

Lecture #1:       Monday, 21 September 2009  
Topics:            Course Outline  
Lecturer:         Leonidas Guibas

## **Course Outline**

### **September**

Mon 21    Class Introduction; Homogeneous Coordinates; The Projective Plane  
Wed 23    Oriented Projective Geometry; Euclidean and Affine Transformations  
Mon 28    Affine/Projective Transformations and their Matrix Representations  
Wed 30    Quaternions  
          Homework 1 out

### **October**

Mon 5     Shape Modeling: Parametric and Implicit; Classification of Parametric Cubics  
Wed 7     Polar Forms  
Mon 12    Continuity Constraints; Splines  
Wed 14    B-splines  
          Homework 1 due; Homework 2 out  
Mon 19    Rational Curves  
Wed 21    Tensor-Product and Total-Degree Surfaces  
Mon 26    Subdivision Curves and Surfaces  
          Homework 2 due; Homework 3 out

Wed 28 Triangle Meshes and their Representation; the Quad-Edge Data Structure

### **November**

Mon 2 Solid Models; BSPs and their Uses

Wed 4 B-spline Surfaces  
Project (Homework 4) out

Mon 9 In class Midterm

Wed 11 Intro to Geometry Processing; Surface Reconstruction  
Homework 3 due

Mon 16 Smoothing and Remeshing

Wed 18 Mesh Simplification

Mon 23 No class; Thanksgiving recess

Wed 25 No class; Thanksgiving recess

Mon 30 Mesh Parametrization

### **December**

Wed 2 Class Wrap-Up  
Project due