

**Animation and Rigging**  
**AET 328**  
**20639**

*re-animator animatronic remix.*

Spring 2019  
DFA 4.126  
TTH 2:00 PM- 3:30 PM

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Office Hours: Mondays and Tuesdays : 11am-1215 pm in the Foundry,  
or by appointment

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## **I. Rationale:**

This course teaches the observation and implementation of believable character movement through a series of iterative projects that focus on the classic principles of animation, applied to 3D digital characters.

## **II. Course Aims and Objectives:**

### ***Aims***

This course explores 3-D character rigging and animation using joints, forward and inverse kinematics, multiple character animation approaches, facial animation, bipedal character rigging and animation, and exploration into 3-D production environments, such as rendered video for film, games, the web, and VR.

### ***Specific Learning Objectives:***

By the end of this course, students will:

- Understand the similarities and differences between producing animation for a 3-D game versus film
- Understand the situations to use forward kinematic (FK) vs inverse kinematic (IK) rigging approaches
- Create 3D character animations which apply the classic 12 animation principles
- Be fluent in the process of character setup, implementing specifics to a model's design needs
- Explore animated blend shaping approaches to deform digital models
- Apply 3-D character animation for use in both rendered video as well as real time environments
- Successfully collaborate on a state of the art 3-D production

## **III. Format and Procedures:**

This course will meet twice a week. During the first meeting, there will be a lecture that will include demonstration along with discussion. During the second meeting of the week, there will be group learning project with discussion. The in-class projects will review and practice the material covered from the week's first class meeting. Active participation in weekly in-class group projects will be a major component of the professionalism and participation component of student grades for the course that will comprise 20% of the final grade.

**IV. Tentative Course Schedule:** *\*\*This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.*

Date	Main Topic(s)	Work to do at home to be completed <u>before</u> class	Evaluation
Jan 22,24	Course Introduction. Basic FK/ IK rigging and animation review.	Setup blog for class project process. Download Maya (if applicable) Begin Abstract rig and animation project.	
Jan 29,31	Animation principles, continued. Lighting and rendering basics.	Finish rig and animation for Abstract Project.	
Feb 5, 7	Creating a beat list, setting up shots for animating narrative. First Pass animation process.	Begin Animation on “Shot #1”	Abstract Rig and Animation due
Feb 12, 14	Second pass animation process, the graph editor/ animation cleanup.	Refine animation and render shot #1.	Shot #1 First Pass Due
Feb 19, 21	Creating Blend Shapes	Create blend shapes/ facial animation setup on character	Shot #1 Render Due
Feb 26,28	Facial Animation/ lip sync basics. Reaction Shots. Animation takes.	Create facial animation (shot #2) First Pass.	Blend Shapes, first pass
March 5, March 7	Working with audio and animation. Lip Sync, continued.	Facial Animation (shot #2) Second Pass. Render animation.	Shot #2 First pass
March 12,14	Character Rigging, continued	Begin Character Rig	Shot #2 Render Due
March 19,21	Spring Break	Spring Break	Spring Break
March 26,28	Character Rigging, Continued	Finish Character Rig	
April 2,4	Animation Principles, Continued	Begin Shot #3 (first Pass)	Character Rig Due
April 9,11	Compositing and editing animation.	Shot #3, Second Pass animation and rendering.	
April 16,18	Discuss Final Project. Film Language.	Begin final project	Shot #3 Render Due
April 23, 25	Animation and Virtual Reality	Work on Final Project	.
April 30, May 02	Designing in Time	Finish final Project	

May 7, May 9	Final Project Presentations/ Course Wrap-up	Finish final projects, be prepared to present and discuss work with class	Final Projects Due
Date TBA	Digital Demo Day	Final Project Presentations	During Finals Week

**Feedback Statement (to encourage students to respond to your requests for their feedback)**

During this course I will be asking you to give me feedback on your learning in informal as well as formal ways, including through anonymous surveys about how my teaching strategies are helping or hindering your learning. It's very important for me to know your reaction to what we're doing in class, so I encourage you to respond to these surveys, ensuring that together we can create an environment effective for teaching and learning.

**V. My Assumptions**

It is my belief that with hard work and a little bit of patience, anyone can be good at 3-D animation. The learning curve is slower for some than others, but do not be discouraged and you will get to where you want to be. With the projects we create in this course, I advise students to make something that they can get really excited about. Think about making short-term goals for your progress, and try to learn a new skill each day. The 3-D animation process is very iterative, in that projects build upon one another, and many steps are repeated ad infinitum. With a firm plan in place, it will be easy to create a road map for success.

**VI. Course Requirements:****1. Class attendance and participation policy:**

- (a) Expected classroom behavior: take notes, ask many questions, and attend class for the entire duration. Make a solid effort on each project outside of class, so that you may have many questions to contribute to the discussion.
- (b) Cell phone use, including texting, is unallowable. Keep cell phones stored during the duration of class

**Religious Holy Days**

By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, I will give you an opportunity to complete the missed work within a reasonable time after the absence.

