The Art Institute of California – San Francisco
Course Syllabus

Course Number: CA560
Course Title: Graduate Animation Production

Class Meetings: Tuesdays from 1-5pm, room 512
Session/Year: Spring 2009
Instructor Name: Andrew Klein
Email Address: amklein@aii.edu
Phone: Please visit: www.andrewklein.net
Instructor Availability Outside of Class: Please contact me to reserve a time by email and I will update it live. My hours/locations are maintained regularly at: http://andrewklein.net/pages/calendar.html.

Graduate Animation Production

Course Description:
This course covers the development and integration of effects into an on-going project. Advanced techniques in production and production problems will be addressed.

Course Length:	11 Weeks
Contact Hours:	55 Hours
Lecture:	11 Hours
Lab:	44 Hours
Credit Values:	3 Credits

Course Goals : This advanced animation production class will focus on the use of 3D digital technologies in the creation of 3D animation end products; full screen video, TV commercial and movies with Maya. The class will cover the process of computerized animation design and production. A thorough study covers all phases of animation production from layout, lighting, editing, composition to digital file video recording, etc.. The class will develop environment effects, special f/X, using Maya and Shake or like software Between media, and refine final composition.

Course Competencies:
Upon successful completion of this course, the student should be able to:
- Design and integrate efx into a production piece.
- Integrate effects with various elements in the scene
- Demonstrate understanding of scripting as it applies to particles
- Apply principles of lighting to visual effects

Course Prerequisite(s): CA545 Innovative & Essential Studio in Animation

Text(s):
Suggested Text: Advanced Maya Texturing and Lighting, by Lee Lanier, SYBEX, Wiley Publishing;
ISBN-13: 978-0-471-79404-2, ISBN-10: 0-471-79404X
→from here on out referred to as Lanier
Mental Ray for Maya, 3dsMax and XSI, by Boaz Livny, SYBEX, Wiley Publishing;
ISBN: 978-0-470-00854-6,
→from here on out referred to as Livny
3d Game Textures, Create Professional Game Art Using Photoshop, by Luke Ahearn, Focal Press, ISBN: 0240807685
→from here on out referred to as Ahearn

Text(s) also cool:
Digital Lighting & Painting, by Jeremy Birn, New Riders, New Riders; ISBN: 1-56205-954-8
→from here on out referred to as Birn

Materials and Supplies: Storage Medium , Notebook, Sketchbook , Drawing supplies.

Estimated Homework Hours: 4 Hours

Technology Needed:
Hardware: PC Windows , (Mac as applicable)
Software: Maya, , After Effects, Renderer (Mental Ray), Photoshop

Grading Scale:
All assignments must have clear criteria and objectives to meet. All students shall be treated equitably. It will be that student's right to know his/her grade at any reasonable point that information is requested by that student. The criteria for determining a student's grade shall be as follows (on a percentage of total points basis):

A	100-93
A-	92-90
B+	89-87
B	86-83
B-	82-80
C+	79-77
C	76-73
C-	72-70
D+	69-67
D	66-65
F	64 or below

Process for Evaluation:

Attendance and Participation	10%
Regular update via-blog	20%
Getting everything for your short modeled/textured	70%

Student Evaluation/Grading Policies:

- Class time will be spent in a productive manner.
- Grading will be done on a point system.
- Points for individual activities will be announced.
- All work must be received by the set deadlines.
- ABSOLUTELY NO WORK WILL BE ACCEPTED AFTER THE FINAL CLASS MEETS WEEK 11.

Classroom Policy:

- No food allowed in class or lab at any time. Drinks in sealable bottles allowed in classroom.
- Edible items brought to class or lab must be thrown out.
- If student elects to eat/drink outside class or lab door, missed time is recorded as absent.
- Attendance is taken hourly. Tardiness or absence is recorded in 15-minute increments.
- Break times are scheduled by the instructor at appropriate intervals.
- No private software is to be brought to lab or loaded onto school computers.
- No software games are allowed in lab (unless in course curriculum).
- Headphones are required if listening to music during lab. No headphones are allowed in lecture.
- Any student who has special needs that may affect his or her performance in this class is asked to identify his/her needs to the instructor in private by the end of the first day of class. Any resulting class performance problems that may arise for those who do not identify their needs will not receive any special grading considerations.

