



Course title and number Visual Studies Studio IV - VIST 406 section 500
Term Spring 2011
Meeting times and location TR 9:35am – 12:05pm, Langford Architecture Center, Building C, Room 306 A

Course Description and Prerequisites from the Undergraduate Course Catalog

Theory and practice in the development of the digital image; non-traditional modeling methods; camera control and animation techniques; special effects; creative lighting methods; non-photorealistic rendering; integration of traditional and digital media in the creation of visual works. Prerequisites: VIST 305, CARC 301, or VIST 494. Credit hours: 3. Lecture-lab: (1-5).

Subject Matter Philosophy Specific to this Offering of the Course

VIST 406 is the final studio course of the Bachelor of Science in Visualization program curriculum. It is expected that students will draw upon all of their experience, skills, and knowledge from prior studios, math, programming, technical and art electives to succeed in this course.

This course will focus on the production of a 3D animated short project. Students are expected to utilize their analytical, technical, and aesthetic skills while contributing to the story development, modeling, layout, animation, rigging, effects animation, surfacing lighting, and compositing tasks required for a project of this type. Use of the python programming language in either Maya will be required.

To be successful on the main project students will be expected to collaborate with team members from other campuses including Texas A&M students studying in Bonn, Germany, students in the ATEC program at the University of Texas at Dallas, and high school students at the Design and Technology Academy in San Antonio. This portion of the course is part of a project funded by the National Science Foundation (NSF project number: 0855908). The research aim of the project is to understand how information technology contributes to creative and technical problem solving among students taking part in geographically distributed teams.

Students are also expected to pursue an independent project that should incorporate a wide swath of knowledge and skills garnered from their experience in the BS in Visualization program. The nature of this personal project will be determined in consultation with the instructor, but is expected to be a significant personal interest of the student.

Learning Outcomes or Course Objectives

By the end of this course it is expected that students will be able to use computer graphics techniques to produce appealing and engaging visual imagery in the form of a short animation composed of digital characters and environments. Students will have a fundamental grounding in the artistic (interpretive) and technical (applied) issues surrounding animation production. Students will also be exposed to a collaborative work environment that includes using communication technology to coordinate activities with both local and distant team members.

Specific learning objectives include:

- Analyze story and action needs to determine methods for the creation of expressive visuals using computer graphics techniques.
- Analyze the story, action, and performance needs to determine efficient methods of execution relative to resources and schedule.
- Apply 3D graphics software and the python programming language to the creation of repeatable actions to assist in development and delivery of modeling, rigging, motion generation, lighting setup, effects, compositing and rendering.
- Appraise, compare, revise, and integrate the work of others.
- Demonstrate the ability to communicate effectively for creative problem solving with local collaborators.
- Demonstrate the ability to communicate effectively for creative problem solving through digitally mediated methods such as email, chat, and tele-conferencing.

Instructor Information

Name Tim McLaughlin, Associate Professor and Department Head

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Recommended Textbooks and Information Sources

- *The Visual Story* by Bruce Block, 2nd ed.
- *Film Directing Shot by Shot: Visualizing from Concept to Screen* by Steven D. Katz. Published by Michael Wiese Productions
- *Learning Python: Powerful Object-Oriented Programming* by Mark Lutz. Published by O'Reilly.
- *The Art of Rigging* by Kiaran Ritchie and Karim Biri. Published by CG Toolkit.
- *The Animator's Survival Kit* by Richard Williams.
- *Distributed Game Development: Harnessing Global Talent to Create Winning Games* by Tim Fields. Published by Focal Press.
- *Agile Game Development with Scrum* by Clinton Keith. Published by Addison-Wesley.

Technical Requirements

Successful completion of the projects for this course will require access to graphical computing workstations, software for 2D painting and 3D animation, and connectivity with the internet. The 3D animation software must, minimally, have the following components:

- Modeling of 3D geometry as polygons, NURBS, or sub-division surfaces.
- Forward and inverse kinematics.
- Key-framing, including the manipulation of interpolation method used between key-frames.
- Indirect node connections for translation, rotation, and scale.
- Deformation of surfaces driven via the transformation of connected nodes.
- Permit the use of scripting as a substitute for interactive commands. Scripted commands must be able to be saved to file, edited, and re-loaded from the interface.
- Capacity for particle animation/simulation.
- Rendering of cast shadows and motion blur.
- Rendered image output.

Grading Policy

This is a project-oriented course. Most assignments will be completed using computers as the primary tool, however some traditional drawing is required. The specific definition and requirements for each project will be provided in written form in class. Each project will be given a number grade between 0 (lowest) and 100 (highest). The number grade is based upon a combination of the aesthetic (1/3), technical (1/3), and communication/presentation expertise (1/3).

Much of the work in this course involves coordinating activities with team members and performing tasks that support the collective goals of a group. Therefore the outcomes of each individual student are in some part determined by the participation and contributions of others. To account for this dynamic within the grading structure a peer review assessment tool will be used at the end of the semester. Students will provide the instructor with their own opinions of how each of their team members contributed both in terms of contribution to the project product and contribution to the well-being of the team.

Attendance, contribution to group discussions, and participation in critiques is a requirement of this course. An additional 5% of the final grade is composed of an Attendance/Participation grade on a 0 to 100 scale.

