Course Syllabus

Course Information:

Course Title	IAT 343: Animation (Spring 2012)
Time & Location	Lecture (Rm 2600): Tuesday 6:30 pm to 7:50 pm
	Lab (Rm 3140): D101: Wednesday 2:30 – 3:50 pm
	D102: Wednesday 4:00 – 5:20 am
	D103: Thursday 5:00 – 6:20 pm
	D104: Thursday 6:30 – 7:50 pm
Instructor	Kyungjae Lee (kla8@sfu.ca)
Office Hours & Location	Student Learning Commons room at SFU Surrey Library
	Tuesday 4 pm to 5 pm & Thursday 4 to 5 pm

Course Description

An introduction to animation theory, technique and practice, IAT 343 Animation engages study in the visual art of computer animation in social culture. Critical concepts in story development, communication arts in 3D visual imagery, linear and interactive media animation, and animated motion aesthetics will be explored. IAT 343 Animation engages discussion and critical thinking reflecting theory and concepts from 2D to 3D animation.

Creative concepts and analysis in Animation as media art will be developed through course readings, screenings, discussion and activities. Tutorials and self-directed exploration in Maya computer modeling, rendering and animation takes place in the Studio Labs. Course outcomes include a portfolio of creative project work and a short animation production. Participation is on-going in-class and through computer-mediated conferencing.

Texts, Resources & Materials:

Required Text:

1. "The Art of 3D Computer Animation and Effects" by Issac V. Kerlow.
2. "Schaum's Outline of Computer Graphics" (2000) by Zhigang Xiang, Roy A. Plastock; 2nd Edition; McGraw-Hill; ISBN 9780071357814

Recommended:

"Learning Autodesk Maya 2010" by Autodesk Inc.

Reference:

"Character Animation: 2D Skills for Better 3D" by Steve Roberts
"The Art and Science of Digital Compositing: Techniques for Visual Effects, Animation and Motion Graphics" by Ron Brinkmann
"CG 101: A Computer Graphics Industry Reference" by Terrence Masson
"Digital Lighting and Rendering" by Jeremy Birn
"Digital Character Animation" by George Maestri
"Game Character Development with Maya" by Anthony Ward
"Computer Animation: Algorithms & Techniques" by Rick Parent
"Digital Modeling of Material Appearance" by Julie Dorsey, Holly Rushmeier & Francois Sillion

Assignments/Grading

Assignment	Due	Grade	Type	Submit:
1. Online Portfolio	weeks 5, 10 (Midnight on Sunday)	**16%**	Individual	2 assignments (modeling/texturing/lighting & character animation). Portfolio work can be used for the team project.
2. Lab Exercises	week 3, 7, 12	**11 %**	Individual	Submit 11 weekly lab exercises
3. Essay	week 10	**2%**	Individual	Compare/ contrast animation techniques animation shorts/movies
4. Animation Short	Week 4, 6, 9, 15	**35%**	Team	animation short production**,** includes: - Script & character-environment sketch **(3%)** - Three second animation drawing **(2%)** (24f/2 x 3 = 36 frames: separate character(s) and background in layers) - Storyboard with pitch **(4%)** - Animatic (animated video storyboard with sound) **(4%)** - Animation short video **(20%)** - Final presentation & Documentation **(2%)**
5. Final Exam	Week 14	**20%**	Individual	Textbook, lecture notes
6. Participation & Quiz	ongoing	**15%**	Individual	in class and studio lab (2 quizzes 5% each : 8 %, attendance 5%)
Late Penalty: 10 % if submitted one day late, **25%** deduction up to one week, or **50 %** deduction after one week.				

