward the starting point.

Scene Assets: A stage and ball rig (with no deformation). Camera set up for side view.
A live action video of these ball types dropping and bouncing.

Week 2 Thumbnailing for Varying Ball Weights:
Make thumbnail drawings planning the trajectory and path of your differently weighted balls. Along that path, draw the ball where it will appear on each frame. Upload your planning drawings to the assignment slot for "WEEK 2 Thumbnailing for Varying Ball Weights".

WEEK 3: Ball with Character

Concepts:
- Understanding the difference between, internal and external forces
- How a motivated thought process can change the way you go about posing a character or even a simple ball!
- There are constantly External/Environmental forces (such as gravity) working against these internal forces.
- Animation Principles: squash and stretch, and anticipation
- A Character will tend to lead with the part of the body most relevant to the action. If you smell something interesting, you may move toward it with your nose.

Assignment: Using the provided scene, animate a ball acting purposefully, as if it is a character. The ball should react to physical forces as well as appear to have self-motivation.
Example: A ball rolls or hops into view then encounters a sharp object in the way. Show the ball considering the situation, then trying to jump over it.

**Frame Limit:** 240 (To prepare for the limits of real-world production, don't go past the frame limit, or you may risk getting a lower grade.)

**Scene Assets:** A stage and ball rig with scaling. Camera set up for side view.

**Week 3 Thumbnails for Ball with Character:**
Make thumbnail drawings planning the path of your ball will take as it acts. Along that path, draw the ball where it will appear on some of the more prominent story-telling "key" frames. Upload your planning drawings to the provided assignment slot.

**Week 3 Reading Assignment:**
This week, we will read about squash and stretch and contact poses.

- Illusion of Life:
  - page 353 - Bunny hopping

- Animators Survival Kit:
  - page 95 - Visual example of Squash and Stretch with Contact Poses

**WEEK 4 – 5: Alien Ship with Follow Through**

**Concepts:**
- How to successfully recreate the illusion of inertia, residual energy, and gravity from a simple external or internal force.
- The principles of follow through and drag.
- How forces effect the successive breaking of joints down a limb, chain, or even torso.
- How the forces on chains can cause a whip action.
- Where does this apply in common animation scenarios and the real world?
- The difference between "Overlapping Action" and "Secondary Action"

**Week 4: Work on the ship's movement.**
**Week 4: Animate the SIMPLE PENDULUM**
**Week 5: Animate the tow chain on the ship.**

**Assignments:**
**Week 4:** Using the alien tow ship, move the ship to two or three locations and different speeds and spacings. Don't animate the pendulum tow chain yet. REMEMBER: This assignment is less about creativity and more about learning the principle of Follow Through. Don't go crazy coming up with a story here; focus on simple movements.

**Week 4 Part 2:** Using the Simple Pendulum scene, let the chain fall from its latched position and settle. You can animate the first segment then copy the curve and offset it a few frames for the second segment. Only animate the ONE curve for each of the two segments and nothing else in this scene.

**Week 5:** Return to your ship scene. Refine the movement of the ship as needed. Now, gauging the weight of the tow chain and hook, have the chain drag then overshoot the ship's location, successively down the chain.
Frame Limit: 200 (To prepare for the limits of real-world production, don't go past the frame limit, or you may risk getting a lower grade.)

OT: Overtime. Did you breeze through the assignment? Try animating the follow through of the alien in the ship, with his antennae.

Scene Assets: alien tow ship with pendulum winch. No environment. Camera set up for side view.

Week 4 Thunbailing for Alien Ship with Follow Through:
Make thumbnail drawings planning the path of your ship will take. Along that path, draw the ship where it will appear on some of the more prominent story-telling "key" frames. Upload your planning drawings to the provided assignment slot.

Week 4 & 5 Reading Assignment:
Animators Survival Kit:
- Page 50-51 – Ease In and Ease Out
- Page 232-234 – Breaking the Joints
- Page 301 – Whip and Wave Action

WEEK 6 – 7: Walk Cycle

Concepts:
- How to simulate locomotion.
- The principles of balance, gravity, posing, weight applied to the mechanics of body movement.
- The mechanics of walking: when does the leg straighten and when is it most bent; the use of rotations in the hips and feet.
- How does the walk change in different scenarios.
- The difference between treadmill walk cycles and moving walk cycles.
- How to use cycled animation curves (and cycle with offset).

Assignment: Using the character Mr.Legs, make him walk across the screen from left to right. Animate a moving walk cycle with several steps. You may want to focus first on a single loop of the walk cycle, as seen from the "tracking" camera, before continuing on.

Week 6: Blocking.
Week 7: Submit the splined, polished version.

Frame Limit: 100 (To prepare for the limits of real-world production, don't go past the frame limit, or you may risk getting a lower grade.)

Scene Assets: Week 6 and 7 Assignment file with Mr.Legs, Bunny, or BoneApart, seen from the side view. AnimSchool Picker for control selection.

Useful tools and workflows: AnimSchool Picker, how to customize AnimSchoolPicker, tween machine.
**Week 6 Thumnailing for Walk Cycle:**
Make thumbnail drawings planning your walk cycle. Focus on the mechanics at each stage of the walk. Upload your planning drawings to the provided assignment slot.

**Week 6 & 7 Reading Assignment:**
Animators Survival Kit:
- page 103 - Breakdown of the Walk
- page 107-108 - Realistic Walk Example
- page 109 - Setting the Tempo of the Walk
- page 136 & 139 - Feet

**WEEK 8 - 10: Turning, 90 or 180 Degrees**

**Concepts:**
- What changes happen in the body to initiate movement?
- How do you show weight shifting in a body?
- Don’t lift the feet unless the weight has been shifted more to the other leg.
- Breaking up the relative timing of parts of the body.
- How does a body part leading the action change the mood?

**Assignment:**
Using Mr. Legs, Bunny, or BoneApart, make it turn either 90 or 180 degrees. This should include the shifting of weight to initiate his movement. Pay attention to the placement and timing of the feet. Study your video reference (see below) to help you maintain the illusion of weight. You can come up with an emotional state or situation to make the action specific.

**Week 8: Blocking.**
**Week 9: Reblocking and Splining.**
**Week 10: Submit the splined, polished version.**

**Frame Limit:** 200 (To prepare for the limits of real-world production, don't go past the frame limit, or you may risk getting a lower grade.)

**Scene Assets:** Week 8-10 Assignment file, seen from a 3/4 view. AnimSchool Picker for control selection.

**Useful tools and workflows:** AnimSchool Picker, how to customize AnimSchool Picker, tween machine.

**WEEK 8 Video Reference for 90/180 Degree Turn**
Take video reference of yourself or someone else turning. Digitize it so you can study it frame by frame, or find video reference, online or elsewhere. Upload the video clip to the separate assignment slot provided.
Week 8 - 10 Reading Assignment:
Illusion of Life:
  ▪  page 178 - Anticipation and Appealing Poses
  ▪  page 180-181 - Anticipation, Squash and Stretch, and Appealing Poses

Animators Survival Kit:
  ▪  page 38 - Ease In and Ease Out
  ▪  page 50 - Ease In and Ease Out

WEEK 11: Individual Reviews and Goodbyes

Turn in last Assignments. (NO new assignment, 11th week)

Choose your class time and teacher for next term by using the "Pick a Class For Next Term" link on the sidebar.