CSCI 171 : 10 : Concepts and Applications of Computer Graphics : Spring 2007
Credits: 3.0 CRN: 24317
The George Washington University
Department of Computer Science
Room: 4th Floor Computer Lab, Room 402, Tompkins Hall
Class Hours: Thursday 6:30 – 9:00 PM

Instructor: Bryan Leister
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Office Hours: By Appointment

Course Description
Concepts and Applications of Computer Graphics (3 credits)
Students will learn tools and techniques for manipulating and creating digital imagery for use in art, design and computer graphics. Assignments will build from one to the next and will demonstrate basic principles involved in digital color, drawing and applications for 3D graphics.

Method of Instruction
This course will be taught in a studio format, where each project will be a technical exercise in response to an aesthetic or conceptual problem. Projects will demonstrate working with digital photography, vector programs, character design and an introduction to lighting and rendering a 3D scene.

Students will work together as a group and individually to solve problems and critique each other's work. At some point within the semester, each student will present a specific technique or a presentation about digital art to the class as a whole.

Successful students will:
Be able to successfully manipulate digital images and understand issues related to digital content
Use the computer as a tool for creative exploration
Create a page design using vector software
Composite, render and light a simple 3D scene

Course Expectations
Projects: Students will complete 4 projects throughout the semester, some will require a short written statement explaining the concept and reaction to the assignment. Each assignment will be critiqued and discussed in class and participation for these critiques is mandatory.

Work Habits: This is taught as a studio art class, usually starting with a relevant demonstration and followed by class time devoted to completing aspects of the assignment.

Students are expected to come to class prepared to work; this means bringing their work in progress, material to be scanned, drawing paper and anything else that is needed for working on a particular project. Proper file management and backup technique is also to be followed based on classroom instruction.

All work should be stored on your own storage device or drive, do not store important documents on the lab computers.

Recommended Texts

Adobe Illustrator CS2 Wow! Book (WOW!), Peachpit Press

Adobe Photoshop CS Classroom in a Book, Adobe Press

Adobe Illustrator CS Classroom in a Book, Adobe Press

HOT (Hands on Training) series of books available from Lynda.com/books on Illustrator and Photoshop

Learning Maya 7 Foundaton by Alias Learning Tools, Sybex: ISBN: 189489374

Websites References
www.cgsociety.org : excellent forums for finding solving technical problems with 3D programs
www.rhizome.org : for information about what's going on in the digital arts
www.creativecow.net : resource and discussion groups for video and professional graphics programs

Evaluation
Students attending this course have very different levels of expertise and therefore the final grading is not judged solely on technical proficiency. The student's willingness to explore and understand new ideas and incorporate new learning progressively into their work over the course of the semester is of utmost importance in the final grade. A student who has an open mind and shows an interest and excitement toward learning digital tools will produce informed artwork and achieve a higher grade. Grading breakdown is as follows:

Participation:	30%
Presentations:	20%
Projects:	50%

Grading Standards*:
Score of A: Superior
Approaches the assignment in a visually/intellectually interesting way
Completes all stages of the exercises on time
Research outside of class contributes significantly to the work
Technically well executed with no obvious errors

Score of B: Strong
Explores the topic of the assignment thoroughly
Clear understanding of ideas discussed in class with some outside research
Completes all stages of the exercises on time
No more than a few technical errors

Score of C: Competent
Covers the main topic adequately
Shows understanding of the ideas covered in class, but does not go beyond
Most stages of the exercises are completed on time
Technically well done with several small errors or a couple of major flaws

Score of D: Weak
Does not fully address the topic as assigned
Does not show an understanding of ideas discussed in class
Work is not turned in on time
Major technical flaws and lack of serious effort to fix them

Score of F: Inadequate
Fails to address the topic and does not show understanding of ideas discussed in class
Exercises not completed or partially completed
Is severely flawed mechanically

**Late projects may be dropped a letter grade.*

SCHEDULE:
Note: Schedule subject to modification. All schedule updates will be presented in class.

Major Due Dates

Week 1:
1/18: Introduction to course, group discussion and photography for Project 1.

Assignment: Write paragraph explaining group identity.
IMPORTANT: Set up SEAS account with front office: YOU MUST DO THIS BY NEXT WEEK, or you will not be able to log into your computer...

Week 2:
1/25: Discussion on color, resolution and optimizing digital photos. In class work on Project 1, importing photos, initial color correction and levels. Using the Healing Brush! Discussion of character design, devices for assignment.

Assignment: Color correct each photo and clean up, conceptualize final project (thumbnail or in writing).

Week 3:
2/1: Using Lasso selection, feathering and layers. Using adjustment layers including Curves, Hue/Saturation and Levels to match color.

Assignment: Complete Project 1, write to a CD in layers and as a flattened image for next class. Write a brief paragraph describing your concept.

Week 4:
2/8: Critique: Project 1. Presentation of Project 2

Assignment: Written paragraph describing concept for Project 2 and thumbnail sketches.

Week 5:
2/15: Operating a scanner and resolution, optimization of scan. Placing scanned images for manual or auto tracing into Adobe Illustrator. Setting up to work in layers in Illustrator. Setting up a grid and guides.

Assignment: Sketch idea for layout design and finalize sketch for character design.

Week 6:
2/22: Working in Illustrator using basic shapes, the pen tool. Aligning objects to the grid, to each other and snapping objects. In class work on character.

Assignment: Conitinue work on character and page layout.

Week 7:
3/1: Working with type, converting type to outlines, working with Pathfinder.

Assignment: Complete and print out Project 2 for critique next class.

Week 8:
3/8: Critique: Project 2. Presentation of Project 3
Assignment: Film yourself standing in an environment for compositing into final project

Week 9:
3/15: *SPRING BREAK*

Week 10:
3/22: Capturing and editing footage in Final Cut Pro, recording sound using Quicktime

Assignment: Clean up sound and video to create a looping sequence

Week 11:

3/29: Finished video loop due! Exporting footage as still images from Final Cut Pro and Adobe Illustrator. Introduction to Maya, creating basic shapes, lighting and texturing

Assignment: Continue to work on texturing and lighting of model

Week 12:

4/5: Placing images and sound into Maya, navigation, cameras and rendering.

Assignment: Complete several test renders of project to prepare for final rendering.

Week 13:

4/12: Animation and timing in Maya, introducing the graph editor.

Assignment: Finish model, texturing and finalize animation timing, length, prepare for final rendering.

Week 14:

4/19 Importing frames using Quicktime, in class work on animation, editing and production of final animation.
Assignment: Final render, compile and save as a Quicktime movie and Maya project file with all associated textures on CD or DVD.

Week 15:

4/26 Critique: Final Project Due!

Week 16:

5/10 Animation Festival/Expo day, present final project to department.