Weekly Schedule

Lecture Schedule	Lab	Due Date
Week 1 (1/10) Introduction to Animation & Modeling Reading: • Kerlow: Ch 2 (p49 – 90) & Ch 3 (93 – 114), • Xiang ch 1(p1-5) & ch4 (p68— 77)	Maya Interface & Modeling I • Transformation • Duplication	
Week 2 (1/17) Modeling II & Scene Composition Reading: • Kerlow: Ch 4 (p115 – 138) • Xiang: ch6 (p114-118), ch 7 (128-133) & ch 9 (p174-178)	Modeling I • Curve-Surface techniques • Constructive Geometry	
Week 3 (1/24) Modeling & Shading,	Modeling II • Polygon modeling	**(1/29)** **Team**: Script, team website, &

Reading: • Kerlow: Ch5 (p139 – 166) & Ch 8 (p221 – 249) • Xiang: ch2 (p2-18) & ch 11 (p229-238)	• Environment/set design Shading & Texturing • Local illumination	sketch with description (character & environment sketch)
Week 4 (1/31) Shading, Texturing, Lighting & Reading: • Kerlow: Ch 9 (p251 – 292) • Xiang: ch 11 (p239-242)	Lighting & UV Mapping • Texturing I • UV Mapping	**(2/05)** **Individual**: Lab Exercises (week 1 – 3) & individual website. **Team**: Storyboard with pitch
Week 5 (2/07) Quiz 1 Camera & Animation I Reading: • Kerlow: Key-frame animation • Xiang: ch 12 (p251-262)	Modeling Hierarchy, Global illumination, UV Mapping & Character Modeling	
Week 6 (2/14) Reading break (Feb 13-17) • Kerlow: Ch 6 (p169 – 201) • Xiang: ch 3 (p25-53)		**(2/19)** **Individual:** Port I. Modeling/Texturing/ Photorealistic Rendering **Individual:** Lab Exercises: (week 4 – 5)
Week 7 (2/21) Path animation & Character Animation I Reading: • Kerlow: Ch 10 (p295 – 331) • Xiang: ch5 (89-101)	Keyframe animation Camera technique • Depth of field	**(2/26)** **Team**: Three second animation drawing (cell-animation-flip book)
Week 8 (2/28) Character Animation II & Constraint Reading: • Kerlow: Ch 11 (p333 – 361) • Xiang: ch6 (114-118)	Path animation • Non-linear animation Camera technique • Camera cuts & sequencer	
Week 9 (3/6) Character Animation II & Constraint Reading: • Kerlow: Ch 12 (p363 – 404) • Xiang: Ch8(p151-160)	Character Animation I. • Skeleton set-up • Forward Kinematics	**(3/11)** **Team**: Animatic (animated storyboard: 2D or 3D pre-visualization with sound)
Week 10 (3/13) Quiz 2 Character Animation II & Constraint Reading: • Kerlow: Ch 1(p3 – 36) • Xiang: Ch9(p179-191)	Character Animation II • Inverse Kinematics Constraints	**(3/18)** **Individual:** Web participation & Lab Exercises(week 7 - 9)
Week 11 (3/20) Dynamics Reading: • Kerlow: Ch 13 (p405 – 426) • Xiang: Ch10 (p197-211)	Character Animation III • Walk cycle Reactive animation • Set-driven key Animation clip	**(3/25)** Essay
Week 12(3/27) Compositing Reading: Kerlow: Ch 14 (p429 – 454)	Dynamics • Particle simulation Effects & Advanced Animation MEL scripting	**(4/01)** **Individual:** Port 2 – Animation

Effects & Advanced Animation Ch 15 (p455 – 480)		
Week 13 (4/03) Exam review	Project support	**(4/08)** Lab Exercises(week 10 - 12)
Week 14 (4/10) **Written Exam Day!!**	**(4/14) Team Project Submission Due**	**Team Project Presentation (4/15)**

Assignment Specifics:

1. Online Portfolio = 16%

The on-line portfolio includes three assignments (8% each, more detail on WebCT). The assignment works will be your original work - a creative, artistic application developing tools/ techniques as gained in working through the Maya exercises. For each assignment, include your creative work and describe in 2 - 3 sentences which tools were used (ex. extrude, subdivision modeling, CV curve tool...).

Any part of your individual work can be used for your team project.

Online portfolios should be created as a website and published to your webspace. Please use as your online portfolio address: **http://<your sfu weburl>/iat343**. Also, your file name should be **LastName_Port01.mb** (Maya file*)* and **LastName_Port01img01.jpg** (3 image files). Your work will be submitted through WebCT as well. Please submit a zipped file of three images and Maya file by the due date. Late work will be penalized.
See some examples from previous semesters: example 1, example 2, example 3
      Grading: Creativity, technical development, animation concepts applied, progress/ development.

