Exam Review

Responsible for everything from before the midterm (see midterm review topics)

PLUS …

Polygonal and Hierarchical Models (Sections 7.1, 7.4, 7.5, 7.7)

- Understand what a geometric model and how hierarchies of models are used to build up complex objects.
- What are the advantages of using a hierarchical model
- Understand the examples given of how transformations are applied to hierarchical models

Curves and Surfaces (Section 11.1, 11.2 (up to end of 11.2.2), 11.3 (up to end of page 517, + handouts)

- Understand the parametric form of curves and why it is beneficial
- Understand parametric cubic curves and why we user them
- Understand geometric and parametric continuity
- Understand Hermite curves and how they are specified
- Be able to derive the Hermite basis matrix for a given curve
- Understand blending functions
- Understand Bezier curves and how they are specified
- Understand how to derive the MHB matrix that defined the relation between the Hermite and the Bezier geometry matrix
- Don't need to know b-splines
- Understand the de Casteljau algorithm for evaluating bezier curves
- Understand the concept of parametric surfaces and polygonal meshes

Visible surface determination (Section 15 (intro), 15.2, 15.4, 15.6, 15.10 (up to end of 15.10.1)

- Know the difference between image space and object space algorithms
- Understand the efficiency considerations (briefly)
- Understand the z-buffer algorithm
- Understand scan-line algorithms
- Understand how ray-tracing (ray-casting) can be used as a visible surface algorithm

Illumination and Shading (Section 16.1, 16.2, 16.3)

- Understand the different pieces of an illumination model and how they fit together
- Understand the difference between an illumination model and a shading model
- Understand the different shading models (constant shading and interpolated shading including Gouraud and Pong shading
- Know the advantages and disadvantages of the different shading models
- Understand the different approached to apply surface detail

Ray Tracing (Section 16.12 (up to beginning of section 16.12.1)

- Understand how the process ray tracing works and be able to complete an example