ARTG 132

3D Character Rigging and Animation for Video Games

Quarter: Summer 2020 Online

Units: 5

Instructor: Ed Gregor

email: egregor@ucsc.edu

Syllabus

Course Description

This is a hands-on studio course, intended to give students an in depth understanding of the techniques of 3D Character Rigging and Animation for Video Games. Through this course, students will understand and develop the skills necessary to be an effective technical artist and animator with a focus on industry standard methods for animating characters to be implemented into a game engine. The course will provide students with video and written lectures, video demonstrations, assignments and discussion boards aimed at giving them historical understanding of game animation, the evolution of these techniques, hands-on work to become proficient, as well as the ability to communicate online with other students and the instructor to answer questions and further their knowledge.

This syllabus is a living document. The course subject is final, although the instructor may adjust content based on student feedback, advances in techniques, as well as changes in updates to software capabilities. The instructor wants to ensure students are getting the most accurate and current material.
Course Learning Objectives

- Skills and techniques to rig and animate 3D characters
- Production of a fully rigged and animated 3D character, ready to implement in any game engine and add to your portfolio
- Proficiency and competence within a 3D software package
- Understanding of the Game Animation pipeline

Weekly Class Sessions will include

- Video and written lectures providing concept overviews, techniques and relevant links to further information on the subject.
- Video of Instructor-led technical demonstrations and step by step instructions to guide students through learning the software and techniques required to complete assignments.
- Weekly assignments to develop the student’s understanding and mastery of demonstrated techniques.
- Discussion board access for peer critiques and access to the instructor

Course Requirements

- Commitment, motivation and hard work
- Completion of all weekly assignments, midterm and final on the scheduled due dates
- Spend a minimum of 30 hours per week on written and video lectures and demonstrations, as well as reference material and studio assignments
- Participation in Discussion board peer critiques
**Materials Required**

- Autodesk Maya 2019 (or higher) software installed on a computer that meets the minimum requirement
- Three-button mouse and keyboard

**Materials Suggested**

- Drawing tablet such as wacom or huion with pressure sensitive stylus

**Materials Provided**

- A 3D character model ready to be rigged. (you may provide your own model if you wish, but it should be a single mesh object and any problems related to it would be your responsibility)

**Assignments**

**Weekly Assignments:**

Based on lectures and video demonstrations, students will be required to turn in weekly assignments reflecting their knowledge and proficiency in the topics and techniques taught that week.
Midterm and Final:

There will be no Midterm or Final and your grade will be a culmination of weekly assignments and participation.

Submission Policies and Late or Incomplete Assignments

All weekly assignments must be turned in by their due date as described per assignment. Submission format will be either screenshots or video screen capture as indicated in the assignment instructions and must be submitted electronically through the Canvas system.

Late submissions will only be allowed if the student submits proof of illness or family emergency.

Submissions turned in after their due date will incur a penalty of 5% of total available credit for every day the submission is late, up to seven days. Submissions not turned in at all will receive zero credit.

Update due to Covid-19
Assignment Rubric includes 1 point for turning in your assignment by the due date. Those assignments that are not completely by the due date, do not receive the 1 point. There are no other accruing penalties for late assignments.

Participation

Students are expected to participate in the online Discussion Board (Discord) by posting work in progress and providing helpful critique to other students, as well as communicating with the TA and instructor, to seek answers to questions and seek clarity of techniques or subjects.
Grading

Weekly Assignments are graded on a point system based on completing the specifics of the assignment as well as effort.

Name: Range:

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<th>Grade</th>
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Final Grade

The final grade for the course will be determined by the percentage of the total Assignment points possible, including participation.
Schedule

Week 1
Lecture: Syllabus Review. Introduction to Rigging and Weighting concepts
Tutorial: Introduction to Maya interface
Tutorial: Maya Project Setup with 3D Model
Assignment: Maya project setup with 3D model

Week 2
Lecture: Deformation Joints
Tutorial: Deformation Joint Placement
Assignment: Deformer Joint Placement

Week 3
Lecture: Skin Binding and Weight Painting
Tutorial: Skin Binding and Weight Painting
Assignment: Skin Binding and Weight Painting

Week 4
Lecture: Arm Controls
Tutorial: FK Arm controls, IK Arm controls, IK FK Blending and Finger controls
Assignment: Arm Controls

Week 5
Lecture: Mirror Arm Controls, Creating Spine and Leg Controls
Tutorial: Mirror Arm Controls, Creating Spine and Leg Controls
Assignment: Right Arm, Spine and Left Leg Controls
Week 6
Lecture: Reverse Foot Controller, Mirror Leg Controls, Rig Organization
Tutorial: Setting keyframes, adjusting timing, manipulating curves in the graph editor and creating loops. How to make an Idle Cycle animation.
Assignment: Create an Idle animation

Week 7
Lecture: Introduction to Maya and Creating an Idle Animation
Tutorial: How to make an Idle animation.
Assignment: Create an Idle Animation

