

CTAN 452: Introduction to 3D Computer Animation

Instructor of Cinema Practice – Maks Naporowski - maks.naporowski@usc.edu

SA: Jay Kim – jayrkim@usc.edu

Location: SCA 356

Thursday: 9:00 - 11:50 am

Fridays: 9:00 - 11:50 am - lab time (SCA B134)

General Information –

The course is intended to expose you to the computer as a tool which can aid you in achieving your goals as a filmmaker.

This course is a melting of what was to be two different courses concerning computer animation: intro to computer animation and a character animation course. With this in mind, and due to the fact that there is a great diversity of experience amongst the students, the exact direction that will be followed for the 10 weeks of the course will largely be determined by the student body. You will not be held back from excelling nor will you be left behind if you have little or no computer experience.

Grades will be based on participation in class. Intent rather than content will be valued. At the end of the class you are welcome to request a written evaluation

Generally, the class will begin with a lecture period where different exercises will be introduced, tools will be demonstrated and film making ideas will be discussed. Following the lectures there will be lab time, which will include individual consulting pertaining the tools and exercises just covered. In addition to the class time, the lab will be open and there will be designated times when S.A.s will be available.

In order to get a good grasp of the material for this course, time is of the essence. There isn't any specific amount of hours suggested outside of the class time, however during the period of this course if you aren't sleeping it's probably a good idea to be in the lab. Ten weeks is not a lot of time to get a good grasp of computer animation.

Required Text –

Actually, there is no required text for this course. For the key lectures, notes will be handed out. Maya's online help is available, and optional text may be recommended during class.

Optional recommendation - *Introducing MAYA 2011* by Dariush Derakhshani

Week 1: Getting Started

- User Interface (UI)
- Navigating in Maya
- Preferences

Week 2: Maya Basics

- Outliner
- Hierarchies & parenting
- Timeline & keyframing
- Materials (shaders)
- playblasting

Exercise: solar system

Week 3: Intro to modeling

- Polygons and NURBS surfaces
- Working with primitives
- Working with curves
- Editing curves

Exercise: reference material

Week 4: Intro to NURBS

- NURBS surfaces tools
- Loft, revolve and extrude
- Working with curves
- NURBS editing tools

Exercise: model a NURBS prop, piece of a set or object.

Week 5: Intro to Polygons

- Polygons basics
- Polygon editing tools

Exercise: model a simple plane/jet/rocket out of polygons

Week 6: More modeling

- More advanced Poly techniques
- Advanced NURBS techniques and tools
- Converting NURBS to Polys

Exercise: Model a detailed prop using both NURBS and Poly tools

Week 7: Intro to Character Setup

- Hierarchies revisited
- Constraint systems

Exercise: constraints animation exercise

Week 8: Character Setup cont...

- skeletons
- Forward Kinematics (FK)

Exercise: build a proper skeleton for your character

Week 9: IK – Inverse Kinematics

- IK systems
- Using curves as handles

Exercise: begin the Leg rig

Week 10: Intro to Polygons

- Pole Vectors
- Custom attributes
- Direct Connections

Exercise: finish the leg rig

Week 11: Intro to Deformers

- Rigid bind
- Smooth bind

Exercise: bind your character

Week 12: Deformers cont ...

- lattices
- clusters

Exercise: add deformation to your setup

Week 13: Intro to Animation

- key-framing and the graph editor
- path animation

Exercise: flying plane/camera animation exercise

Week 14: Intro to Lighting

- working with lights
- 3 point lighting
- rendering and mental ray

Exercise: light and render your scene

***Week 15: Final animation and exam due.**

Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand

and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: <http://www.usc.edu/dept/publications/SCAMPUS/gov/>. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.