



Course title and number VIST 375-900 Foundations of Visualization
Term Spring 2016
Meeting times and location 4:10-5:25 MW Langford C207

Course Description

A comprehensive introduction to visualization concepts, techniques and applications. This course will introduce the major topic areas of visualization including; cultural context, application areas, visual perception, the digital image, visual language, coordinate systems, geometric representation, modeling, animation, image synthesis, image compositing, ethics and the future of visualization. Examples will be used to illustrate various visualization topics and application areas. Possible example areas include computer animation, computer art and sculpture, interactive games, scientific visualization, virtual reality and visual special effects.

This is not a programming course, however, we will make use of existing software tools to illustrate visualization topics and for some assignments.

This is a 'W' writing intensive course. Writing related topics and issues will be included in course readings, lectures and discussion. There will be eight 400-500 word writing assignments. These writing assignments will focus on aspects of visualization and will be coordinated with course topics. Achieving a passing grade in this course is dependent on achieving a cumulative passing grade on the writing assignments.

This is a required course for VIST majors. It is a writing intensive course and fulfills a writing requirement for graduation.

Prerequisites: MATH 152, VIST 271, junior or senior classification

Learning Outcomes

- To introduce the context and the foundation concepts, algorithms, techniques and applications of visualization; resulting in a comprehensive fundamental understanding of computer based visualization and the capability to recognize and select visualization techniques appropriate for particular applications.
- An additional objective is to enhance each student's ability to discuss, analyze and present visualization concepts in correct, effective written form.

Instructor Information

Name Frederic Parke
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Office hours MW 2:30-4:00pm or by appointment
Office location Langford C418

Resource Materials

F. Parke, Ed., *VIST 375 Course Notes*, Spring 2016 (web-based notes)
Located at <http://www.viz.tamu.edu/courses/vist375/16spring>

Grading Policies

- Grades will be based on in-class participation (10%), a midterm exam (15%), a final exam (15%), weekly quizzes (28%), and writing assignments (32%).
- Achieving a passing grade in this course is dependent on achieving a cumulative passing grade on the writing assignments.
- Weekly in-class quizzes will be on assigned reading and topics discussed in class.
- The instructor's qualitative judgment of the student's class participation will include such factors as attendance, preparation and informed participation in discussions and participation in peer review of writing assignments. Unexcused absences and being late to class will negatively impact your class participation grade.

There will be eight 400-500 word writing assignments related to the material covered in the assigned reading and in-class discussions. Each writing assignment will be reviewed three times, first as an initial draft, then as a revised draft and then again in its final form. Each draft stage will be reviewed with constructive feedback.

The initial draft will be peer reviewed. The revised draft and the final drafts will be read by and constructive feedback provided by the course graduate assistant.

Final writing assignment drafts will be graded by on a scale of 0-3, where 3 is good, 2 is ok, 1 is poor, 0 not submitted. Final writing assignment drafts submitted late will lose 1 point. Final writing drafts submitted more than one week late will graded as 'not submitted.'

Submitting each initial draft to peer review will earn one additional point for your writing grade. Submitting the revised draft of each writing assignment after peer review and when due will count as one additional point of your writing grade. Each writing assignment can earn up to 5 points – 1 for submission to peer review, 1 for submitting, when due, a revised draft for review and up to 3 points for the final draft grade.

Attendance Policy

The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line at <http://student-rules.tamu.edu>.

Plagiarism - In this course, we want to encourage collaboration and the free interchange of ideas among students and in particular the discussion of reading assignments and review questions, approaches to solving them, etc. However, we do not allow plagiarism, which, as commonly defined, consists of passing off as one's own the ideas, words, writings, etc. those which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of that person. Plagiarism is one form of scholastic dishonesty. If you have questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section on Scholastic Dishonesty.

Damaging or Defacing University 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.

Copyright

The handouts used in this course are copyrighted. "Handouts" include all materials generated for this class, which include but are not limited to the on-line course notes, syllabi, exams, quizzes, problems, in-class materials, review sheets, additional problem sets, and the contents of the class web site. Because these materials are copyrighted, you do not have the right to copy them, unless you are expressly granted permission. You have permission to make printouts of the on-line class notes and the class web site strictly for your use in this class.

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, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit <http://disability.tamu.edu>.

Academic Integrity

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

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

Course Activities, Assignments, Topics and Dates

- Weekly short in-class quizzes.
- Eight writing assignments spaced throughout the semester.
- Midterm exam and Final exam

The table below shows the intended ordering of course topics.
There may be some variation in this schedule as the course progresses.
Concepts of effective writing will be interwoven with the topics listed below.

Week	Topic	Course Notes
1	Introduction and Human Vision	Chapter 2
2	The Digital Image	Chapter 3
3	The Digital Image	Chapter 3
4	Visual Culture / Ethics of Visualization	Chapters 4,5
5	Image Operations	Chapter 6
6	Visual Language	Chapter 7
7	Review Coordinate Systems / Midterm Exam	Chapter 8
8	Geometric Representation / Environment Modeling	Chapters 9,10
9	Language of Film and Animation	Chapter 11
10	Animation	Chapter 12
11	Image Synthesis	Chapter 13
12	Image Synthesis / Lighting	Chapters 13,14
13	Interactive Visualization	Chapter 15
14	Future of Visualization	Chapter 16

Final Exam: 3:30 – 5:30 pm Friday May 6, 2016