ARTD 471/571
3D Computer Imaging
Syllabus/Course Information

Winter 2009 | CRN 20846/20853   **January 5 – March 20**

Professor: John Park   **Office:** 121 Mill Race II

Office Hours: Wednesday 10:30 am – 11:30 am   **Phone:** 346-2683
+ Wednesday 2:15 PM – 3 PM + by APPT   **Email**: park@uoregon.edu

Class Hours: Tuesday/Thursday 12:00 PM – 2:50 PM
Location: 283M Lawrence Hall
Course Fee: $35
Optional Textbook: *The Essential Blender: The Official Guide to 3D Creation with the Blender Open Source Suite* by Roland Hess + *Bounce, Tumble and Splash* by Tony Mullen (if you are interested in particles and effects)

Suggested supplies:
- External Hard Drive (≈$90) OR USB Thumb Drive with at least 2 GB memory (cost<$25)
- 3 Button Mouse (if you will work at home)

Course Overview: An introduction to 3D software as a creative content creation tool, including modeling, composition, lighting, rendering, compositing and prototyping.

Course Description: The course will be an exploration of 3D imaging in a critical and contemporary art context and in an applied hands-on basis using Blender3D, an extremely powerful (and completely free) 3d modeling/rendering/animation software package. In a short 10 weeks students will go from manipulating primitive geometry, such as cube and spheres, and work their way up to complex organic sub-surface modeling, compositing and rendering.

WARNING! Because 3D imaging is a complex and detail oriented process, it is vital that students are aware that this course will be <u>time-consuming</u> and <u>challenging</u>. It should also be noted that '3D Computer Imaging' is not a production class, and is therefore not intended to teach students how to land jobs at major animation studios like Pixar or Dreamworks.

Course Goals: Students will learn to utilize open source 3D modeling and rendering software as an integral and rich tool-set in their digital creation process. By maintaining a constant awareness of their skills in 2D design and aesthetics, members of the class will gain another dimension to their work by re-imagining design in terms of space, depth and 3D compositing. Once comfortable with the interface and concepts of the 3D environment, students will learn to fully integrate the 3D output into their original two-dimensional works.

Course Readings / Text: One of the beautiful things about large-scale open source projects, such as Blender 3D, is that the user base and support community on the web is thriving and robust. This means that there are multiple databases of tutorials, dozens of forums for software Q&A's, as well as video lessons and hard copy book references available. This coupled with the fact that college textbook costs are inflated beyond reason, leads the textual support for this course to be completely free, with digital PDF files or web URLs. An optional reference book is listed at the top of the syllabus.

Assignments and Projects: During the ten week course students will be assigned an in-class assignment every two weeks, one weekend take home assignment per week, and two large projects, one for midterms and the other as a final. There will also be a grade given for in class participation during discussions and critiques. The grading breakdown will be as follows:

Grade Breakdown
15%   In Class Assignments
15%   Take Home Assignments
10%   In-Class Participation (discussion and project critiques)
25%   Midterm Project
35%   Final Project

Evaluation Procedure:
Artwork will be assessed on the following points (in order of importance)
* Development, creativity and originality of concept or problem solution
* Technical Development and demonstration on skills
* Visual sensitivity and attention to craftsmanship
* Participation in classroom discussions AND critiques

Attendance: The class meets 20 times in the 10 week course. Students are allowed two absences (excused or otherwise) and then each following absence will cost a 3% reduction from the student's final grade. If there are circumstances that may affect your attendance in the class, please discuss them with me at the beginning of the term.

Punctuality Policy: In order to ensure that coursework will be turned in on time, late assignments will be penalized with a 1/2 a letter grade reduction per day late and projects will be reduced a full letter grade per day late. It brings no amount of pleasure to penalize students for late work, so please be organized and punctual by turning in your assignments on time.

