

## CSE 570

### Advanced Computer Graphics I

Spring 2006

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### Who is teaching the class?

- instructor: Peter Wonka
- office: BY 354, phone: 480-965-5248
- email: peter.wonka@asu.edu
- class times: T TH 3:15 – 4:30
- class location: BYAC 260
- office hours: T TH 4:30 – 5:30

### My Background

- Vienna University of Technology
  - ◆ PhD / MS Computer Science
  - ◆ MS in Urban Planning
- During my PhD studies I also worked in Rennes (France) and Grenoble (France)
- 2 years post-doc at Georgia Tech
- Now: **Assistant Professor at ASU**



### My Research

- Modeling
- Rendering



### What books materials do I need?

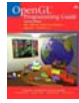
- There is no mandatory textbook in this class!
- The study materials will be mainly copies of slides and research papers, tutorials, ...
- Class uses **myASU** to post:
  - ◆ syllabus
  - ◆ slides
  - ◆ papers or links to papers
  - ◆ homework
  - ◆ projects
  - ◆ example programs
  - ◆ ...
- Note: Some things might not be on the web or might be updated late.

### What are the prerequisites for taking the course?

- Formal Prerequisite: CSE 470 (or equivalent)

## What previous knowledge is important?

- basic C++ programming skills
- very basic OpenGL
  - ◆ or ability to draw pixels / triangles on the screen
- Introduction to Computer Graphics
  - ◆ CSE 470 at ASU or equivalent: rendering pipeline, triangle rasterization, transformations (rotation, shear, translation), ray casting, quadtrees, ...
- Basic math
  - ◆ linear algebra: vectors, dot product, cross product, integration, ...
  - ◆ calculus



## Slides

- The slides will be available on myASU and are intended for your personal studies in context with your education at ASU
- You are not allowed to freely distribute the slides



## What is a reasonable workload for a class

- Arizona Board of Regents Suggests:  
2-3 hours outside of class for each hour in class!
- That means 6-9 hours of work outside of class. If you miss the class you will need more time.



## Grading

- Work in the classroom
  - ◆ Reading papers before class
  - ◆ Participating in discussions
  - ◆ Smaller homework
- Implementation of 2 projects
  - ◆ One smaller
  - ◆ One a bit larger



## How are the Grades broken down?

- Project 1: 40%
- Project 2: 50%
- Participation in Class 10%



## Grades

A+ [95–100]	A [90–95]	A- [85–90]
B+ [80–85]	B [75–80]	B- [70–75]
C+ [65–70]	C [60–65]	
D [50–60]		
E [0–50]		



## Grade Improvement

### ■ Please Note!!!

it is unethical to bring to your instructor's attention the possible impact of your course grade on your future plans, including graduation, scholarships, jobs, etc.



## Ethics

- Violations of academic integrity include (but are not limited to) cheating, fabrication, tampering, plagiarism or facilitating such activities



## Classroom

- No cell phones
- No Food / Drinks (maybe some drinks)
- Participation is expected!



## Disability Resource Center

- If you have a disability that will require accommodation in this class, please schedule an appointment or see me during office hours to discuss your accommodation request. Note: To qualify for disability accommodations here at ASU, students must register and qualify for services through the Disability Resource Center for Academic Access and Achievement (DRC) located on the 1st Floor of Matthews Center, Room 143, 480-965-1234 (V), 480-965-9000 (TTY)



## What is the Method of Instruction?

- Frontal Teaching
  - ◆ Good to cover new material
- Interactive Learning
  - ◆ Good for knowledge retention



## Teaching Philosophy

- Class should primarily facilitate your own learning
- Graduate class
  - ◆ → build on interest of the students
  - ◆ the minimum work is defined by the two projects where you will implement selected concepts taught in the class
  - ◆ Other topics will require your own initiative to study papers discussed in class



## Topics taught in the class

- Main Topic: Realistic Image Generation / High Quality Image Generation
  - ◆ Ray-tracing
  - ◆ Aliasing
  - ◆ Radiosity
  - ◆ Global illumination
  - ◆ Sampling techniques
  - ◆ BRDFs
  - ◆ Advanced Textureing
  - ◆ Texture Synthesis
  - ◆ Photon Mapping
  - ◆ ...