**2. Course Readings/Materials:**

- (a) Recommended Textbooks: *Introducing Autodesk Maya 2016*: Autodesk Official Press, by Dariush Derakhshani. 1<sup>st</sup> Edition. ISBN: 9781119059639
- (b) *The Animator's Survival Kit*, by Richard Williams. ISBN: 978-0571238347
- (c) Supplies needed: Laptop computer capable of running Autodesk Maya and Adobe After Effects
- (c) Other supplies: Jump Drive for external storage and data backup. A mouse for your laptop, as the 3D software will be much slower to use without one.
- (d) To download free student version of Maya:  
<http://www.autodesk.com/education/free-software/maya>
- (e) URL for course website: <http://goingforwardbackwards.tumblr.com>

**3. Assignments, Assessment, and Evaluation**

- (a) Finished Assignments should be posted to canvas in the requested format before 9:00 AM on the Due Date
- (b) Late assignments will lose 10 points for the first day late, 20 points if 2 days late, 40 points off if 3 days late, and so on, with point subtraction doubling for each day of lateness
- (c) Preliminary information on papers or projects, with due dates, shall be posted to canvas on the date of assignment

(d) List of assignments that will impact the final grade

Project 1: Abstract Rig and Animation (10%)

Project 2: Animation (Shot #1) (10%)

Project 3: Blend Shape/ Facial Animation Setup (10%)

Project 4: Animation (Shot #2) (10%)

Project 5: Character Rig (10%)

Project 6: Animation (Shot #3) (10%)

Project 7: Final Project (20%)

Attendance, Professionalism and Participation (20%) MISSING MORE THAN 3 CLASSES will result in an AUTOMATIC ZERO for this grade.

(e) This course will consist of seven projects. Other than the final project, the distribution of weight towards the final grade is even, with each project worth 10% of the final grade. Each of these projects in of itself represents one aspect of the 3-d animation production pipeline and builds upon the last, culminating in a finished multimedia work.

(f) Any changes in the syllabus, such as project due dates, will be announced in class as well as on canvas.

#### 4. Use of *Canvas* in class

In this class I use *Canvas*—a Web-based course management system with password-protected access at <http://canvas.utexas.edu>—to distribute course materials, to communicate and collaborate online, to post grades, and to submit assignments. You can find support in using Canvas at the ITS Help Desk at 475-9400, Monday through Friday, 8 a.m. to 6 p.m., so plan accordingly.

### VII. Grading Procedures: Grades will be based on:

Abstract Rig and Animation (10%)

Animation (Shot #1) (10%)

Blend Shape/ Facial Animation Setup (10%)

Animation (Shot #2) (10%)

Character Rig (10%)

Animation (Shot #3) (10%)

Final Project (20%)

Professionalism and Participation (20%):->MISSING MORE THAN 3 CLASSES will result in an AUTOMATIC ZERO for this grade.

Letter Grade	Percentage	
A	93%-100%	
A-	90%-92%	
B+	87%-89%	
B	83%-86%	

B-	80%-82%	
C+	77%-79%	
C	73%-76%	
C-	70%-72%	
D+	67%-69%	
D	60%-66%	
F	0%-59%	

## **IX. Academic Integrity**

### **University of Texas Honor Code**

The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

## **X. Other University Notices and Policies**

### **Use of E-mail for Official Correspondence to Students**

- All students should become familiar with the University's official e-mail student notification policy. It is the student's responsibility to keep the University informed as to changes in his or her e-mail address. Students are expected to check e-mail on a frequent and regular basis in order to stay current with University-related communications, recognizing that certain communications may be time-critical. It is recommended that e-mail be checked daily, but at a minimum, twice per week. The complete text of this policy and instructions

for updating your e-mail address are available at <http://www.utexas.edu/its/help/utmail/1564>.

### **Documented Disability Statement**

Any student with a documented disability who requires academic accommodations should contact Services for Students with Disabilities (SSD) at (512) 471-6259 (voice) or 1-866-329-3986 (video phone). Faculty are not required to provide accommodations without an official accommodation letter from SSD. *(Note to Faculty: Details of a student's disability are confidential. Faculty should not ask questions related to a student's condition or diagnosis when receiving an official accommodation letter.)*

- Please notify me as quickly as possible if the material being presented in class is not accessible (e.g., instructional videos need captioning, course packets are not readable for proper alternative text conversion, etc.).
- Please notify me as early in the semester as possible if disability-related accommodations for field trips are required. Advanced notice will permit the arrangement of accommodations on the given day (e.g., transportation, site accessibility, etc.).
- Contact Services for Students with Disabilities at 471-6259 (voice) or 1-866-329-3986 (video phone) or reference SSD's website for more disability-related information:  
[http://www.utexas.edu/diversity/ddce/ssd/for\\_cstudents.php](http://www.utexas.edu/diversity/ddce/ssd/for_cstudents.php)

### **Behavior Concerns Advice Line (BCAL)**

If you are worried about someone who is acting differently, you may use the Behavior Concerns Advice Line to discuss by phone your concerns about another individual's behavior. This service is provided through a partnership among the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance Program (EAP), and The University of Texas Police Department (UTPD). Call 512-232-5050 or visit <http://www.utexas.edu/safety/bcal>.

### **Q drop Policy**

The State of Texas has enacted a law that limits the number of course drops for academic reasons to six (6). As stated in Senate Bill 1231:

“Beginning with the fall 2007 academic term, an institution of higher education may not permit an undergraduate student a total of more than six dropped courses, including any course a transfer student has dropped at another institution of higher education, unless the student shows good cause for dropping more than that number.”

### **Emergency Evacuation Policy**

Occupants of buildings on the UT Austin campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made. Please be aware of the following policies regarding evacuation:

- Familiarize yourself with all exit doors of the classroom and the building. Remember that the nearest exit door may not be the one you used when you entered the building.
- If you require assistance to evacuate, inform me in writing during the first week of class.
- In the event of an evacuation, follow my instructions or those of class instructors.

Do not re-enter a building unless you're given instructions by the Austin Fire Department, the UT Austin Police Department, or the Fire Prevention Services office.



