

## **ARTG 132**

### **3D Character Rigging and Animation for Video Games**

Quarter: Summer 2023 Online

Units: 5

Instructor: Ed Gregor

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## **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 and tutorials, 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 a Video Game Digital Artist, as well as give them the ability to communicate online with other students, the Teaching Assistant 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 Rigging and 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 2024 (or higher) software installed on a computer that meets the minimum requirement ([System requirements for Autodesk Maya](#))
- 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 discreet Midterm or Final. Your grade will be a culmination of the Summer Session long project graded as 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.**

Assignment Rubric includes 1 point for turning in your assignment by the due date. Those assignments that are not completed 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 Rubric as well as effort.

<b>Grade:</b>	<b>Range:</b>	
A+	100 %	to 99.99%
A	< 99.99 %	to 95.0%
A-	< 95.0 %	to 90.0%
B+	< 90.0 %	to 87.0%
B	< 87.0 %	to 83.0%
B-	< 83.0 %	to 80.0%
C+	< 80.0 %	to 77.0%
C	< 77.0 %	to 73.0%
C-	< 73.0 %	to 70.0%
D+	< 70.0 %	to 67.0%
D	< 67.0 %	to 63.0%
D-	< 63.0 %	to 60.0%
F	< 60.0 %	to 0.0%

## **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:** Extra Credit: Use Animation Layers to adjust a previous animation