Disability Policy Statement:

It is our policy not to discriminate against qualified students with documented disabilities in its educational programs, activities, or services. If you have a disability-related need for adjustments or other accommodations in this class, contact the Disabilities Services Coordinator at 415-276-1060.

Academic Honesty Policy:

Students are expected to maintain the highest standards of academic honesty while pursuing their studies at AiCA-SF. Academic dishonesty includes but is not limited to:

plagiarism and cheating; misuse of academic resources or facilities; and misuse of computer software, data, equipment or networks.

Student work that appears to violate AiCA-SF's standards of academic honesty will be reviewed by the Committee on Academic Honesty. If the work is judged to have violated standards of academic honesty, appropriate sanctions will be given. Sanctions include but are not limited to course failure and academic termination.

Suggested Course Outline

Week 1: **Lecture:** IGNORE ALL OF THE CLASS GOALS LISTED ABOVE. Setting your Project Goals. Light and Shadow, Creating and Adjusting lights. We will talk about different types of light, color and intensity functions, as well as decay and shadows. We will discuss the differences between raytrace and depth map shadows, as well as introduce the concept of per-vertex versus per pixel shading. We will also look at light linking, and creating volumetric fog, 3-point lighting, and color.
Lab: Setting up lights and basic rendering.
Homework: Set goals for quarter. All concept is due week 2 for every model.

Week 2: **Lecture:** Using all of Maya's Renderers. We will examine the Render Settings Window, and look at the Maya Hardware, Software, and Vector Renderers, as well as Mental Ray for Maya. We will discuss raytracing in more depth and discuss the concepts of Global Illumination, Final Gather, and Caustics.
Lab: We will look at how to set up a Cornell Box Simulation using GI and FG. We will also use the Vector Renderer to produce wireframe renders.
Homework: Build your own cornell box and produce two renders. In one, use mental ray for maya to render out the effects of global illumination and final gather to produce softened shadows and color bleeds. In the second render, use maya's vector renderer to produce wireframes.This is due week 3. Begin work on Characters.

Week 3: **Lecture:** We will discuss and review setups for Global Illumination including accurate GI scaling based on scene size, photon emission, Self-Illumination via amb col, incand, and irradiance. We will discuss the principles of direct versus indirect illumination with emphasis on photons and will also discuss Final Gather's specialized hemispherical sampling method. Caustic effects will be briefly discussed.
Lab: Using GI/FG/Caustics in demo room.
Homework: Model as fast as you can.

Week 4: **Lecture:** Image Based lighting and HDRI. light-analyzing the light source; matching 'real' light sources in 3D space with virtual lights. Environment maps. HDRI lighting from 32-bit images using Final Gather. We will also discuss how to make our own HDRI images in photoshop, how to take photos for HDRI purposes, and the usage of exposure in 32-bit images. We will examine the MR physical Sun and Sky simulator, as well as the MR lens shader.
Lab: Making an HDRI image and rendering with HDRI
Homework: Model as fast as you can.

Week 5: **Lecture: Mid-term review**
Lab: Model as fast as you can
Homework: Model as fast as you can

Week 6: **Lab:** Model as fast as you can
Homework: Model as fast as you can

Week 7: **Lab:** Model as fast as you can
Homework: Model as fast as you can

Week 8: **Lab:** Model as fast as you can
Homework: Model as fast as you can

Week 9: **Lab:** Model as fast as you can
Homework: Model as fast as you can

Week 10: **Lab:** Model as fast as you can
Homework: Model as fast as you can

Week 11: **Lecture:** Final Presentation of projects.
Lab: Class show and discussion of assignments.
Homework: None