

CS 32. Computer Animation: The State of the Art
Winter 08
Sudikoff 115 and 005
M, W, F 12:30-1:35
X-Hr 1-1:50 Tuesday

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Office hours: Wed. 10-11 AM or by arrangements
Sudikoff 160

DIST: ART



From Pixar **Syllabus**

This course focuses on the practice, techniques and concepts of 3-Dimensional computer animation. The best way to learn about computer animation is to make some, so we will use Maya to create animations that display both the emotion of a character and the physics of a scene. We will also look at the state of computer animation today, learning terms and working towards an overall understanding of the art of computer animation. Rather than learning a little bit about all aspects of Maya (modeling, animating and rendering), we will concentrate on getting good at animation by understanding the forces that make a character or scene come to life. You will learn enough about modeling and rendering to complete the assignments

and make them look good, but we will not be focusing on these aspects. Models will be provided for your use.

The homework assignments will be due every week, usually on Monday, and screened during class. Weekly assignments will teach you the principles of animation while you learn more and more complex aspects of Maya software. The final project will be a short animation, fully rendered.

Class critiques are a critical aspect of this course. Other class time will be dedicated to lectures, film screenings and work in the Maya lab. We will meet every x-hour in the Maya lab.

The material covered in class cannot be made up since much of it comes from a variety of sources not necessarily found in books. It is critical, therefore, that you attend each class. Missing classes or the x-hour will result in a lowered grade.

How to succeed in the class: Do the work, do it again, come to class.

Animation is a wonderful and complex art form. Maya is a powerful and complicated tool. The more time you put into the assignments the more you will get from the course. Be prepared to put in large amounts of time in the lab. If you do the work, revise your work and come to class you will succeed.

- Do the homework assignments and do them on time. Completing the work on time will keep you from falling hopelessly behind. Once the assignment is done, you will have until the end of the quarter to make changes and improvements to the work. It is expected that all assignments will be reworked at least once.
- Attend class regularly. The information you receive in class is often not available in books.
- Final project: Each student will do a final project that uses the information gained in the class. You can work in teams or on your own. Plan extra time for this work. Expect systems to break down.

Grading:

- Homework (weekly assignments) (60% grade)
- Final Project (25% grade)
- Class participation and attendance (15% grade)

Logistics:

When and Where:

~The Maya Lab is Sudikoff 005

~The Classroom is Sudikoff 115

You can get access to the Maya lab by seeing Kelly Clark in the front window of Sudikoff, 9AM - noon, 2PM- 4PM. Bring your Dartmouth ID.

X-Hour:

During the x-hour, you will be working on various tutorials on Maya that will prepare you for your weekly homework assignment. If needed, you should spend extra time on the tutorial before moving onto the homework. X-hours are an opportunity for you to learn new techniques, ask questions and sometimes work on your homework.

Tutors/TA's:

We have three undergrad tutors helping with this course. They will post lab hours when you can seek their help and are available by email. The superb tutors this quarter are Rachel Forman, Gemma Ross and Graham Baecher. Wow. You are lucky. This is a strong team.

Computers:

We have a lab of approximately 23 Macs and 2 Windows machines plus an auxiliary lab with 18 Windows machines. Maya 2008 Complete is provided on each of these or you can purchase your own license (~\$500 for a student copy). You'll each get a CS account and should save your files to your folder on the CS server. This is the only way to guarantee that your work will be saved. Saving on local machines is usually safe, but you never know. Information will be provided on how to do that. If you use a Windows machine, you need second account. Information on the password for your windows account will be sent to you.

Emial List:

animators@cs.dartmouth.edu

Website:

We have two websites. www.cs.dartmouth.edu/~cs32 has general information about the class. For tutorials, assignments and files you'll need during the quarter, we will use Blackboard. The Blackboard website is broken down as follows:

Syllabus: This current syllabus.

Assignments: This page includes all the assignment descriptions. There is one general description called *Assignments_W08* and each assignment has a detailed description of what is due, when it is due and how to turn it in. If you have questions about what is due, look at the assignment description for that assignment. If you don't see it or if you still have questions, please don't hesitate to ask.

Tutorials: Almost all the tutorials can be found here and will also be handed out in class. I recommend that you get a 3 ring binder and collect all the materials I hand out in class. By collecting all the tutorials and handouts, you will have a custom book for the course that will serve you well in other courses.

Models: This is where you will find the models we use in the course. Some models have documentation or additional scripts that need to be downloaded.

Sound Files: These are the sound clips for Homework 6: Talk, Talk, Talk! Additional clips can be found by searching the web.

Links: Look here for links to information on preproduction such as: storyboard forms, animatic information, and some how to pages. In addition, you will find links to the Maya Platinum Member page, information on Cartoon Physics and The Render Farm tutorial.

Communication: I will post announcements here. You can also use the discussion board, if you'd like.

Tools: The only thing I use here is the calendar, the glossary and occasionally the Digital Dropbox.

Documents: This page contains tutorials that were handed out in class.

Reading:

There is no perfect text for this course. We will draw from books, articles, and our own writings. The books include:

- **Timing for Animation**, Harold Whitaker and John Halas, Focal Press

- **The Animator's Survival Kit** by Richard Williams. Faber and Faber.
- **Introducing Maya 2008** by Derakhshani. Sybex.
- **Maya 2008.8 Foundation**. Sybex
- **Learning Maya 2008: The Modeling and Animation Handbook**. Sybex

Tutorials:

Tutorials in Maya textbooks can be confusing, poorly written and result in bad animation. In order to create more effective projects, I have created our own tutorials and will utilize these along with tutorials from various books. We will also provide a library of resource books that will be located in the Maya Lab (Sudikoff 005).

Types of animation:

Hand drawn

Stop Motion

Animatronics

Performance Animation (puppetry)

Performance Animation (Motion Capture)

Character animation

Effects animation (particle animation, dynamic simulation)

Visual effects animation – complements live action

Principles of Animation:

Mechanics:

- Timing
- Spacing
- Hard and soft accents
- Slow in and Slow out
- Moving holds
- Squash and stretch
- Straight ahead and pose-to-pose action
- Ones or twos

Composition:

- Staging

Acting:

- Exaggeration
- Anticipation and Follow-through
- Overlap and secondary action

Drawing

- Design unity
- Solid drawing
- Appeal/Un-appeal
- Line of action