Lecture 1

Course Overview
CS/INFO 4152: Advanced Topics

- Sequel to CS/INFO 3152
  - Prereq unless you a non-Cornell Meng (or exempt)
  - Similar format and structure as Intro Game Design
  - Covers topics not touched in Intro Game Design

- Single semester long game project
  - At least 60% of your final grade
  - Interdisciplinary teams of 4-6 people

- Also design documents, but no labs
CS/INFO 4152: Advanced Topics

- Uses familiar the **milestone** schedule
  - Deliverables every two weeks (after week 3)
  - One extra prototype beyond 3152 schedule
  - Details on course website:
    http://www.cs.cornell.edu/courses/cs4152

- Games demonstrated at **Showcase**
  - Like BOOM, open to the public
  - Public reaction is part of your grade
  - Submissions posted on the GDIAC website
Course Structure

- Like *Intro to Game Design* without labs
  - Meets three days a week (M, W, F) 11:15-12:05
  - Time is a known conflict with CS 5152
    - Ross Tate and I think this is a feature, not a bug
- **Lectures:** Common in first half of course
  - Advanced game development topics unique to course
    (this is not going to replace a graphics course)
- **Design Focus:** mechanics, user interfaces and testing
- **Technical Focus:** mobile platforms, memory management
Course Structure

• **Presentations:** Every two weeks
  • In-class critique of your game by your peers
  • Part of your participation grade comes from this
  • Because of class size, held over two sessions

• **Playtesting:** Follows every single deliverable
  • Handled just as in the introductory class
  • Will expect user-test scripts for alpha and onward

• **Other Discussions:** As appropriate
  • **Example:** Code walkthroughs of architecture
Game Requirements

- Must either be **3D** (on PC) or **mobile**
  - 3D groups are pre-approved by me
  - Mobile games must be cross-platform

- Some form of **innovative gameplay**
  - Interface innovation for mobile
  - 3D game should leverage camera control

- Target **public distribution**
  - Mobile apps should try to get on either App Store
3D Games (on the PC)

• Must have team member(s) from **CS 5625**
  • Want technology leveraged from that class
  • Do **not** waste your time on rendering, physics
  • No content means guaranteed **C grade**

• Need artist who can do **3D models**
  • Or get models from public domain source
  • “Outsourcing” is an acceptable option
  • 2D artists should do the other option
Mobile Games

- Preferred platforms are **iOS** or **Android**
  - Primary gaming devices right now
  - Does anyone have a Window’s phone?
- We do **not** provide any hardware
  - New devices are about $230; used are cheaper
  - Just need one device for your whole group
  - Consider it a textbook cost
- Either 2D or 3D is acceptable
  - Will need **OpenGL ES** in either case
Mobile Game Development

- All games should use Cocos2D-X Engine
  - Cross-platform game engine (iOS and Android)
  - Free to use with no licensing restrictions
  - Mature engine with a workable API
  - One game engine makes support easier

- This means working in C++
  - Game developers should learn this anyway
  - Will have lectures, code samples to help you
  - Use a professional IDE: Xcode or Visual Studio
Warning About Cocos2D

- Start of the scene graph fad
- To make design “easier”
- Adopted heavily by Unity

- Scene Graphs are nice
  - Organize sprites as groups
  - Aids animation design
  - Parallax, transitions easy

- But Scene graph != model
  - This is the Unity mistake
  - I will fail your Arch Spec!
iOS Game Development

- Challenging part is getting onto a device
  - Requires an Apple developer membership ($100)
  - Only one team member needs to pay

- We have the University Developer Program
  - Register your device, Apple ID with instructor
  - But limits certain features (e.g. multiplayer)

- Also need a Mac and XCode for development
  - There are four Macs in the new Gates G33 lab
Intellectual Property

- Your **group** retains all ownership
  - You can commercialize it later
  - You can make derivative works
  - Individual ownership is your responsibility

- But Cornell gets a non-exclusive license
  - Non-commercial use of final version submitted
  - We can post this version on our website
  - We claim no other rights to your game
## Semester Schedule

