

**CTAN 443L -
Character Development for 3D Animation and
Games**

Units: 2

Spring 2017 — Tuesday — Time: 10:00 – 12:50 PM

Location: [SCI L113](#)

Instructor: Scott Easley

Office: [EGG 207](#), 746 West Adams Boulevard

Office Hours: Tuesday, 1:30 – 4:00 PM

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Teaching Assistant:

Office: Megan Maniago

Office Hours: Contact Megan to set up

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Course Description

This course instructs the technical and artistic development to achieving unique, compelling, and intuitive character animation for video games. This course also works in tandem with the USC Games Advanced Games classes to help create animations that bring life to the worlds USC Games students create.

Learning Objectives

This course teaches both rigging and animation of 3d characters using the software Maya. The course also introduces the students to using custom scripts and pipeline techniques to finish and submit work in an efficient and timely manner for project deadlines.

Prerequisite(s): CTAN 452

Co-Requisite(s): None

Concurrent Enrollment: None

Recommended Preparation: Familiarity with Maya and/or any 3d animation is helpful.

Course Notes

Lectures will be posted on Blackboard and links to youtube videos will sometimes supplement (but not replace) the lessons taught in class.

Technological Proficiency and Hardware/Software Required

Familiarity with basic folder structures on a personal computer is necessary.

Required Readings and Supplementary Materials

Supplementary materials will be posted on the class website tutorial section:
<http://gamepipe.usc.edu/animation/tutorials.php>.

Description and Assessment of Assignments

Finished 3d work of both rigging and animation will be reviewed by Professor Easley after hours of the class with personal reviews of the work during classtime

Grading Breakdown

Assignment	Points	% of Grade
Class Participation	10	10
Initial Character Rig	15	15
Character Greybox	15	15
Walk Animation	15	15
Chosen Action #1	15	15
Chosen Action #2	15	15
Chosen Action #3	15	15
TOTAL	100	100

Grading Scale (Example)

Course final grades will be determined using the following scale

A	95-100
A-	90-94
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

Assignment Rubrics

Due to the nature of the class being both rigging and animation, keeping up with the class is crucial. Assignments are small and reasonable to completed within the following week.

Assignment Submission Policy

Assignments are to be submitted via Google drive – details of this will be covered in class.

Grading Timeline

Grading for assignments will be within two weeks after submission.

Additional Policies

FOOD AND DRINKS (OTHER THAN WATER) ARE NOT PERMITTED IN ANY INSTRUCTIONAL SPACES IN THE CINEMATIC ARTS COMPLEX. Texting during lecture is prohibited.

Course Schedule: A Weekly Breakdown

	Topics/Daily Activities	Readings and Homework	Deliverable/ Due Dates
Week 1 Jan 9th	<p>Introduction and course overview/Animation Design Overview</p> <p>Introduction to course expectations and methodologies. Components, concepts, and deliverables for the course will be discussed.</p> <p>Proficiency Survey: Experience and interests</p> <p>Visual Design Overview</p>	<ol style="list-style-type: none"> 1. Familiarity with provided 'Skyrig' simple IK and FK rig in class. Video on class tutorial webpage. 2. Study cartoony sprite sheets for basic moves. 3. Skyrig base poses of animated walk using sprite sheet as guide (viewed just from the side) 	
Week 2 Jan 16th	<p>Review chosen walks Character Visual Design Designing characters for</p> <ul style="list-style-type: none"> • Side-scrollers • Arial design • Puzzle design • 3D (versus 2D) 	<ol style="list-style-type: none"> 1. Cut/paste realistic animations using Muybridge photographs 2. Continue animation of character from side 	
Week 3 Jan 23rd	<p>Pre-design</p> <ul style="list-style-type: none"> - Working from concept to screen - Realism versus cartoony - Greyboxing 	<ol style="list-style-type: none"> 1. Chosen main character 2. Find/Build similar 3d mesh for rigging 3. Walk animation poses from front 	<p>Greyboxed character with walk poses saved as .ma file <u>Due Jan 30th</u></p>
Week 4 Jan 30th	<p>Weight and gravity in the Game world</p> <ul style="list-style-type: none"> - Fundamentals of weight - Fundamentals of gravity speed in character - Graph Editor 	<ol style="list-style-type: none"> 1. Animation list for character 2. Finalize proportions 3. Custom Script: Skyrig 4. Build custom 3d rig using Skyrigger 	<p>Polish walk (viewed in perspective) <u>Due Feb 6th</u></p>
Week 5 Feb 6th	<p>Animating in 3D worlds</p> <ul style="list-style-type: none"> - Character movement Fundamentals - Weighting overview 	<ol style="list-style-type: none"> 1. Study character turnaround 2. Start weighting chosen 3d character 	
Week 6 Feb 13th	<p>Character Design and Animation</p> <ul style="list-style-type: none"> - Finish weighting - Yoga animation - Body Posing (Key poses) 	<ol style="list-style-type: none"> 1. Finish weighting chosen 3d character 2. Cut/paste yoga animation 	
Week 7 Feb 20th	<p>Terrain design and animation (Ex: underwater, Earth, microscopic)</p> <ul style="list-style-type: none"> - Building design - Highlighting and 	<ol style="list-style-type: none"> 1. Cutting/pasting animation - Tutorial video on class website 2. Finish character 3d walk 	<p>MIDTERM: Bake and export walk character to Quicktime viewer for verification <u>Due Feb 27th</u></p>

	refinement - Closed-quarters - Outdoors action		
Week 8 Feb 27th	From Models to the Engine/Designing for models for game constraints - Motion manipulated as function curves - The polygon count - Graph Editor/Animation exporter - Baking/Exporting the character	1. Custom script: Sequencer 2. Choose 3 other animations for your character (Ex: Run, Jump, Punch)	
Week 9 Mar 6th	Designing in Engine - Exporting animations across engines - Creating functional and dynamic hierarchies - Survey of possible motion in engine design capabilities	1. Series of moves with reference for character's final moves	
Week 10 Mar 13th	Interface Design - Interface Placement and character movement (Intuitive or Linear) - Basic concepts in developing your interface for player motion	1. Begin animating move1 2. Folder structure for delivery of animation	
Week 11 Mar 20th	Iconography - Review of move 1 - Advanced concepts in character UI design	1. Schedule completion	Finish animating move 1 – export it <u>Due Mar 27th</u>
Week 12 Mar 27th	Advanced Motion - Blending two motions	1. Begin move 2	
Week 13 Apr 3rd	Custom buttons in Maya Review of Move 2	1. In-class animation lab critique	Finish animating move 2 – export it <u>Due Apr 10th</u>
Week 14 Apr 10th	Continue to work on move set	1. In-class animation 2. Begin animation of move 3	
Week 15 Apr 17th	Continue to work on move set	1. In-class animation polish and critique	Finish and export move3 <u>Due Apr 24th</u>
FINAL Apr 24th	- Final Review - Evaluations and Post mortem		Grades due 05/09/2018

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Support Systems:

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. engemannshc.usc.edu/counseling

National Suicide Prevention Lifeline – 1 (800) 273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. engemannshc.usc.edu/rsvp

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: sarc.usc.edu

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. equity.usc.edu

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.

Provides overall safety to USC community. dps.usc.edu