



# ART/CSC/FST 320: Computer Animation

4:00 - 5:15 p.m. MW  
BR 165  
Labs: Digital Arts Lab, BR 165

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CIS 2031: Office Hours 11:00 a.m. - 12:00 p.m. MW; 10:00 a.m. - 12:00 p.m. F; or by appointment.  
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## Course Information:

This course continues material introduced in ART/CSC/FST 220 and concentrates on character animation using computers and the related theory, production techniques, and industry practices. Modeling, rigging, shading, rendering, and character-design skills are developed in conjunction with narrative, cinematography, lighting, and animation concepts. Students complete individual projects and also work as a team to produce at least one short animated movie during the semester.

## Required Materials:

*How to Cheat in Maya 2014: Tools and Techniques for Character Animation* by Eric Luhta & Kenny Roy.  
Access to a still camera and art supplies for drawing and sculpting.

## Optional:

*The Animator's Survival Kit* by Richard Williams.  
*Character Animation Fundamentals* by Steve Roberts.  
*Maya Python for Games and Film* by Adam Mechtley & Ryan Trowbridge.  
*An Essential Introduction to Maya Character Rigging* by Cheryl Cabrera.

## Useful:

Maya, Mudbox, Photoshop, Illustrator, Final Cut Pro, etc. on computers in the Digital Arts Lab.

## Maya Resources housed in the Randall Library, including these and more:

<i>The Art of Maya</i>	<i>Maya Cloth Courseware</i>
<i>MEL Fundamentals Courseware</i>	<i>Learning Maya: Foundations</i>
<i>Learning Maya: Character Rigging and Animation</i>	<i>Learning Maya: Dynamics</i>
<i>Learning Maya: Games and Interactive</i>	<i>Learning Maya: Rendering</i>
<i>Maya Seminars: Optimizing a Production Pipeline</i>	<i>Patch Modeling for Visual Effects</i>
<i>Rendering 2D Effects in a 3D Environment</i>	<i>Integrating a Creature Animation Rig</i>
<i>Particles for Visual Effects</i>	<i>Understanding Maya Shading Networks</i>
<i>Exploring Advanced Shading Networks</i>	<i>MELBot Wars: Virtual Fighting Robots</i>
<i>Polygon Texturing, Lighting, and Shading</i>	<i>RigidBody Simulations for Visual Effects</i>
<i>Inside the Maya Architecture</i>	<i>Hyper-Realistic Modeling</i>
<i>Hyper-Realistic Body Setup</i>	<i>Hyper-Realistic Facial Setup</i>
<i>Digital Tutors discs and online subscription covering a variety of related topics.</i>	

## Grades:

Project 1: Story Development (treatment, script, shot-list, storyboards, animatic, etc.).	5%
Project 2: Character Animation Practice (walk cycles, lip-sync, performance).	15%
Project 3: Character Pack (design, maquette, model, rigging, shading, turntable, tests).	15%
Project 4: Participation in animated production.	20%
Homework and short exercises focused on improving basic skills.	20%
Quizzes, possibly unannounced -- based on readings, web material, and class material.	20%
Class participation, discussion, and presentations.	5%



### **Tentative Project Description Summaries:**

1. Create an original short narrative following the traditional three-act structure and crafted for the visual nature of animation. The story should have a visually interesting setting, one or more appealing characters, a conflict with a few specific obstacles, and a satisfying resolution. Complete a treatment, script, shot-list, storyboards, and animatic along with at least one color key per scene for art direction.
2. Complete several production-quality, animated shots using a character as specified. Suggested examples include these: Complete two or more different walk cycles such as a stroll, a run, or a sneak. Devise and complete two shots of a more complex nature, where the character completes a sequence of actions for a short scene. Complete a lip-sync with performance, using a favorite quote or movie line.
3. Design and build a complete, original character ready for animation. Collect reference material to inspire your design. Complete developmental sketches, image planes, and a sculpted maquette for the character. Shade and fully rig the character. Complete a turntable with three-point lighting as well as one (or more) test animation(s).
4. Perform assigned production roles, participate in production and asset management, complete iterative asset improvement, and complete contributing elements to produce a professional quality animated short.

### **Student Learning Outcomes:**

1. Students gain understanding in mathematical, algorithmic, and conceptual techniques related to animating computer-graphics models and environments.
2. Students develop the ability to model and rig objects and characters in three dimensions using constraints, expressions, and scripting in computer animation software.
3. Students learn aspects of the topology of polygon, NURBs, and subdivision-surface modeling that relate to deformations used in animation.
4. Students understand and apply concepts of narrative structure and animation technique.
5. Students model, rig, shade, and animate characters of their own creation, presenting their work for class critique.
6. Students work together as a large, coordinated group to complete a fully realized animated-short-film project from concept through to post-production and screening.
7. Students learn aspects of digital production and workflow as applied in current industry.



### **Class Policies**

Quizzes will cover materials presented in class, whether lecture, video, tutorial, etc., as well as material from the required texts. Quizzes may include written questions or practicum.

General computer literacy is required for this course. Also desirable are artistic and cinematic interests. Projects will be presented in class on their due dates with open critiques and discussion. 3-D graphics work is very time-consuming, akin to a studio, workshop, or programming course. Plan carefully to complete projects in a timely manner. Late work will be reduced in grade by 5 points each day. There are no make-up quizzes. Please contact me in advance, if possible, if you must miss any graded work.

Attendance is required and will both directly and indirectly affect grades -- covered material is very pertinent to completing homework and projects effectively. Unless special circumstances are involved, more than three absences will result in class failure. Students are individually responsible for keeping current with course material and assignments.

Class announcements supersede posted material.

Academic honesty in all your work is required for a passing grade.

This syllabus and course materials may be subject to change with reasonable notice.