CSCI 182 : 10 : Computer Animation Design II : Spring 2007
Credits: 3.0 CRN: 23138
The George Washington University
Department of Computer Science
Room: 4ᵗ Floor Computer Lab, Room 402, Tompkins Hall
Class Hours: Thursday 3:40 – 6:10 PM

Instructor: Bryan Leister
Contact: bryan@bryanleister.com
Office Hours: By Appointment

Course Description
Computer Animation and Design 1 (3 credits)
Students will learn advanced rigging and animation using Alias Maya to model, texture, render and animate 3-Dimensional scenes and animations. Working through a combination of text-based tutorials and in-class demonstrations students will progress towards understanding the Maya architecture and the proper individual and group workflow for creating complex models and scenes.

An emphasis will be placed on visual aesthetics and the techniques used to create high-quality imagery that is also efficient and flexible for the purposes of animation. This includes the importance of color, lighting and texture in the 3D environment.

Prerequisites
Students should have completed CSCI 181 and have working knowledge of 3D and Maya in particular. A commitment to learning how 3-Dimensional artwork is created and a willingness to spend time in the lab outside of class completing each stage of the class projects.

Method of Instruction
This course will introduce students to the techniques and workflow of creating a finished animation for use on television as a group project. Students will work together as a group to complete assignments for specific deadlines, which will involve presentations to a client, motion capture sessions, character design, modeling and rigging. Students will be responsible for dividing up the work and completing their responsibilities on time so that the project can proceed on pace.

Successful students will:
Understand the process of creating/designing a character, rigging and animating as a group
Gain experience in the application of motion capture data to a character
Create and rig a character for animation
Put together a finished animation/scene

Course Expectations
Projects: Students will complete a single group project and contribute to various stages towards that goal throughout the semester. The work will be divided up with each student contributing a roughly equal workload towards the finished animation, this could include tasks such as: character modeling, environment modeling, texturing, animating or working with the motion capture data.

Individual Projects: Some tasks, such as character design and character research will be required of all students.

Critical Participation: Throughout the semester we will present to a "client", attendance is mandatory on those days. Participation within the group is essential to complete this assignment on time.

Work Habits: This is taught as a studio art class, significant class time will be spent working on projects in class with ample time to ask questions and get advice on how best to proceed. Students are expected to come to class prepared to work; this means bringing their work in progress, material to be scanned, drawing paper and anything else that is needed for working on a particular project. Proper file management and backup technique is also to be followed based on classroom instruction.

Special Notice about Copyrights:

As part of this class, you are being asked to research and create an original model for an animated "teddy bear" which can be used to teach children simple safety lessons. Since it is possible that the results of this assignment may be marketable, ownership of any computer programs, software, documentation, copyrightable work, discoveries, inventions, or improvements developed by students in the class solely, or with others, will be assigned to the University. If GW is successful in marketing such intellectual property, in accordance with Section 3.5 of GW's copyright policy, GW and the "authors" of any copyrighted works will share in any revenues received by GW. If you have any concerns about this, please let your instructor know now. Our hope is that we can take a "real world" approach to this project – including the need to address ownership of intellectual property up front to clear the way for future commercial licensing.

Required Text
Title: Learning Maya 7: The Modeling and Animation Handbook (Paperback)
Author: Alias Learning Tools
Publisher: Sybex; Book&DVD edition (September 23, 2005)
Language: English
ISBN: 1894893875

Websites References
www.cgsociety.org : excellent forums for finding solving technical problems with 3D programs
www.rhizome.org : for information about what's going on in the digital arts
www.highend3d.com : resource for tutorials on character modeling, texture design

Evaluation
Students attending this course have very different levels of expertise and therefore the final grading is not judged solely on technical proficiency. The student's willingness to explore and understand new ideas and incorporate new learning progressively into their work over the course of the semester is of utmost importance in the final grade. A student who has an open mind and shows an interest and excitement toward learning digital tools will produce informed artwork and achieve a higher grade. Grading breakdown is as follows:

