Lecture #1: Tuesday, 5 January 1999
Topics: Course Outline
Lecturer: Leonidas Guibas

Course Outline

January

Tue	5	Administrivia. Course Outline and Mechanics; Notations for Points, Vectors, and Transformations. Homogeneous Coordinates; Transformations, and Matrices.
Thu	7	Affine and Projective Geometries.
Tue	12	Rotations via Quaternions. Homework 1 out.
Thu	14	Polynomial Interpolation and Elimination.
Tue	*19	Issues in Shape Modeling; Parametric and Implicit Representations of Curves and Surfaces.
Thu	21	Classification of the Parametric Cubics.
Tue	26	The Polar Forms of Polynomial Curves; the Bézier Control Points; the de Casteljau Subdivision Algorithm. Homework 1 due; Homework 2 out.
Thu	28	Continuity Constraints for Polynomial Arcs; Splines.

February

Tue	2	Splined Curves: B-Splines and Others.
Thu	4	Rational Curves.
Tue	9	Tensor-Product and Total-Degree Surfaces. Homework 2 due; Homework 3 out.
Thu	11	Solid Modeling and Boundary Representations for Solids.

Tue	16	Binary-Space-Partition (BSP) Trees.
Thu	18	Other Hierarchical Representations for Surfaces and Solids.
Tue	23	Surface Simplification. Homework 3 due; Project (Homework 4) out.
Thu	25	Scattered 3-D Data Interpolation.

March

Tue	2	Visibility and Visibility Orderings. Class contribution due.
Thu	4	Hidden Surface Removal Algorithms.
Tue	*9	Algorithms for the Intersection of Geometric Objects. Project due.
Thu	*11	Discussion of projects and student contributions.
Thu	18	Final Examination.

A '*' indicates dates on which the lectures will be given by an alternate lecturer, because Professor Guibas will be out of town.