



eDynamicLearning

CAREER & ELECTIVE COURSES



Course Syllabus



Course Code: EDL084

Animation

Course Description

Do you wonder what it would be like to create the next blockbuster animated movie or do you want to make the next big video game? Do you have an eye for drawing, technology, and timing? If so, Animation is the course for you! You will learn how to use animation tools to conceptualize and bring your creations to life. You'll learn the ins and outs of creating 2D and 3D animation, from start to finish. You'll even begin working on our own design portfolio and get hands on experience with creating your own animation projects. Learning about Animation could lead to a thriving career in the growing world of technology and animation.

Required Materials

The following free, cross-platform programs will need to be downloaded for use during the course (programs will run on Windows XP and higher, Linux and Mac computers):

- Tupi 2D Magic
- Blender
- DaVinci Resolve

Required Computer System Requirements:

- 2 GB of RAM
- 32-bit dual core
- 2Ghz CPU
- An OpenGL 2.1 compatible graphics card or chip.

Additional Materials:

- Paper/pencil

Recommended Items & Computer System Requirements:

- Computer monitor
- Keyboard that includes a number pad
- 64-bit quad core CPU
- 8 GB of RAM
- HD display
- Three-button mouse
- OpenGL 3.2 compatible graphics card with 2 GB of RAM

Materials Required for Unit 1:

- Modeling clay (optional)
- Camera (can be an actual camera or a camera on a tablet or device)
- Scissors
- Stiff paper or cardboard
- Glue or tape
- Thumbtack or pushpin
- Mirror

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Unit 1: Basic of Animation

Unit Summary

Drawing pictures and making them move is nothing short of magic. Since at least the 1600s, people have been experimenting and inventing ways to make images move. In fact, it is these cool experiments, which you can replicate yourself, that have led us to the modern era of fantastic 3D computer generated animated movies! Get ready to take a peek behind the scenes as we track the history of animation magic.

Learning Objectives

- Trace the origins and early history of the art of animation.
- Explore how the eye and brain process moving images.
- Compare the differences between past animation techniques and current animation technologies.
- Understand the differences between various types of animation.

Assignments

Unit 1 Text Questions	Homework	10 points
Unit 1 Activity	Homework	15 points
Unit 1 Discussion Assignment 1	Discussion	5 points
Unit 1 Discussion Assignment 2	Discussion	5 points
Unit 1 Quiz	Quiz	15 points



Unit 2: Hand Drawn Animation

Unit Summary

Humans talk with their hands, and one way this happens is by communication through drawings. Traditional animation is hand-drawn animation, which evolved from the exciting invention of photography and motion pictures. We will trace these developments all the way through the classic principles of animation developed by the animators at Disney Studios.

Learning Objectives

- Explain how drawn animation evolved from early picture viewing devices.
- Understand and apply Disney's 12 Principles of Animation.
- Use key terms of hand-drawn animation.
- Appreciate the world of animation beyond the United States.
- Include design elements in your drawings.

Assignments

Unit 2 Text Questions	Homework	10 points
Unit 2 Online Lab Questions	Homework	10 points
Unit 2 Activity 1	Homework	15 points
Unit 2 Activity 2	Homework	15 points
Unit 2 Activity 3	Homework	15 points
Unit 2 Discussion Assignment 1	Discussion	5 points
Unit 2 Discussion Assignment 2	Discussion	5 points
Unit 2 Quiz	Quiz	15 points



Unit 3: Computer Animation and CGI

Unit Summary

How do they do that? Modern animated films are a complete wonder to look at and incredibly complex to make. With so many artists performing intricate jobs to create realistic characters, backgrounds, and movement, it takes organization and leadership to bring it all together into a finished film. From the tiniest pixels to the huge computing power needed for post-production, we'll explore how CGI films are made.

Learning Objectives

- Understand the difference between a bitmap image and a vector image.
- Trace the process of CGI production from idea to theater.
- Discuss the pros and cons of different production processes.
- Define and explain kinematics and animatics.
- Identify the key departments in an animation studio.

Assignments

Unit 3 Text Questions	Homework	10 points
Unit 3 Activity 1	Homework	15 points
Unit 3 Activity 2	Homework	15 points
Unit 3 Discussion Assignment 1	Discussion	5 points
Unit 3 Discussion Assignment 2	Discussion	5 points
Unit 3 Quiz	Quiz	15 points



Unit 4: Digital 2D Animation and Rotoscopy

Unit Summary

Now's your chance to join the ranks of talented animators! Everyone can try their hand at this fun art form and increase their communication skills and artistic expression while learning a simple 2D animation program. Pull out your photos and videos---you can use these along with your drawings to make cool mini-animation while you explore Tupi 2D Magic, a 2D animation program that will allow you to put everything you've learned into action!

