

## **CSCI 181 : 10 : Computer Animation Design I : Fall 2006**

Credits: 3.0

The George Washington University

Department of Computer Science

Room: 4- Floor Computer Lab, Room 402, Tompkins Hall

Class Hours: Tuesday 6:30 - 9:00 PM

Instructor: Bryan Leister

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Office Hours: By Appointment

### **Course Description**

Computer Animation and Design 1 (3 credits)

Students will learn to use Alias Maya to model, texture, render and animate 3-Dimensional scenes and characters. Working through a combination of text-based tutorials and in-class demonstrations students will progress towards understanding the Maya architecture and the proper workflow for creating complex models and scenes. As the leading animation package Maya is capable of achieving virtually any effect can be imagined, a thorough understanding of the basic principles of 3D environment is essential when working in Maya. 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**

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. Students should be inquisitive and willing to share with other students techniques they discover as they progress through the assignments.

### **Method of Instruction**

This course will introduce students to techniques common to all 3D programs in the creation of visual art and animation. Using a seminar/studio format students will complete assignments based on work begun in class. Students will pro-actively investigate current examples of artists using the 3D and examine ways to extend what they have learned in class to enhance their own projects. The course will also discuss what kind of art is being created digitally and examine ways to exploit Maya's node based architecture for aesthetic purposes. Students are required to keep on pace with the class and show their work in progress.

### **Successful students will:**

Understand the principles of 3D scene building and modeling

Use texturing and lighting techniques to create visually sophisticated imagery

Be able to conceptualize and produce artwork that utilizes the unique abilities of the 3D medium

Create and rig mechanical and organic objects for animation

Put together a finished animation/scene

### **Course Expectations**

**Projects:** Students will complete 4 projects that are loosely based on the projects in the Maya Foundation textbook. The students will write a proposal that represents their response to the animation assignment, present sketches and a final rendering/animation to be critiqued by the class. Major milestones will be the completion of each project and a mid-term storyboard that will be presented for critique to the class and a final screening of the finished project.

**Critical Participation:** It is important to attend each class and stay on track during the semester. Students who miss a section will be expected to catch up outside of class so that they are proceeding with the rest of the class.

**Attendance, Deadlines, Etc.:** Attendance will be taken at the beginning of every class and again 30 minutes before the end of class. Early departure is considered an absence. Three unexcused absences will result in a lower grade. All projects are to be turned in on time. Late projects will result in a lower grade.

**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.

### **Required Text**

Title: Learning Maya 7 Foundaton by Alias Learning Tools

Publisher: Sybex

ISBN: 189489374

### **Recommended Text**

Title: The Art of 3D Computer Animation and Effects

Author: Isaac V. Kerlow

Publisher: John Wiley & Sons; 3rd edition

ISBN: 0471430366

### **Websites References**

[www.cgsociety.org](http://www.cgsociety.org) : excellent forums for finding solving technical problems with 3D programs

[www.rhizome.org](http://www.rhizome.org) : for information about what's going on in the digital arts

### **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:	15%
Presentations:	15%
Exercises:	20%
Projects:	50%

### **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**

Tuesday, October 17      Storyboards due  
Tuesday, December 12      Final Project due

#### **Week 1:**

9/5: Introduction to course and computer lab policies; discussion of syllabus. Lecture on basic visual and movement qualities related to 3D.

*Assignment: Get Maya Foundation textbook, read Intro*

#### **Week 2:**

9/12: The Maya interface, Maya project file and overview. 3D basics, introduction to geometry, primitives and hierarchies. In class: Create a room. Twelve principles of animation.

*Assignment: Find an example of animation that uses "anticipation" and "primary action"*

#### **Week 3:**

9/19: Present examples of anticipation. Create a solar system, introduction to shaders and textures.

*Assignment: Bring in an object that can be used to display "secondary action"*

#### **Week 4:**

9/26: Present secondary action objects. Presentation of animation assignment. In class: Lighting, effects, Particles.

*Assignment: Complete "Adding Details" lesson from the book*

#### **Week 5:**

10/3: Lecture on creating storyboards, character design and roughing out ideas. Discuss ideas for assignment, complete Working with Maya tutorial.

*Assignment: sketch a storyboard, design character for animation*

*\*Reminder: 10/24 (Friday) LAST DAY TO DROP*

#### **Week 6:**

10/10: Critique storyboards in class. The dependency graph, modeling and texturing.

*Assignment: gather reference, video and sound for animation.*

#### **Week 7:**

10/17: Continue story board discussion. Rendering, set up and animation. Work on character model.

*Assignment: Complete character model and render for critique.*

#### **Week 8:**

10/24: Critique characters. Demonstrate Photoshop texturing techniques. Rigid bodies, Nurbs modeling.

*Assignment: Create textures for model, lighting.*

#### **Week 9:**

10/31: Nurbs texturing, rendering, skeleton and skinning.

*Assignment: Complete tutorials on your own, build environment for character.*

#### **Week 10:**

11/7: IK Handles, Rigging, animation and Trax. Organic modeling.

*Assignment: Rough-in animation for final assignment, work on timing.*

**Week 11:**

11/14: Present roughs, introduce sub-division surfaces. In-class work on assignment.

*Assignment: Complete More Rigging tutorial, revise and work on animations.*

**Week 12:**

11/21: Show revised animation for in-class critique. Lecture on using Mel Script.

**Week 13:**

11/28: Lab work in class

**Week 14:**

12/5 Lab work in class

**Week 15:**

12/12 FINAL DEADLINE: Present final animations!