CMSC 435/634
Introduction to Computer Graphics

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Background

Prerequisites

• Math 211 (Linear Algebra)
• CMSC 341 (Data Structures)

Text

• *Fundamentals of Computer Graphics*, Peter Shirley
• Several others on reserve in the library
• Read BEFORE class; ask questions!
  – Class will cover a subset of the material, but you are expected to know it all!
Getting to Know You

Tell me:

• Your name / major / degree
• How many other credits you’re taking this semester
• What you hope to get out of this class
• How confident are you in your ability in
  – Linear algebra?
  – Data structures?
• Am I on the hold list?
What is Graphics?

Making pictures with computers?
Making pictures with math?
Making pictures with physics?
Real-time vs Off-line

Real-time/interactive
- 10–60 frames per second
- Games, interfaces, visual simulation...

Offline/production
- Seconds to hours per frame
- Movies, architectural lighting simulation, ...
Real-time

Mark Kilgard, GLUT Examples
Production

Pixar, Toy Story
Realistic vs. Artistic

Realistic/Photorealistic

• Look like real life
  – Simulate physics
  – Reasonable appearing approximation

Artistic/Non-Photo-Realistic

• Look like what an artist might produce
  – Model artist’s process, physics
  – Do what looks right (an art in itself)
Realistic

Norbert Kern, POV-Ray Hall of Fame Gallery
Artistic

Bruce & Amy Gooch, *Non-Photorealistic Rendering*