Foundations of Interactive Game Design (80K)

week two, lecture two
Today

• Quiz
• Prior 80K game demo
• Some information / reminders
• Game themes
• Mechanics, dynamics, and aesthetics
• Game demos
• What’s coming up
Quiz
Which is *not* a key element of the jumping mechanic in *Pitfall!*?

**A:** Continuous space  
**B:** Character animation  
**C:** Real time  
**D:** Moving away from gravity  
**E:** None of the above
What is not a core mechanic of Super Mario Bros.?

A: Running
B: Jumping
C: Walking
D: Fireballs
E: None of the above
Which is *not* an assignment due in section next week?

A: Game concept

B: Tutorial #2

C: Mechanics analysis

D: Team selection

E: None of the above
Demo:
2 Players, 1 Keyboard
by William Lee & Derek Mueller
Reminders / Information

Depending on how new you are to class & to SoE classes
Course Web Pages

CMPS80K, Spring 2012, Section 01: Home

Home > Courses > CMPS80K

Foundations of Interactive Game Design, S12
CMPS 80K Spring 2012
Lecture: M/W/F 2:00-3:10pm, Media Theater M110
Section locations: Ming Ong & Social Sciences 1
Website: https://courses.soe.ucsc.edu/courses/cmps80k/Spring12/01

About This Course
This course focuses on the elements that make computer games compelling — from their rules and simulated worlds to their stories and social experiences. Over the quarter, students will collaborate in two-person teams to design a working computer game. Students in the course will be able to check out game consoles (NES, SNES, N64, PS2, Wii, XBox 360, PS3) and notable games from the Science and Engineering Library. Readings will include work by influential game designers and game studies theorists. Lectures are designed to invite student discussion. The course labs will teach the use of the Game Maker game development environment, as well as provide a place to discuss design ideas, game analysis concepts, and related subjects. No programming experience is necessary.

Materials
- Book: Game Design Workshop, Second Edition by Tracy Fullerton
- Clicker: i>Clicker for quizzes in lectures (available at campus bookstore, must be registered by second class)
- Software: Game Maker 8.1, Full version recommended (current version is Windows only — Mac edition based on older version — also available in campus labs, has run well on Macs under Boot Camp or VMWare Fusion)

Sections and TAs
Mon 4:00 PM - 5:45 PM Aaron
Mon 6:00 PM - 7:45 PM Aaron
Tue 6:00 PM - 7:45 PM Julia

Instructors and Assistants
- Noah Wardrip-Fruin (Instructor)
- Eric Kaltman (Assistant)
- Julia Charlotte Fidelma Kelly (Assistant)
### CMPS80K, Spring 2012, Section 01: Schedule (Calendar View)

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<td>Introduction to sections and Game Maker. Sprites, sounds, objects, events, and rooms.</td>
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**Read:** Fullerton chapter 1 (Role of the Game Designer)
CMPS80K, Spring 2012, Section 01: Schedule (List View)

Monday, April 2, 2012

02:00 PM
Location: Media Theater M110
Class introduction. Slides will be posted on "Slides" page later this week.

04:00 PM
Location: Weekly Section Meeting (Ming Ong or Soc Sci 1)
Introduction to sections and Game Maker. Sprites, sounds, objects, events, and rooms.
Assigned: Game Maker tutorial #1 (the fruit tutorial built into GM). Minimum customization: finish tutorial and add an additional challenge. If you can: change the rules (adding whatever you need) to make a better game. Due week 2.

Wednesday, April 4, 2012

02:00 PM
Location: Media Theater M110
Due: Have registered clicker at iclicker.com

Friday, April 6, 2012

02:00 PM
Location: Media Theater M110
Read: Fullerton chapter 1 (Role of the Game Designer)

Monday, April 9, 2012

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CMPS80K, Spring 2012, Section 01: Schedule

Date/Time: 04/16/2012 04:00 PM
Location: Weekly Section Meeting (Ming Ong or Soc Sci 1)

Discussing game design concepts, physical prototyping, and GM tutorial lecture. Physical prototype and storyboard help session.

Due: Team selection for game design projects (collected)
Due: One page mechanics analysis (collected)
Due: Game Maker tutorial #2, customized. Graded in section

Assigned: Core concepts and physical prototypes for game design projects, due week 4
Overview
Just as filmmakers learn to watch film differently — seeing the structure of shots — and writers learn to read differently, game designers learn to play differently, seeing the structure of the games they play. Two of our class assignments are aimed at this. First, you will write a brief analysis of the mechanics of one game. Just learning to see and analyze game mechanics is important. However, many times, the unique qualities of a game are only apparent when contrasted with other similar games, or with earlier or later games in the same series. In the second assignment, you will compare and contrast at least three games to better understand their game design.

Of course, correct spelling and grammar are expected. Assignments not written at a college level of expression will be returned without grade for revision. Assignments must be typed, and submitted printed out on paper in section. Handwritten assignments will be returned without grade for resubmission. Emailed assignments will be returned without grade for resubmission in section. Assignments must be original, and in your own words. You must properly cite all quotations, including those from web sites.

One Page Mechanics Analysis
For this assignment, choose a game, then identify and describe at least three mechanics of the game. Argue for at least one of them as a “core mechanic” of the game. For extra credit, argue for dynamics that arise from one or more of the mechanics you identified. (Game mechanics, dynamics, and aesthetics will be covered in class lecture.)

