CS435/535: Computer Graphics

Course Syllabus - Spring 2019

12:00-12:50am MWF, SERC 1014

Course Objectives:

After successfully completing this course, students will

- Have a solid grasp of the graphics pipeline.
- Understand how the graphics pipeline is implemented.
- Be able to perform graphics programming with OpenGL.
- Be familiar with advanced graphics technologies.

Course Description:

Fundamentals of interactive 3-D computer graphics, including modeling and transformations, viewing, lighting and shading, mapping methods, graphics pipeline, shading languages, and interaction techniques. Programming projects are required.

Prerequisites:

CS 200 or CS 315(Minimum Grade C-) and CS 201 or CS 360(Minimum Grade of C-) and CS 101 or CS 350 or CS 351 or CS 352(Minimum Grade of C-) and ECE 383(Minimum Grade of C-).

Text:

- Angel & Shreiner, *Interactive Computer Graphics: A Top-Down Approach with WebGL, 7/E*, Addison-Wesley, 2014, ISBN 0-13-357484-9.

Instructors:

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- Office Hours: 1:00-2:00pm MWF
  12:30-1:30pm T(Tuesdays)

Attendance Policy:

- Students are expected to attend all class meetings. There are up to ten unannounced quizzes.

Grading Policy:

- Mid-term exam (20%), and final exam (35%).
- Severn projects (35%).
- Ten announced and unannounced quizzes (10%).
- A student is allowed to make up assignments, projects, or exams missed only if he/she has an excusable reason.

Topics to be covered:

- Introduction: Chapter 1
- Graphics Programming with WebGL: Chapter 2
- Interaction: Chapter 3
- Modeling: Chapters 4 & 9
- Viewing: Chapter 5
- Shading: Chapter 6
- Implementation of Graphics Pipeline: Chapter 8
- Texture Mapping and Other Discrete Techniques: Chapter 7
- Shading Language: Chapters 2, 6 & 7
- Curves and Surfaces: Chapter 11
- Advanced Topics: Chapters 10 & 12
