

# Syllabus for CSE170: Computer Graphics

Spring 2009

Instructor: Marcelo Kallmann

<b>Designation:</b>	CSE170 Computer Graphics
<b>Catalog Description:</b>	Basic algorithms in computer graphics enabling students to understand and experience the process of implementing modern computer graphics applications. The topics covered are: rasterization, clipping, hidden surface removal, transformations, rendering pipeline, scene graphs, graphics libraries, interpolation, curves and surfaces, constructive solid geometry, boundary representation, spatial partition methods, texture mapping, color models, illumination and shading.
<b>Text Books and Other Required Materials:</b>	Foley, Van Dam, Feiner, Hughes, Phillips, "Introduction to Computer Graphics", Addison Wesley, ISBN 0-201-60921-5
<b>Course Objectives:</b>	This course introduces 1) the basic algorithms used in 3D Application Programming Interfaces (APIs) such as OpenGL and DirectX which are now implemented in most of the graphics cards available in consumer desktops and notebooks, and 2) the basic modeling techniques used in modern specialized modeling and animation packages such as 3DS Max, Maya and Auto CAD. The course focuses both on the theoretical and practical implementation side of the algorithms and the goal is to provide students with solid foundations for addressing a wide variety of computational problems in computer graphics and to provide a thorough knowledge of the most common algorithms and techniques.
<b>Prerequisites by Topic:</b>	Class Prerequisite: CSE 031: Introduction to Computer Science and Engineering II Proficient level of programming skills in C or C++ and well as basic data structures. Prior knowledge of OpenGL is desired but not required.
<b>Topics:</b>	Rasterization, clipping, hidden surface removal, transformations, rendering pipeline, scene graphs, graphics libraries, interpolation, curves and surfaces, constructive solid geometry, boundary representation, spatial partition methods, texture mapping, color models, illumination and shading, and quick overview of selected advanced topics in computer animation, motion planning and GPU programming.
<b>Class/laboratory Schedule:</b>	Lectures: Tue & Thu: 10:30 - 11:45 --- Lab: Thu: 7:00 - 9:45pm
<b>Professional Component:</b>	
<b>Grading Scheme:</b>	35% Exams: two exams (midterm and final) 35% Projects: three projects (transformations, modeling, and final project with open topic) 30% Programming Assignments: around 7-8 assignments covering most of the important topics covered in lecture.
<b>Coordinator:</b>	Marcelo Kallmann