Course Overview
Introduction to XNA Game Studio Express

Game Design Experience
Prof. Jim Whitehead
January 7, 2008
Administrative

• If you need a permission code, see me after class
  ► In most cases I will give you one, the class is not full

• If you are a freshman non-transfer game design major and have not yet taken CMPS 80K (Foundations of Interactive Game Design)
  ► The Game Design Faculty strongly recommend taking CMPS 80K
  ► CMPS 80K is not a major requirement, but may become one
  ► You will not be required to take CMPS 80K, but it teaches useful game design knowledge
There is currently one discussion section for the class
  ► Monday, 3:30-4:40PM, Physical Sciences 140
Several of you have a conflict with this time
A second section is in the process of being scheduled
  ► Will be an early evening time, most likely
  ► Details Friday or Monday, most likely
Discussion Section:
  ► Assignments handed back
  ► Help on assignments and project/C#/XNA
Course People

• Professor
  ▶ Jim Whitehead (ejw@cs.ucsc.edu)
    Associate Professor, Computer Science
  ▶ Office hours: Tuesday, 10:30am-12pm, or by appointment

• Teaching Assistants
  ▶ Bill Manegold (wdmanegold@gmail.com)

• Readers/Tutors
  ▶ Robbie Kavert (rkavert@ucsc.edu)
  ▶ Adrien Young (akyoung@ucsc.edu)

• Take advantage of our expertise!
www.soe.ucsc.edu/classes/cmgs020/Winter09/

- Syllabus
  - When everything is due
- Homework assignments
- Project phase descriptions
- Links to useful tools
- Slides presented in class
- Evaluation criteria for assignments
Introductions

• Everyone should stand up and introduce themselves
  ► Your name
  ► Your major
  ► Game you’re playing right now
    • Or your favorite game

• Class web site:
  www.soe.ucsc.edu/classes/cmbs020/Winter09/
Course Goals

• Learn basic principles of game programming
  ► Main game loop, display of 2D sprites and 3D objects
  ► Collision detection, shaders, scrolling game worlds
  ► Audio

• Learn basic game AI techniques
  ► Simple behaviors, A* pathfinding

• Learn basic principles of object-oriented design
  ► Subdividing a project into classes
  ► Unified Modeling Language structure diagrams
  ► Software design patterns

• Develop increased proficiency in programming
  ► C# language, coding focused assignments

• Learn techniques for working as a team
  ► Quarter-long game project developed in 2 person team
Computer Game Project

• Work in teams of 2 to create novel computer game
  ► C# and XNA Game Studio Express will be taught in class
  ► Very impressive games are possible with this environment
  ► Created games can run on Xbox 360 and Zune

• Phases
  ► Team formation – January 12
  ► Game concept document – January 26
  ► Work breakdown and schedule – January 30
  ► Technical design document – February 11
  ► Game prototype – February 23
  ► Progress report – March 2
  ► Final game – March 16
Grades

• Midterm exam: 15%
• Final exam: 15%
• Homework: 30% (3 assignments, each worth 10%)
• Term project: 40%, broken down as follows
  ► (Percentages are of final course grade, and sum to 40%)
  ► Team selection: 1%
  ► Game concept document: 5%
  ► Work breakdown and schedule: 3%
  ► Technical design document: 7%
  ► Partially operational game prototype: 3%
  ► Updated schedule: 1%
  ► Final game project: 20%
Course Textbooks

• **Learning XNA 3.0**
  Aaron Reed, O'Reilly, 2008

• **Programming C# 3.0**

• Available at bookstore, also available online

• **Course readings are very important**
  - It will be very challenging to do well in the class if you do not keep up with the reading.
XNA Game Studio Express

• XNA GSE is a series of libraries for creating 2D and 3D computer games
  ▶ Uses C# as the primary programming language
  ▶ Integrated with Visual Studio C# Express
    • Also now the full version of Visual Studio
  ▶ Games can run under Windows or on Xbox 360
  ▶ It is possible to create professional games using this toolkit
  ▶ Quick poll of students with Windows machines
    • Do we need XNA GSE installed in ITS labs?

• Example games:
XNA Game Studio Express Architecture

- You write your game in C#
  - Using features in XNA Framework
- Runs on top of common language runtime ("Managed Code")

Game code (C#) & content

XNA Framework

Common Language Runtime (CLR)

Windows APIs, DirectX

You provide

Provided for you
XNA Features

• 2D & 3D graphics support
  ► Access to HLSL (High level shader language)
    • Pixel and vertex shaders
• Audio support
  ► XACT cross-platform audio tool
• Controller and keyboard input
  ► Xbox 360 controller
• Font support
• Content Pipeline
• Game save storage
• Networking
• … and much more
Installing XNA Game Studio Express

• Follow instructions on pages linked from:
  ► Also found on Tools page of course website

• Install Visual Studio
  ► Visual Studio is an integrated development environment (editor/debugger/compiler)
  ► Unless you currently use Visual Studio, you want “Visual C# 2008 Express”
    • XNA GSE will work with Visual Studio 2008 Professional if you have that installed instead

• Install XNA Game Studio 3.0
  ► You want version 3.0, the latest version
  ► This is the same version covered by the textbook
  ► Version 3.0 is broadly similar to version 2.0
XNA Creator’s Club

- XNA Creator’s Club Website
  - http://creators.xna.com/
  - Community website for XNA GSE
  - Multiple complete games with source code
  - Many tutorials, and code examples
  - Very active discussion forums

- Creator’s Club Subscriptions
  - Can put game on Xbox 360
  - Access to premium content
  - Costs $49/four months or $99/year

- Trial membership - free
  - Available through Dream Spark or MSDNAA
    - Allows you to put game on Xbox 360
XNA Community Web Sites

• XNA Team Blog
  ► blogs.msdn.com/xna/
  ► Announcements from the XNA dev. Team

• Ziggyware
  ► www.ziggyware.com
  ► Developer-oriented XNA news
  ► Recent contest for XNA tutorial articles
    • Winner: Skeel Keng-Siang Lee’s Introduction To Soft Body Physics

• XNA Development
  ► www.xnadevelopment.com
  ► XNA tutorials. See also the Links page for links to other quality XNA websites
Controllers

• XNA Game Studio Express allows you to use Xbox 360 controllers
  ► Normal Xbox 360 controller is Bluetooth wireless, and is **not recognized** by the Windows Bluetooth manager
  ► Hence, when developing game under Windows, won’t be able to test control scheme (bad)

• To create a game using Xbox 360 controller, need to:
  ► Buy a corded Windows Xbox 360 controller (~$35 + shipping)
    • Google for “xbox 360 controller windows” for multiple online vendors
  ► OR, buy an Xbox 360 wireless gaming receiver (~$20 + shipping)
    • allows wireless controller to work with Windows
  ► Should buy now, so you have it ready for when you start programming

• Can also create a game that uses keyboard input
  ► Would need to change control scheme to port to Xbox 360
Demonstration of Visual C# Express & XNA

• Demonstration of loading, compiling, and running one of the sample games for XNA Game Studio Express
Homework

• Visit Creators Club website
• Download and install
  ► Visual Studio C# 2008 Express
  ► XNA Game Studio Express
• Compile and run one of the sample games
• Read Chapter 1 (Getting Started) in XNA 3.0