

ART/CSC/FST 220: Introduction to 3-D Computer Graphics



11:00 a.m. - 12:15 p.m.
Bear Hall 165 TR
Labs: CIS 2006, Digital Arts Lab

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CIS 2031, Office Hours 10-11 a.m., 3:15-4:15 p.m. TR; 10-11 a.m., W; or by appointment.

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Course Description:

This class provides an introduction to the artistic and technical field of computer graphics and animation, focusing on basic 3-D modeling, shading, lighting, and rendering. Major concepts are covered and applied in several projects using advanced software, building to a final course project where comprehensive knowledge gained is applied in an interdisciplinary nature. (Students may choose to continue developing skills in the succeeding course, ART/CSC/FST 320).

Required Materials:

Learning Autodesk Maya 2008: The Modeling & Animation Handbook, Autodesk Maya Press.

Access to a still camera, recordable CD or DVD discs, and art supplies such as drawing paper and pencils.

Optional:

The Art of 3-D Computer Animation and Imaging by Issac Kerlow, John Wiley & Sons, Inc.

The Art of Maya, Autodesk Maya Press.

Maya Visual Quickstart Guide by Robinson & Stein, Peachpit Press.

Useful:

Deep Paint 3D, Photoshop, Illustrator, Final Cut Pro, etc. installed on computers in Digital Arts Lab.

<https://renderman.pixar.com/>

<http://www.learning-maya.com>

<http://www.highend3d.com>

<http://www.alias.com>

<http://www.aqsis.com>

Maya Resources housed in the Randall Library, including:

The Art of Maya

Maya Cloth Courseware

MEL Fundamentals Courseware

Learning Maya: Foundations

Learning Maya: Character Rigging and Animation

Learning Maya: Dynamics

Learning Maya: Games and Interactive

Learning Maya: Rendering

Maya Seminars: Optimizing a Production Pipeline

Maya Techniques: Patch Modeling for Visual Effects

Maya Techniques: Rendering 2D Effects in a 3D Environment

Maya Techniques: Integrating a Creature Animation Rig

Maya Techniques: Particles for Visual Effects

Maya Techniques: Understanding Maya Shading Networks

Maya Techniques: Exploring Advanced Shading Networks

Maya Techniques: MELBot Wars: Virtual Fighting Robots

Maya Techniques: Polygon Texturing, Lighting, and Shading

Maya Techniques: RigidBody Simulations for Visual Effects

Maya Techniques: Inside the Maya Architecture

Maya Techniques: Hyper-Realistic Modeling

Maya Techniques: Hyper-Realistic Body Setup

Maya Techniques: Hyper-Realistic Facial Setup

Coming soon: *Digital Tutors Discs on Topics such as MEL, Python, and Advanced Modeling*

Grades:

Project 1: 3-D modeling exercise.	15%
Project 2: Modeling, shading, lighting, and rendering a complex scene.	20%
Project 3: Final project selected from options for character or scene creation.	20%
Homework and short exercises focused on improving basic skills.	20%
Quizzes (possibly unannounced) based on readings and class material.	20%
Class participation, discussion, and presentations.	5%



Project Description Summaries:

1. Choose a semi-complex object to model from choices. Complete orthographic photos or drawings of the object and use these as *image planes* to aid modeling. Any modeling techniques such as polygons, NURBs, or subdivision surfaces may be used. Aim for detail and realism.
2. Model a complete, complex scene. Create shading and lighting for the main object and entire scene. Complete high-quality still renders of the object. Strive for high quality with detailed surface materials and expressive lighting.
3. Complete a professional quality, 3-D computer-graphics project demonstrating skills learned during the course. Choose from selections given. Expand idea and write a concise, specific proposal to submit for approval. Include a tentative schedule and desired outcomes in the proposal.

All projects are to be completed individually; however, students may work in pairs on the final project if so justified and approved by the professor. Begin thinking early about the final project. Selections for ideas will likely include a 3-D character or complex 3-D setting. Objectives require instructor-approval but allow for choices that focus on more traditional art, computer science, or film goals *or* an interdisciplinary combination of these.

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 and/or practicum.

General computer literacy is required for this course. Also desirable are artistic and cinematic interests and talent. 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.