

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 listed chapters, but you are expected to know it all!

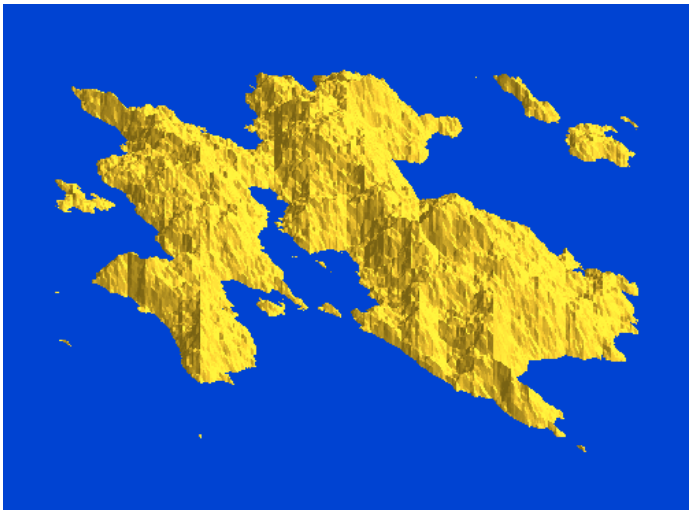
What is Graphics?

- ▶ 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



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*