

Administrative

IMGD 4000

Topics

- Background
- Admin Stuff
- Motivation
- Objectives
- Class material!

2

Professor Background (Who am I?)

- Mark Claypool (professor, "Mark")
 - Computer Science
 - Interactive Media and Game Development
- Research interests
 - Multimedia performance
 - Congestion control (protocols, AQM)
 - Wireless networking
 - Network games

3

Student Background (Who are you?)

- | | |
|------------------------|--|
| 1. Year? | 4. Language of Choice? |
| 2. Major? | d. C/C++ |
| 3. Background? | e. Java |
| a. IMGD3000 | f. Other |
| b. Soft Eng. (CS3733) | 5. Expertise (low, medium, high)? |
| 4. Platform of Choice? | a. C/C++ |
| a. Windows | 6. Familiarity with UE4 (low, medium, high)? |
| b. Mac | |
| c. Other | |

4

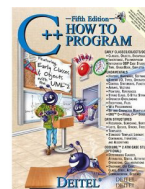
Nuts and Bolts

- <http://www.cs.wpi.edu/~imgd4000/d16>
- Class: Mo, Th 2-3:50pm (SL 105)
- Lab: We 2-2:50pm (IMGD Lab - FL222)
- TA: [Caitlin Malone](#)
 - Office hours, email, grading
- SA: [Benny Peake](#)
 - Office hours, email, Lab
- SA: [Chaima Jemmali](#)
 - Office hours, email, Lab
- Office hours:
 - On Web page
 - Or by appointment
- Email
 - claypool@cs.wpi.edu (me)
 - imgd4000-staff@cs.wpi.edu (me + TA + SA)
 - imgd4000-all@cs.wpi.edu (class + staff)

5

Text Book

- None
- [Online documents for UE](#)
- Programming books



6

Class Topics

- Game Engines
- Decision Trees
- Basic Physics
- Steering
- Advanced Pathfinding
- Advanced Camera Control
- Network Games
- Scripting
- Game Audio
- Novel Input Controls

7

Assumed Knowledge

- Functional programming (e.g., [CS 1101](#) or [CS 1102](#)).
- Object-oriented design and programming (e.g., [CS 2102](#)).
- Systems programming concepts (e.g., [CS 2303](#)).
- Software engineering (e.g., [CS 3733](#)).
- Basic technical game development skills (e.g., [IMGD 3000](#)), including:
 - Game engine architecture
 - Iterative technical game development process
 - Scene management
 - Input controls
 - Simple AI

8

Grading

- Quickstart 5%
- Project 1 10%
- Project 2 10%
- Project 3 10%
- Game Project 45%
- Mid-term 10%
- Final 10%

(Details on each, next)

9

Quickstart



- Get up to speed on UE4
- 1. Setup UE4
- 2. Work through guides
 - A. Editor
 - B. Programming
 - C. First Person Shooter
- 3. Extend on your own
 - 10%

10

Projects 1 - 3



- Expand technical game development knowledge and skills
 - In UE4
- Specific technical skills
 - Behavior tree
 - Advanced pathfinding
 - Force-based steering
 - Camera control
 - Networking
 - Advanced physics
- Blueprints (scripting) and/or C++
- Done solo
- Done about 1/week for weeks 2-4

Game Project



- Game from scratch
 - In UE4
- Of your own design (game, art, tech)
 - With constraints
- Done in teams
 - 2 Tech (IMGD 4000)
 - 2 Art (IMGD 4500)
- All term
 - Start second day of term, end final day of term

12

Exams

- Mid-term
- Final
 - Non-cumulative
- Closed book, closed note, closed friend
- Test important concepts not adequately demonstrated by team-programming alone

13

Slides

- On the Web (usually before class)
- PPTX and PDF
- Caution! Don't rely upon slides alone! Use them as supplementary material
 - (come to class)

14

Timeline

- On the Web page
 - <http://web.cs.wpi.edu/~imgd4000/d16/timeline.html>
- Tentative, but may help you plan
- Shows Tech (IMGD 4000) and Both (IMGD 4/500 and lab sessions)
- Items in CAPS → you turn something in
- Items in lower → internal milestones only
 - But strongly encouraged!

15

Why This Class?

Goals

- Participate effectively as tech game developers in interdisciplinary teams
- Become proficient in new game engine
- Expand technical game dev skills
- Be conversant with important advanced and emerging tech concepts

Objectives

- Team 2 tech and 2 art, make game with milestones, game engine, source control
- Develop C++ and scripting code for Unreal Engine applying new technical skills learned
- Individually tested on knowledge of important technical game dev.

<http://web.cs.wpi.edu/~imgd4000/d16/objectives.html>

16

Why Else This Class?

- Fulfill WPI IMGD requirements
 - Effectively, tech track students must take IMGD 4000
- Get ready for MQP
 - Whether in UE4 or another engine
- Learn UE4
 - Only one engine, but popular and powerful
- Become better programmer
 - Programming is critical
 - The more you do, the better you get
 - IMGD Tech students need to be the *best* programmers (esp. C++)
- Make a game
 - Potential portfolio piece (with polish after class)
- Fun!

17