Learning Objectives

- Create animation sequences with layered drawings and backgrounds.
- Trace videos to make rotoscoped sequences.
- Use the important functions of 2D animation software.
- Export your animated videos to share with the world.
- Apply graphical tools to improve your digital drawings.

Assignments

Unit 4 Text Questions	Homework	10 points
Unit 4 Activity	Homework	15 points
Unit 4 Discussion Assignment 1	Discussion	5 points
Unit 4 Discussion Assignment 2	Discussion	5 points
Unit 4 Quiz	Quiz	15 points



Unit 5: Human Anatomy and Form

Unit Summary

Animated characters aren't real, so animators don't really need to understand the human body, right? WRONG! You actually DO need to know how to draw the human form, with bone structure and muscles, and appreciate real world body mechanics in order to draw believable, but also stylized, animated characters. Together, we'll tackle the basics and then you can let your imagination fly, while taking your audience along with you for the ride.

Learning Objectives

- Draw the human body in proportion.
- Identify and create the walk cycle for animation.
- Discuss how poses communicate emotion.
- Develop your own animated characters based on real anatomy.

Assignments

Unit 5 Text Questions	Homework	10 points
Unit 5 Online Lab Questions	Homework	10 points
Unit 5 Activity	Homework	15 points
Unit 5 Discussion Assignment 1	Discussion	5 points
Unit 5 Discussion Assignment 2	Discussion	5 points
Unit 5 Quiz	Quiz	15 points



Unit 6: Animated Motion

Unit Summary

Jump around. Walk. Run. Smile. Shake your head. Tap your foot. We move all the time, but how does it look in a sequence of images? Movement in animation must conform roughly to the laws of gravity and motion of the real world but can be used to express emotions, plot points, and character development. Studying natural movement will teach you to translate movement into animation, but you can still get creative and give that movement personality.

Learning Objectives

- Understand the Laws of Motion and Gravity.
- Apply physics principles to the movement of your characters.
- Create facial expressions that convey emotions.
- Turn your characters into first-rate actors.

Assignments

Unit 6 Text Questions	Homework	10 points
Unit 6 Activity 1	Homework	15 points
Unit 6 Activity 2	Homework	15 points
Unit 6 Discussion Assignment 1	Discussion	5 points
Unit 6 Discussion Assignment 2	Discussion	5 points
Unit 6 Quiz	Quiz	15 points



Midterm Exam

Learning Objectives

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first six units in this course (Note: You will be able to open this exam only one time.)

Assignments

Midterm Exam	Exam	50 points
Midterm Discussion Assignment	Discussion	5 points



Unit 7: Intro to Blender

Unit Summary

Have you ever watched a modern animated movie and wondered how they created those incredibly detailed and compelling characters and worlds? With extremely realistic lighting, physics, and even hair, fur, and skin, the world of 3D animation has become truly rich and visually compelling. In this unit, we will learn about the popular, open source, yet powerful, 3D modeling and animation software called Blender.

Learning Objectives

- Explain the difference between motion capture and keyframe animation.
- Grasp the power of modern animation techniques, including bones, muscles, and rigging.
- Understand the process of simulating water, hair, and other dynamics.
- Navigate the Blender interface.
- Create simple animations using parenting, movement, rotation and scaling along with keyframes.

Assignments

Unit 7 Text Questions	Homework	10 points
Unit 7 Activity	Homework	15 points
Unit 7 Discussion Assignment 1	Discussion	5 points
Unit 7 Discussion Assignment 2	Discussion	5 points
Unit 7 Quiz	Quiz	15 points



Unit 8: Character Modeling

Unit Summary

Have you ever watched an extremely vivid, polished animated movies or 3D video games and wondered to yourself: How do they create those 3D characters? We're going to begin by exploring the basic tools and techniques involved in creating the 3D models for characters, and then you'll even get to create a 3D character model of your own!

Learning Objectives

- Use various modeling techniques to create a character model.
- Hide background geometry.
- Navigate the 3D view using shortcuts.
- Switch between perspective and orthographic mode.
- Understand and apply the principles of topology.