Week 8
Tutorial: How to make a Run Cycle animation
Assignment: Create a Run Cycle

Week 9
Lecture: Character Animation Move List
Tutorial: Sword Attack Example
Assignment: Create your own Animation

Week 10:
Lecture: Animation Layers and Class Review
Tutorial: How to use Animation Layers to augment keyframe animation
Assignment: Use Animation Layers to adjust a previous animation
Important Summer Session Remote 2020 Deadlines:

**Session 1:**
Drop: Monday, June 29  
Request for “W”: Friday, July 10

**Session 2:**
Drop: Monday, August 3  
Request for “W”: Friday, August 14

**8-Week:**
Drop: Monday, July 6  
Request for “W”: Friday, July 24

**10-Week:**
Drop: Monday, July 6  
Request for “W”: Friday, July 24

Summer is unique. **You will not be dropped for non-attendance or non-payment.** You must drop yourself. Dropping before the deadline results in a full-tuition reversal/refund. Withdraw posts a W for the grade and full tuition is charged (no refund).

For all dates and deadlines, including ‘change of grade option’ (P/NP) and grades due, here is the summer academic calendar: [https://summer.ucsc.edu/studentlife/index.html](https://summer.ucsc.edu/studentlife/index.html)

For questions about dropping, requesting a W grade for a course, or withdrawing from the summer quarter, email summer@ucsc.edu.

**DRC Remote Accommodations:**

The Disability Resources Center reduces barriers to inclusion and full participation for students with disabilities by providing support to individually determine reasonable academic accommodations. Operations continue via remote appointments. If you have questions or concerns about exam accommodations or any other disability-related matter, email the DRC Schedulers at drc@ucsc.edu for an appointment.

**Small Group Tutoring**

Small Group Tutoring (SGT) supports students academically to advance educational equity by designing inclusive learning environments outside of the classroom. In SGT, you can expect the Tutor to facilitate cooperative group activities designed to have students work together on the course content and develop study skills for the course. SGT is offered at least three times each week for the entire quarter. The Tutor is an undergraduate student who took the class, did well,
and is trained to facilitate group sessions to focus on students’ needs to succeed in the course. SGT is open to all students enrolled in the class and they must sign up on our online system: TutorTrac. When students sign up for SGT, they are committing to attend every week. For Summer 2020, students can begin signing up for tutoring on **Monday, June 22nd** and tutoring will begin **Wednesday, June 24th**. Students only have to sign up once for tutoring and their appointments will repeat weekly. Sign-ups will close on **Friday, August 14th** for all Summer Session Sign-Ups. This means that after **August 14th**, no new students can sign up for tutoring.

Want SGT to be successful for you? Bring your books, lecture notes, questions, and be open to working collaboratively with your peers. You can sign up using this link: https://ucsc.go-redrock.com/tracweb40/NoAccess.4sp?errText=insufficient%20credentials%20to%20view%20content

You can also find the link on our website: [https://lss.ucsc.edu/index.html](https://lss.ucsc.edu/index.html)

**Academic Dishonesty**

Academic integrity is the cornerstone of a university education. Academic dishonesty diminishes the university as an institution and all members of the university community. It tarnishes the value of a UCSC degree. All members of the UCSC community have an explicit responsibility to foster an environment of trust, honesty, fairness, respect, and responsibility. All members of the university community are expected to present as their original work only that which is truly their own. All members of the community are expected to report observed instances of cheating, plagiarism, and other forms of academic dishonesty in order to ensure that the integrity of scholarship is valued and preserved at UCSC.

In the event a student is found in violation of the UCSC Academic Integrity policy, he or she may face both academic sanctions imposed by the instructor of record and disciplinary sanctions imposed either by the provost of his or her college or the Academic Tribunal convened to hear the case. Violations of the Academic Integrity policy can result in dismissal from the university and a permanent notation on a student’s transcript.

For the full policy and disciplinary procedures on academic dishonesty, students and instructors should refer to the [Academic Integrity page](https://lss.ucsc.edu/index.html) at the Division of Undergraduate Education.

**Title IX:**

The university cherishes the free and open exchange of ideas and enlargement of knowledge. To maintain this freedom and openness requires objectivity, mutual trust, and confidence; it requires the absence of coercion, intimidation, or exploitation. The principal responsibility for maintaining these conditions must rest upon those members of the university community who exercise most authority and leadership: faculty, managers, and supervisors.
The university has therefore instituted a number of measures designed to protect its community from sex discrimination, sexual harassment, sexual violence, and other related prohibited conduct. Information about the Title IX Office, the online reporting link, applicable campus resources, reporting responsibilities, the UC Policy on Sexual Violence and Sexual Harassment, and the UC Santa Cruz Procedures for Reporting and Responding to Reports of Sexual Violence and Sexual Harassment can be found at titleix.ucsc.edu.

The Title IX Office is actively responding to reports and requests for consultation. If you are not currently working with someone in the office and want to make a report/request a consult, you can expect the fastest response by using our online reporting link.

For more information please visit the Title IX Operations under Covid-19 page.