

IMGD 3000

Technical Game Development I

Administrative

Topics

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

Professor Background (Who am I?)

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

Student Background (Who are you?)

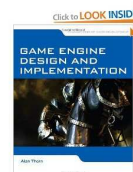
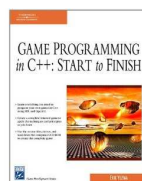
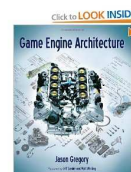
1. Background
 - a. CS2303?
 - b. CS3733?
2. Language of Choice?
 - a. Windows
 - b. Mac
 - c. Linux
3. Platform of Choice?
4. Year?
4. Major?
 - a. Double major?
5. Expertise (low 1 to 5 high)?
 - a. C/C++
 - b. Java
6. Number of games w/engine?

Syllabus Stuff

- <http://www.cs.wpi.edu/~imgd3000/a12>
- Class: M, Th 1-2:50pm
 - NOTE: 4 Thursday exceptions (see Timeline)
- TA: Will Disanto
- Office hours:
 - Will be on Web page
 - Or by appointment
- Email
 - claypool@cs.wpi.edu (me)
 - imgd3000-staff@cs.wpi.edu (me + TA)
 - imgd3000-all@cs.wpi.edu (class)

Text Book

- None!
- But could get *game engine* book...
 - Gregory closest choice
- Ask if you want to browse my books before buying



Text Book

- You should have programming books...



Range of Topics

- Game Engine Overview
- Software Engineering for Games
- The Game Loop
- Resource Management
- Graphics and Rendering
- Input
- In-Game Collisions
- Debugging and Development
- Advanced Techniques...
 - AI
 - Pathfinding, Flocking
 - Performance Tuning
 - Scripting Support in Engines
 - Physics
 - Networking

Course Structure

- Prerequisites
 - System Programming Concepts ([cs2303](#))
 - Good programming skills in C++ (required!)
 - No game engine experience required
- Grading
 - Exams (15%)
 - Projects (85%)

Projects



- Project 1 – To Catch a Dragonfly (10%)**
 - Tutorial → Learn a game engine
 - Solo
 - Today!
- Project 2 – Dragonfly (Egg, Naiad, Dragonfly) (50%)**
 - Build your own game engine!
 - Solo
 - Next week
- Project 3 – Dragonfly Spawn (Plan, Alpha, Final) (25%)**
 - Teams
 - By term end

Exams

- 2 exams
- 15% of grade
- Non-cumulative
- In-class (about ½ of the 2 hour class)
 - Closed-note, Closed-paper, Closed-friend

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)
- [Timeline](#)
 - Tentative, but may help you plan

Objectives

1. Understand structure and design of game engine
2. Understand trade-offs between complexity, fidelity, and interactivity in game engines
3. Demonstrate understanding of game engine from game programmer's perspective by extending simple game
4. Use game engine to create a complete, original game from scratch
5. Use iterative design and development practices to create a playable game
6. Understand how software engineering techniques can be applied to creating parts of game engine
7. Gain experience and develop skills in working in team on a software project of significant size, with short deadline

Why This Class?

- WPI IMGD requirements
 - Gotta take IMGD 3000 and IMGD 4000
- Now that you know games and know programming, the fun really begins!
- Game engines are increasingly important
 - Know how to use one
 - Know how to build one
- Programming is critical
 - The more you do, the better you get
 - IMGD Tech students need to be the *best* programmers
- Make a game
- Fun!