Assessment: Assessment will be based on quality of attendance, participation, projects and assignments. Grades will be based on a point structure transferred into a percentage scale (100-90%=A, 89-80%=B, etc.). Grading criteria will be given along with each assignment and project.

Final: Unlike many other art classes, ARTD 471/571 will utilize the scheduled Final Examination Block as assigned by the University. For Winter '08, this means **the final critique will be held** on <u>Wedenesday March 18th at 8:00 AM</u>.

Graduate Students (ARTD 571): Grad students will be asked to develop a research proposal for the two projects and will have a separate grading rubric for the projects.

Disability access statement: The University of Oregon is an equal opportunity, affirmative action institution committed to cultural diversity and compliance with the Americans with Disabilities Act. If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with the instructor soon. This syllabus will be made available in alternative formats upon request.

Course Breakdown:

Week 1:
Intro to Blender, understand the 3-axis interface.
Subsurf modeling. Modeling a fork. Modeling a screwdriver. Blog setup.

Week 2:
Colors and materials. Extrusion, separation and arrays.
Organic modeling intro. 2D/3D Compositing. Abstraction assignment.

Week 3:
Sculpt Tool intro. Retopology. Lighting and Rendering details.
Unwrap and texture painting. Appending. Creatures!

Week 4:
Creature design and development. Unwrap emphasis.
Lighting Part II. Workshop on rigging character (outside of class)

Week 5:
Technical/Precision Modeling
Product Assignment. Project 1 Intro.

Week 6:
Project 1 group share. Modifiers explained.
Particles and physics.

Week 7:
Animation Introduction, work day for P1.
Critique Project 1.

Week 8:
Design in 3D as production tool (planning for real world output)
Advanced unwrapping, live unwrap.

Week 9:
Advanced Modeling, lighting rigs, compositor.
Work Day for Final.

Week 10:
Individual Consults for Final Project.
Wrap Up. Work Sessions.

FINAL CRITIQUE : March 18th at 8:00 AM

Technical Information

Software Download and Support: To download the free software for this course, visit www.blender.org
Blender is available for Windows, OSX, Linux and other operating systems. It is often necessary to install
Python on your system to run blender.

Support and tutorials: Learning resources can be found at: http://www.blender.org/tutorials-help/,
http://www.blendernation.com/tutorials/, or from Googling "Blender tutorials".

During this course we will be using **Blender 3D** 2.48a, **YAFRAY** 0.0.9 (rendering ray-tracer), **Python** (support
for Blender) and **Photoshop**.

Data Backup and Electronic Server: Removable storage devices such as USB thumb drives or external 2.5"
hard drives should be your primary storage medium to which you should save your work. As a backup, you can
use the Digital Arts department server. From almost any computer station on campus you will be able to access
the server, however, you are responsible for saving your data onto removable media.

Project Descriptions |

Project 1 (Week 7 Critique):
"Visualizing Paradox"
Looking at Op-Art, visual-paradoxical artists such as Escher and Scott Mutter and iterative artwork, you will be
asked to think about creating a visual paradox of your own. Though we live in an age of media rich 3D
composites that rely on trickery and special effects, there is still plenty of room to create visually AND
conceptually intriguing works that look realistic but are in fact impossible. Examples given in week 5.
Or
Project 1 (Week 7 Critique):
"Augemented Reality"
For this project you will examine a personal space of your own (residencial, work, vehicle, outdoor
environment) and augment some part of it to better reflective your preferences. This project is about you
changing something in your environment that is unsatisfactory and making it better for your needs. A large
component of this project will be photorealistic 2D photo and 3D compositing. Examples given in week 5.

Project 2 (Finals Week Critique):
"Design for Output"
The final project will be a designed in 3D space but fully executed and realized in a tangible object or artwork.
The idea is to use Blender as a DESIGN TOOL as opposed to an image making program. Outputs can include
sculpture, furniture, product, papercraft, lasercut, and potentially a 3D printed object. Details in Week 7 or 8.