Participation: 20%
Presentations: 20%
Exercises: 20%
Projects: 40%

Grading Standards*:
Score of A: Superior
Approaches the assignment in a visually/intellectually interesting way
Completes all stages of the exercises on time
Research outside of class contributes significantly to the work
Technically well executed with no obvious errors

Score of B: Strong
Explores the topic of the assignment thoroughly
Clear understanding of ideas discussed in class with some outside research
Completes all stages of the exercises on time
No more than a few technical errors

Score of C: Competent
Covers the main topic adequately
Shows understanding of the ideas covered in class, but does not go beyond
Most stages of the exercises are completed on time
Technically well done with several small errors or a couple of major flaws

Score of D: Weak
Does not fully address the topic as assigned
Does not show an understanding of ideas discussed in class
Work is not turned in on time
Major technical flaws and lack of serious effort to fix them

Score of F: Inadequate
Fails to address the topic and does not show understanding of ideas discussed in class
Exercises not completed or partially completed
Is severely flawed mechanically

Late projects may be dropped a letter grade.

SCHEDULE:
Note: Schedule subject to modification. All schedule updates will be presented in class.

Major Due Dates

Thursday, February 1	Present Character ideas
Thursday, April 12	Final Animation due
Thursday, May 10	Digital Expo/Film Festival

Week 1:

1/18: Introduction to course and discussion of Final Project. Research on character design, aesthetics of characters. Discuss project with client.
Assignment: Get Maya Modeling and Animation textbook
Research similar characters, prepare thumbnail ideas for main character designs

Week 2:

1/25: Present character design sketches. Decide on direction for visual aesthetics, rendering style and how to treat characters. In class discussion to identify tasks and discuss who will be responsible for each.

Assignment: Using Lessons 01-03 as a guide, create a model of your character design. Render a finished rendering for presentation to client. Looking for basic proportions, expressiveness of the face

Week 3:

2/1: Present character designs to client, prepare character proposal for client. Discuss timeline, story and storyboard design.

Group tasks: •Create video or hand drawn storyboard •Complete IK section of book, Lesson 14-17 •Complete Export/Import to MotionBuilder Lesson 33-38 •Complete main character model

Week 4:

2/8: Present finished model, discuss rigging progress, and discuss finishing up the storyboard. Plan motion capture session and tour motion capture lab.

Group tasks: •Finalize storyboard and present to client •Finalize models •Attach rig to models and paint weights •Texture and lighting tests

Week 5:

2/15: Present finished storyboard, character designs to client.

Assignment: Plan your individual movements to capture

Week 6:

2/22: Motion capture session, meet in motion capture lab.

Group tasks: •Edit sound and video •UV map characters for texturing

Week 7:

3/1: MotionBuilder introduction and demonstration. Import and prepare mocap data to MotionBuilder

Group tasks: •Test rendering of rigging, texturing and lighting •Organize characters, environment for use across the network

Week 8:

3/8: Show test renders at resolution on a DVD. Discuss punch list for final animation

Group tasks: •Continue animation of final scenes, finish modeling, texturing •Create blend shapes

Week 9:

3/15: *SPRING BREAK*

Week 10:

3/22: Test blend shapes, run through of rough animation. Work on Camera angles, movement

Assignment: •Continue refinement of animation, secondary animation •Complete sound track

Week 11:

3/29:   Present first draft of finished animation. Correct lighting, camera angles, matching up to sound.

Assignment: •Continue refinement of animation, secondary animation

Week 12:

4/5:   In class discussion of final animated scene, render settings and calculated render time.

Assignment: •Final Rendering!

Week 13:

4/12:   Present finished animation to client for approval. Discuss any revisions or refinements.

Assignment: Complete revisions, if any, otherwise work on credits, outtakes and personal performance piece

Week 14:

4/19   In class work on revisions, or credit sequences, intro or other aspects to complete the assignment.

Week 15:

4/26   Present final version with all credits, outtakes in place.

Week 16:

5/10   Animation Festival/Expo, present final project to department.