SYLLABUS
410
Advanced Computer Animation Techniques
Multimedia Arts and Sciences
University of North Carolina at Asheville

CLASS TIME

Sec 001
4:35 pm - 5:50 pm TR
Zeis Hall
Room #201

PROFESSOR

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Assistant Professor
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COURSE DESCRIPTION

Advanced techniques utilized to create challenging and compelling computer animation, including character animation. Students will use research, material, or concepts from other university courses to present idea-driven work that expresses their perspective on a humanistic topic of their choosing. Prerequisite: MMAS 310/373. Spring.
3.000 Credit Hours
3.000 Lecture hours

OBJECTIVES

Through creative projects that place emphasis on visual communication, critical ***humanistic*** discourse, and high-end 3d C.G.I. techniques, students will learn to connect their ideas and concepts cohesively to form- leading to contemporary art emphasis on 3d C.G.I. (a new media art form).

- Articulate the value of the 3d arts and its potential impact on the self and others
- Recognize cultural, historical, spiritual, and/or political aspects of the 3d multimedia arts studied
- Develop, articulate, and understand the 3d computer generated imagery concepts, methods, and organizing principles
- Continued research into the traditional principles and elements of art and design
- Creative research, experimentation, problem solving within 3d animation production

- Comprehensive investigation within Maya features of Dynamic (collision-based) Animation, Character Animation, and Particle Animation.

OUTLINE

There is a misconception of 3.d. C.G. 3.d C.G.I. is not a technology, but a series of technologies intertwined for artistic purposes- it is a process.

There are two main projects which explore this process. Beginning with conceptual writing and sketching, design for high quality print work, web portfolio, or DVD show reel applications. Prepare to take projects from conceptual idea (writings, research of references/inspiration), sketch (thumbnail to storyboard layout), development phase (building the C.G.I. assets), beta testing phase (preliminary renders presented to an audience, analyzing viewer response), onto revisions and a final completed form.

3d asset production requires a lot of time to produce. Be prepared to set a minimum of *6 to 9 hours per week* for the content creation, to experiment, to become effective with troubleshooting unique to your creations, to collaborate and learn through trial and error- ultimately develop and build upon portfolio pieces that may benefit your artistic career endeavors.

(Handouts and/or Hyperlinks will be provided for all assignments)

- Project 1: Domino Effect
- Project 2: Experimental Animation

PROGRAMS COVERED

- AutoDesk Maya 2010

REQUIRED TEXT

- None

SUPPLEMENTAL TEXT

- "The Animator's Survival Kit," Richard Williams, Faber and Faber Inc., ISBN-13: 978-0-571-20228-7

EVALUATION

The following factors will be considered in determining grades:

- Conceptual development, aesthetic development, and digital art / new media appreciation, exhibited through the context of research and projects
- Professionalism- in relation to student conduct, interaction with others, approach to research and production
- Class Participation with guided assignment, lecture, and homework
- Completion of all assignments in a timely manner
- Project Scores assessed based on project rubrics
- Attendance (Attendance policy below)

GRADING

- Project 1: Domino Effect
    - Phase 1: Abstract & Preproduction 11.1%
    - Phase 2: Models 11.1%
    - Phase 3: Animation 11.1%
    - Phase 4: Rendered Movie 11.1%
    - Total = 44.4%
- Project 2: Experimental Animation
    - Phase 1: Abstract & Preproduction 11.1%
    - Phase 2: Animation 11.1%
    - Phase 3: Rendered Movie 11.1%
    - Phase 4: Final Presentation 11.1%
    - Total = 44.4%
- Evaluation (see above)
    - Total = 11.2%

The +/- grading system will be used for this course:
A 4.0; A- 3.67; B+ 3.33; B 3.0; B- 2.67; C+ 2.33; C 2.0; C- 1.67; D+ 1.33; D 1.00; F 0.00

ASSIGNMENT TURN-IN STANDARDS

- Projects will be uploaded to the server drop box on the DUE date specified. Late assignments will not be accepted. All assignments are due on the specified due date.
- On the day of Final Exam, ALL projects are to be submitted with tiff images minimum of 720 x 540 pixels at 150 dpi, and mp4 format for render composite movies.
- Critiques are the equivalent to exams. You are required to present your work. If you miss your critique and are not able to physically present your work, it is the equivalent of a zero on an exam.
- The Final Critique is mandatory. Failure to attend the final critique will result in a failing grade for the course.