Assignments

Unit 8 Text Questions	Homework	10 points
Unit 8 Activity	Homework	15 points
Unit 8 Discussion Assignment 1	Discussion	5 points
Unit 8 Discussion Assignment 2	Discussion	5 points
Unit 8 Quiz	Quiz	15 points



Unit 9: Character Animation

Unit Summary

At some point, you have probably watched a modern animated movie like Ice Age or Shrek, or played a modern, high-end computer game and asked yourself: How did they make those characters move so realistically, and believably? Well... you're about to find out! Get ready to take a look at the basic process involved in rigging, skinning, and animating a 3D character.

Learning Objectives

- Create an armature rig to fit a bipedal character model.
- Skin, or attach, a character model to a rig so that it deforms like skin with the movements of the various bones.
- Develop a seamless walk cycle for a rigged character model.

Assignments

Unit 9 Text Questions	Homework	10 points
Unit 9 Online Lab Questions	Homework	10 points
Unit 9 Activity	Homework	15 points
Unit 9 Discussion Assignment 1	Discussion	5 points
Unit 9 Discussion Assignment 2	Discussion	5 points
Unit 9 Quiz	Quiz	15 points



Unit 10: Storytelling

Unit Summary

Want to go to the movies? Well, why do people go? Because of the story! It draws them in, makes them care about the characters, and it lets them immerse themselves in another world. Storytelling is as old as the cavemen, and it is the best way to entertain modern humans as well. How do you make sure your story will captivate the audience? We have the secrets and the tricks right here—come along and we will tell you a story about telling a story!

Learning Objectives

- Write dialogue and action in proper film script format.
- Understand three-act script structure.
- Identify camera shots, angles, and movement.
- Create storyboards for animation.

Assignments

Unit 10 Text Questions	Homework	10 points
Unit 10 Activity 1	Homework	15 points
Unit 10 Activity 2	Homework	15 points
Unit 10 Activity 3	Homework	15 points
Unit 10 Discussion Assignment 1	Discussion	5 points
Unit 10 Discussion Assignment 2	Discussion	5 points
Unit 10 Quiz	Quiz	15 points



Unit 11: Video, Music & Sound

Unit Summary

Silent films were great when they first came out, but now that we can have music, sound, and talking in our films... let's do it! From recording voice acting to making your own sound effects, putting sound to animation is an exercise in imagination and precision. After all, you don't want that "pop!" to be heard before the popcorn actually starts to pop or the "crash" to occur before the block tower comes toppling over. Funny, quirky, spooky, or serious—the sounds included in your animation and how you make them are really all up to you!

Learning Objectives

- Appreciate how sound affects emotions.
- Record good voice acting for animation.
- Match animated mouth shapes to the sounds of speech.
- Design and edit a simple soundtrack for video.
- Add titles and export an animation with sound.

Assignments

Unit 11 Text Questions	Homework	10 points
Unit 11 Online Lab Questions	Homework	10 points
Unit 11 Activity	Homework	15 points
Unit 11 Discussion Assignment 1	Discussion	5 points
Unit 11 Discussion Assignment 2	Discussion	5 points
Unit 11 Quiz	Quiz	15 points



Unit 12: Careers in Animation

Unit Summary

Animation is fun stuff! Who wouldn't want to spend their days making amusing characters do silly things to entertain the masses? Well, perhaps you have a more serious side and would like to apply your talents to medicine or engineering. That is possible for animators too! Whatever your dream, today is the first day on the path to a lifetime of fulfilling work as an animator. Seize the day!

Learning Objectives

- Put together a portfolio of your work.
- Recognize plagiarism and know how to avoid it in animation.
- Pitch your animation project.
- Understand the difference between jobs in animation vs. game design.
- Describe how to protect your digital animation work.

Assignments

Unit 12 Text Questions	Homework	10 points
Unit 12 Online Lab Questions	Homework	10 points
Unit 12 Activity 1	Homework	15 points
Unit 12 Activity 2	Homework	15 points
Unit 12 Activity 3	Homework	15 points
Unit 12 Discussion Assignment 1	Discussion	5 points
Unit 12 Discussion Assignment 2	Discussion	5 points
Unit 12 Quiz	Quiz	15 points



Final Exam

Learning Objectives

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from units seven to twelve in this course – the last six units. (Note: You will be able to open this exam only one time.)

Assignments

Final Exam	Exam	50 points
Class Reflection Discussion Assignment	Discussion	10 points