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<thead>
<tr>
<th>Week</th>
<th>Activity</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Form Groups</td>
<td>1/24</td>
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<tr>
<td>Week 2</td>
<td>Group Charter</td>
<td>1/31</td>
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<tr>
<td>Week 3</td>
<td>Concept Document (Project Kickoff)</td>
<td>2/7</td>
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<tr>
<td>Week 4</td>
<td>Nondigital Prototype</td>
<td>2/11</td>
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<td>Week 5</td>
<td>Gameplay Specification Milestone Proposals</td>
<td>2/19</td>
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<td>Week 6</td>
<td>Gameplay Prototype Content Repository</td>
<td>2/23</td>
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<tr>
<td>Week 7</td>
<td>Architecture Specification</td>
<td>3/5</td>
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<tr>
<td>Week 8</td>
<td>Technical Prototype</td>
<td>3/9</td>
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<tr>
<td>Week 9</td>
<td>Document Revisions</td>
<td>3/19</td>
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### Pre-Production

- Week 1: Form Groups
- Week 2: Group Charter
- Week 3: Concept Document (Project Kickoff)
- Week 4: Nondigital Prototype
- Week 5: Gameplay Specification Milestone Proposals
- Week 6: Gameplay Prototype Content Repository

### Development

- Week 7: Architecture Specification
- Week 8: Technical Prototype
- Week 9: Document Revisions
## Semester Schedule

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<th>Week</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Week 10</td>
<td>Alpha Release</td>
<td>3/23</td>
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<tr>
<td></td>
<td><em>Spring Break</em></td>
<td></td>
</tr>
<tr>
<td>Week 10</td>
<td>Code Walkthroughs</td>
<td>4/9</td>
</tr>
<tr>
<td></td>
<td>Level Design</td>
<td></td>
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<tr>
<td>Week 11</td>
<td>Closed Beta Release (Feature Complete)</td>
<td>4/13</td>
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<tr>
<td>Week 12</td>
<td>App Store Proposal</td>
<td>4/23</td>
</tr>
<tr>
<td>Week 13</td>
<td>Open Beta Release (Open Playtesting)</td>
<td>4/27</td>
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<tr>
<td>Week 14</td>
<td>Final Portfolio Postmortems</td>
<td>5/6</td>
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<tr>
<td>Week 15</td>
<td>GDIAC Showcase</td>
<td>5/15</td>
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**Development**

**Release**
Group Management

• Every group has a **project leader**
  • Final say in all *design decisions*
  • Coordinates designers and programmers
  • Responsible for milestone reports

• Every group has a **lead programmer**
  • Responsible for the *code architecture*
  • Responsible for maintaining code base
  • Delegates coding tasks to others
Help Outside of Class

- Must meet as a group for 1/hour a week
  - Pick a regular time and place
  - Submit as part of your group charter

- Will serve as a form of “office hours”
  - The instructor will come if invited
  - Use for “just-in-time” instruction
  - Algorithms/techniques unique to your group

- Will also be using Piazza this semester
Grading Policy

• Mixture of **group** and **individual** grades

• Group grades are same for all group members
  • Group Game Grade (30%)
  • Course Documents (30%)
  • Class presentations (5%)

• Individual grades distinguish group members
  • Individual Game Grade (30%)
  • Participation (5%)
Game Grade

- Group grade reflects the game quality

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<th>Criteria</th>
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<td>A</td>
<td>Bug-free, Fun-to-play</td>
</tr>
<tr>
<td>B</td>
<td>Complete and playable</td>
</tr>
<tr>
<td>C</td>
<td>Complete but unplayable</td>
</tr>
<tr>
<td>D/F</td>
<td>Serious delinquencies</td>
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- Individual grade represents contribution

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<tr>
<td>&gt; Group</td>
<td>Visionary, group MVP</td>
</tr>
<tr>
<td>= Group</td>
<td>Good attitude, hard worker</td>
</tr>
<tr>
<td>&lt; Group</td>
<td>Produce negative work</td>
</tr>
<tr>
<td>D/F</td>
<td>Abandon the group</td>
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</tbody>
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This Week

• Set up your **Cocos2D-X** build environment
  • Download SDK and set it up for your IDE
  • Download demo from the course website
  • Use Piazza if you are having problems

• Lectures on **game mechanics**
  • Reviewing what you forgot from CS/INFO 3152
  • Augmented with advanced topics next week
  • Getting you ready for the **Concept Document**
Next Week

- **Pitch Session** next Wednesday, Friday
  - 5-10 minute “elevator pitch” for your game
  - Practice with short, concise description
  - Practice, feedback for Concept Document

- **Group Charter** due at end of the week
  - We are going to be a bit more involved about this
  - Want rules of how you interact with each other

- **Concept Document** due in two weeks
  - Slightly different format from Intro course
  - See website for more information