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?
5. Major?
   a. Double major?
6. Expertise (low 1 to 5 high)?
   a. C/C++  
   b. Java
7. Number of games w/engine?

Syllabus Stuff
• [http://www.cs.wpi.edu/~imgd3000/a12](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 book, before buying
Text Book

• You should have programming books...

![Image 1]

![Image 2]

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!