CSCI 441 – Computer Graphics
Exam III Outline

I. Height Mapping
- A. Height Maps
- B. Benefits of Height Mapping

II. Bezier Curves and Surfaces
- A. 2D Curves
  - 1. Interpolating Curves
  - 2. Hermite Form
  - 3. Bezier Curves
    - a. Blending Functions
    - b. Convex Hull Property
    - c. Quadratic vs. Cubic Forms
  - 4. B-Splines
  - 5. NURBS
  - 6. deCasteljau Recursion
- B. 3D Surfaces
  - 1. Bezier Patches
  - 2. Quadratic vs. Cubic

III. Tessellation
- A. Pipeline Stages of Tessellation
- B. Defining Tessellation Levels
- C. Tessellation and Bezier Surfaces
- D. Tessellation and Height Maps
- E. Level of Detail

IV. Geometry Shader
- A. Per Primitive Processing
- B. Altering Primitives
- C. Deleting Primitives
- D. Adding Primitives

V. Other Techniques
- A. Fog
- B. Compositing
  - 1. Blending
    - a. Blending Functions
    - b. Blending Equations
  - 2. Transparency
- C. Clipping
- D. 3D Textures
- E. Noise
- F. Special Effects - Dissolving

VI. Particle Systems
- A. Newtonian Particles
- B. Mesh Systems
- C. Efficiency
- D. Physics Constraints

VII. Fractals

- A. Chaotic Systems
- B. Strange Attractors
- C. Newton-Raphson
- D. Diffusion Limited Aggregation
- E. Fractal Geometry
- F. L-Systems
- G. Iterative Function Systems