2. Animation short production - 35%

This is an individual or group production project -- you will be creating an animated short production that is about 30 seconds to 2 minutes in length. Creating the animated production embodies a process of production stages from Pre-production (story/ aesthetic concept, visual research, scripts...) through Production (creating the storyboard, presentation of the pitch, design of character, set, effects, acting and staging, timing, the animatic, and animated motion in editing/ compositing techniques)... in Post-production editing and presentation design are part of rendering and clean-up, towards presentation of your individual/ team animation project due for Exam week.

In this project, you will complete the phases of animated production resulting in an animated short movie accompanied by a **production report**. The project integrates an exploration of concepts explored in reading, discussion, and studio expressing artistic, technical and theoretical concepts in Animation. Most groups have a team of 1 to 4 people to achieve the short. Reports must indicate roles of team members. Only one report is needed for the whole team. You may use your online portfolio for additional information about your individual research and thoughts on making the short.

     - **Script** & **character sketch with description**- **wk 4 (3%)** - Your teams simple script describing the short.

     - -**Storyboard - wk 5 (3%)** & **Animatic** (**animated storyboard with pitch**) - **wk 9 (4%)** – To learn about the animation production process and timing skills, the team not only design an entire sequence (animated storyboard) with sound but also include pitching the short.

     - **Three second 2D animation drawing**- **wk 7 (2%)** – Following the tradition of classical animation,

the team draws three second animation to emphasize the most memorable scene in your story. (24f/2 x 3 = 36 frames: separate character(s) and background(s) elements in layers) **(3%)**

- Animation short (20%) , report & presentation (3%) - **wk 15** - Your team's final animation short and it's report.

Your final project is 1) your teams completed animation short in a produced movie format that you will hand in. Your final project must also include 2) a production report which will serve as an outline of the individual production roles, challenges, accomplishments. Students should identify the strengths they feel they have achieved in the work, and some of the areas they would change or improve. They should construct a self-critique of their own work, explaining why they chose to use specific modeling, animation, editing and general production techniques.

Grading: Quality of production, production phases, story concept, innovative and creative exploration of tools, techniques, concepts, progress and development.

3. Essay - 2%

A Compare / Contrast essay: select, screen and critically analyze two animation shorts (Animations are available on loan at SFU Library; also see the VPL). Refer to course readings and class discussion in building a compare/contrast discussion. Critically analyze your chosen two animation shorts looking for similarities and differences in technique, narrative, and aesthetic considering the socio-cultural and historical context in animation and cultural theory.

Notice digital effects, editing techniques, quality of aesthetic style, in addition to the film genre, presence of artist, use of metamorphosis, animated motion and fundamentals, and technical constraints as some points of departure in your analysis. Write 250 - 400 words. Best submission process it to put this up on your online portfolio site for week

Grading: Quality of analysis, organization and style, references/quotes to readings, includes a Work Cited list. (the Works Cited will list the Animated film titles, in addition to the text resources).

4. Weekly Lab Exercises - 11%

Working through the Maya exercises during the labs, you will submit 11 weekly lab exercises.

5. Participation - 5%

You are accepted to participate in Discussion board (WebCT), in class discussion, studio lab discussion as well as helping others as you all as a community work through problems. See the discussion forums on the WebCT site, contribute to critiquing other team pitches/storyboards, help out in studio lab with Maya issues, and participate in lecture discussion. Attendance to lecture and studio lab is mandatory and attendance will be taken (students are allowed to miss 1 class before participation grade is affected).

6. Quiz - 10%

2 quizzes: 5% each. You are allowed to bring 2 page summary sheets (front & back).
- Quiz 1: Reading list in week 1, 2,3 & 4
- Quiz 2: Reading list in week 5, 6, 7, & 8

6. Final Exam - 20%

You are allowed to bring 3 page summary sheets (front & back).

- Reading list in week 9, 11 & 12
- Summary lecture notes