ATTENDANCE POLICY

Having to repeat class lessons, due to absences, can set everyone back and can hinder students' ongoing learning and development. It is the absent student's responsibility to catch up if behind. Office hours are available to discuss any material missed.

- It is mandatory to attend all class sessions
- Arriving 15 minutes past the beginning of class counts as an absence
- Attending less that 75% of time allotted for class is counted as an absence
- 1 unexcused absence allowed
- 4 total absences equals a drop in final letter grade
- Each absence thereafter will lower final grade by one full letter

CALENDAR
(Subject to change)

Project 1: (8 weeks)

Domino Effect

Week 1
Lecture/demo/workshop
- Introduction, Goals
- Project Description
- A look at resources, examples
- Humanism

Assignments
- Homework: Project 1 abstract, sketches, concept design, storyboards

Week 2
Lecture/demo/workshop
- Storyboarding, Layout & Animatics
- Rigid Bodies
- Constraints

Activities
- **Dynamic Exercises**
- **Critique- Project 1: "Preproduction" (Abstract, Sketches, Concept Design, Storyboards)**

Assignments
- Homework: Preproduction revisions, Project 1 Models

Week 3
Lecture/demo/workshop
- Velocity, Impulse
- Mass, Collision
- Nail, Pin

Activities
- **Dynamic Exercises**
- **Critique- Project 1: "Preproduction" revisions**

Assignments
- Homework: Project 1 Models & Textures

Week 4
Lecture/demo/workshop
- Hinge, Spring, Barrier
- Keying Active / Passive
- Solvers

Activities
- **Dynamic Exercises**

- **Critique- Project 1: Textured Models**

Assignments

- Homework: Project 1 Animation

Week 5

Lecture/demo/workshop

- Baking Simulation
- Camera Animation
- Video Reference

Activities

- **Animation exercises**

Assignments

- Homework: Project 1 Animation continued

Week 6

Lecture/demo/workshop

- Timing
- Emotion/Expression
- Character Pose

Activities

- **Animation and Lighting Exercises**
- **Critique- Project 1: Animation**

Assignments

- Homework: Project 1 Lighting

Week 7

Lecture/demo/workshop

- Texturing
- Lighting
- Rendering
- **Critique- Project 1: Lighting and Rendering**

Activities

- **Texturing Exercises**

Assignments

- Homework: Project 1 Rendering

Week 8

Lecture/demo/workshop

- Compositing
- Rubric discussion

Activities

- **Critique- Project 1: Final Render and Composites**

Assignments

- Homework: Revisions

Week 9
(Spring Break- No Classes)

Project 2: (8 weeks)

Experimental Animation

Week 10
Lecture/demo/workshop
- Project Description
- A look at resources, examples
- Human Condition
- Particle Interface, Preferences
- Particle Tool

Activities
- **Particle Exercises**
- **Progress Reports**

Assignments
- Homework: Project 2 abstract, sketches, concept design, storyboards

Week 11
Lecture/demo/workshop
- Particle Emitters
- Particle Shape

Activities
- **Particle Exercises**
- **Critique- Project 2: "Preproduction" (Abstract, Sketches, Concept Design, Storyboards)**

Assignments
- Homework: Preproduction revisions, Project 2 Models

Week 12
Lecture/demo/workshop
- Particle Cycle
- Volume emitters

Activities
- **Particle Exercises**
- **Critique- Project 2: "Preproduction" revisions**

Assignments
- Homework: Project 2 Models & Textures

Week 13
Lecture/demo/workshop
- Particle Collision
- Particle Fields

Activities

- **Particle Exercises**
- **Critique- Project 2: Textured Models**

Assignments

- Homework: Project 2 Animation

Week 14

Lecture/demo/workshop

- Volumetric Lighting
- Particle Texture

Activities

- **Particle Exercises**

Assignments

- Homework: Project 2 Animation continued

Week 15

Lecture/demo/workshop

- Soft Body Dynamics
- Rendering layers

Activities

- **Rendering Exercises**
- **Critique- Project 2: Animation and Lighting**

Assignments

- Homework: Project 2 Lighting & Rendering

Week 16

Lecture/demo/workshop

- Photo documentation for portfolio
- Rubric discussion
- **Critique- Project 2: Lighting and Rendering**

Activities

- **Exhibition and Documentation Exercises**

Assignments

- Homework: Project 2 Photo documents

Week 17 (Finals Week)

Activities

- **Critique- Project 3: Final Render, Composites, and Photo Documentations**