Each project's value in relationship to the composition of the final grade is:

- 5% Group Project Story Pitch (project grade * 0.05)
- 5% Personal Project Idea Pitch (project grade * 0.05)
- 12.5% Group Project Sprint #1 (project grade * 0.125)
- 12.5% Group Project Sprint #2 (project grade * 0.125)
- 12.5% Group Project Sprint #3 (project grade * 0.125)
- 12.5% Group Project Sprint #4 (project grade * 0.125)
- 15% Group Project Final Results (project grade * 0.15)

5% Group Project Teamwork Assessment from Peers (grade * 0.05)
 15% Personal Project Final Results (project grade * 0.15)
 5% Class Attendance/Participation (grade * 0.05)

100 Total Points Possible

A final letter grade is determined as follows:

A = 90 – 100 **B** = 80 – 89 **C** = 70 – 79 **D** = 60 – 69 **F** = below 60

Late projects, including the final projects, will incur a 10% penalty per class session that they are late. It is advisable to demonstrate incomplete work on the due date for partial credit rather than having the entire grade for the project penalized.

Course Topics, Calendar of Activities, Major Assignment Dates

(All information below is subject to change)

Date	Topics and In-Class Activities	Assignments and Due Dates
Tues. 1/17	Introduction to course topics and expectations: collaborative work; distance collaboration; agile development; performance animation; technical animation; action vs. performance; Establish teams (collect email address, take headshots). Provide information on technology and methods of communication; Instruct students to begin working on story and art ideas.	Test access to software and tools. Establish presence on communication tools.
Thurs. 1/19	Discuss methods of story pitch and development. Review issues of distance collaboration: presence, clear communication, and appropriate use of technology. (First day of class at UTD and AIB).	Due: Favorite short animation ideas and concepts. Due: Rough ideas for individual project.
Tues. 1/24	Field trip to Reel FX Creative Studios in Dallas	
Thurs. 1/26	1 st virtual meeting (TAMU, AIB, and UT-D). Introduce team members to one another. Establish goals for story development and creative collaboration.	
Tues. 1/31	Review story ideas.	Due: Ideas for individual projects.
Thurs. 2/2	2 nd virtual meeting (TAMU, AIB and UT-D). Teams make story pitches. Set the goals for Sprint #1.	Due: Story pitches.
Tues. 2/7	Lecture: How visuals and performances support narrative and tone. Progress review.	
Thurs. 2/9	Multi-party check-ins with groups.	
Tues. 2/14	Lecture: Computer Graphics Taxonomy or Why You Really Only Need to Know the Fundamentals; Guest Lecture: Jay Davis, Animator	
Thurs. 2/16	Multi-party check-ins with groups.	
Tues. 2/21	Personal projects check-in. Lecture: Rigging 101.	
Thurs. 2/23	3 rd virtual meeting (TAMU, AIB and UT-D). Review progress with regard to Sprint #1. Set goals for Sprint #2.	Due: Art and layout should be 50% complete. Modeling, rigging, and animation should be 25% complete. Lighting, surfacing, compositing, and effects should have tests started.
Tues. 2/28	Lecture: Procedural Animation and Workflow	
Thurs. 3/1	Multi-party check-ins with groups.	
Tues. 3/6	Lecture: Create, Review, Revise, Re-Do (Repeat)	
Thurs. 3/8	Multi-party check-ins with groups.	
Tues. 3/13	<i>Spring Break</i>	

Thurs. 3/15	<i>Spring Break</i>	
Tues. 3/20	Progress Check on both Group and Personal Projects	
Thurs. 3/22	4 th virtual meeting (TAMU, AIB and UT-D). Review progress with regard to Sprint #2. Set goals for Sprint #3.	Due: Art and layout should be 75% complete. Modeling, rigging, and animation should be 50% complete. Lighting, surfacing, compositing, and effects should be 25% complete.
Tues. 3/27	Lecture: The Best Movie Ever vs. The Best Project Ever (the power of creative responsibility)	Due: Favorite movies or games.
Thurs. 3/29	Multi-party check-ins with groups.	
Tues. 4/3	Lecture Continuation: Setting the Bar High and Continual Improvement	
Thurs. 4/5	5 th virtual meeting (TAMU, AIB and UT-D). Review progress with regard to Sprint #3. Set goals for Sprint #4.	Due: Art and Layout should be 95% complete. Modeling, rigging and animation should be 75% complete. Lighting, surfacing, compositing, and effects should be 50% complete.
Tues. 4/9	Pre-review of individual projects.	
Thurs. 4/12	Multi-party check-ins with groups.	
Tues. 4/17	Final review of individual projects.	Due: Final individual projects.
Thurs. 4/19	6 th virtual meeting (TAMU, AIB and UT-D). Review progress with regard to Sprint #4. Set goals for the final sprint.	Due: All final models, animation, rigging, lighting, texturing, effects should be in place; Final tweaks on compositing possible. Check of rough credits and sound. Correct all mistakes and glitches and submit for final hi-res rendering.
Tues.4/24	Final review of individual projects.	
Thurs. 4/26	7 th and final virtual meeting (TAMU, AIB, and UT-D). Review final projects. Complete assessments of team members.	DUE: Final group projects.
Tues. 5/1	<i>No class (redefined Friday).</i>	

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit <http://disability.tamu.edu>

Academic Integrity

For additional information please visit: <http://www.tamu.edu/aggiehonor>

"An Aggie does not lie, cheat, or steal, or tolerate those who do."

Defacement of Property

"It is unlawful for any person to damage or deface any of the buildings, statues, monuments, trees, shrubs, grasses, or flowers on the grounds of any state institutions of higher education (Texas Education Code Section 51.204)"

The words damage or deface refer specifically to any and all actions, whether direct or indirect, that either diminish the value or mar the appearance of the physical environment.