For example, if you were writing about chess (which you can’t, because I’m doing it here) you could identify “defined, differentiated, and turn-based piece movement,” “capture by ending your turn on a space occupied by an enemy piece,” “checkmate,” and “castling” as mechanics. You could argue that the first two are core mechanics and that they result in a dynamic of “projecting force across the board” (because enemies avoid any space to which the other could potentially move a piece).

When doing this assignment, a good idea would be to check out from the library a game that interests you for your multi-game analysis essay (see below) and spend some time the first week of class playing it attentively, making notes you can use for your full paper in addition to this assignment.

Another good idea is to choose a game for this assignment that uses mechanics related to the game you hope to build for your class game project. Deeply analyzing a game with related mechanics will be very helpful when designing and iterating your own game.

This assignment should be one page, or roughly 400 words.

Essay
For this assignment, you are to pick three games to compare — including one that you check out from the Science and Engineering Library’s game collection. (More on the collection below.)

These games should either all belong to the same genre (i.e., three shmups, platformers, or text-based interactive adventures) or all belong to the same platform (i.e., three games for the same console). You must include a title page and a works cited page. Unidenified quotes will reduce your grade.

The games should also have a similar setup. (For example, all three should be one player, all should be of similar difficulty, etc.)
Overview

Creating a novel game is your main project for 80K. Making a game is getting easier and easier, thanks to tools like Game Maker. The result is new venues for distributing games, new audiences for games, and new expectations for people who want to work making games. To stand out, beginning game creators need to be able to explain what makes their game interesting in 30 seconds and demonstrate these features of the game in three minutes. These are the kinds of games you’ll be creating in this course.

Creating games is also one of the most powerful ways to develop a deeper understanding of games. Part of this is technological, of course — coming to understand the roles played by high-level processes like collision detection as well as basic computer science concepts like variables. But it is also true for games as a medium: seeing from your own experience how rules, mechanics, assets, and other elements are combined and tuned to create experiences of audience play and simulated worlds.

In 80K each game will be created by a two-person team, with both members in the same section. Our game-creation tool is Game Maker. The main requirement for your game is that it use mechanics in a new way. You can accomplish this in two ways:

1. First, you can do something innovative with the mechanics themselves. For example, a game like Orbient takes something that exists in many games (simulated gravity) and repurposes it as the main navigation mechanic. In a different approach, a game like Mass Effect takes something that operates in many RPGs (dialogue trees) and creates a new user interface mechanic for it. Or a game like Prince of Persia: The Sands of Time or Braid takes a standard set of mechanics (for platforming and combat) and layers another set on top (for manipulating time) — and these two games show how a similar-sounding innovation can be executed in more than one, distinct, innovative manner.

2. Second, you can take a standard set of mechanics and use them in a new context. A game like Disaffected! takes standard service game mechanics and moves them into a disgruntled copy shop. Similarly, American McGee’s Alice uses standard action game mechanics in a dark, surreal world inspired by Alice in Wonderland. And Dys4ia uses common minigame structures to communicate a personal struggle.

We’ll talk extensively about game mechanics over the course of the quarter.

Team selection

Due in section week 3.

The goal of this assignment is for you to form a team of exactly two members that will develop your game project. Both members should be in the same section of 80K. If an exception to this is necessary, please consult your section TA.

A common source of problems with student teams is lack of communication. To help address this, each team member will provide a weekly team progress report. This report should be 1-2 pages long and describe the team’s progress toward completing the project. Reports will be due by the start of class on the due date and will be turned in as a single PDF file.

We will hold a meeting to discuss the state of projects and teams in section 01.

Additional Resources

- Game Maker: http://www.gamedev.net"

Additional Information

- Course Policies: http://www.cs.ucsc.edu/courses/cm80k/spring12/policies.html
- Course Grading: http://www.cs.ucsc.edu/courses/cm80k/spring12/grading.html
- Lecture Slides: http://www.cs.ucsc.edu/courses/cm80k/spring12/lectures.html
- Additional Resources: http://www.cs.ucsc.edu/courses/cm80k/spring12/resources.html
- Log In / Register: http://www.cs.ucsc.edu/courses/cm80k/spring12/register.html
## CMPS80K, Spring 2012, Section 01: Forum

### Announcements

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<th>Replies</th>
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### Topics

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<td>04/10/2012 09:55 PM (Jherna38)</td>
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<td>Looking for a partner, Wednesday section</td>
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<td>Help with syllabus and getting up to date</td>
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CMPS80K, Spring 2012, Section 01: Making Contact

Making contact:

- Course issues and questions. Questions about course issues and assignments should start at the class forum. (Do not post phone numbers or other personal information to the forums, which are publicly available.) First check to see if a question like yours has already been answered. If it has not, and your question does not raise privacy concerns, post it. If you have a question that requires privacy, or if you are not able to get a satisfactory answer through the forums, ask the TA for your section directly. Sending email and coming to office hours are the best routes. If necessary, you can also ask questions during the office hours of one of the other TAs.

- Contact timing. If you have a question about an assignment, please ask at least 48 hours before the assignment is due. With a class this size it isn't possible to answer large amounts of last-minute email, or see a large number of students in the final office hours before a deadline.

- Contacting the professor. To contact the professor directly, the easiest route is to attend his office hours. Given the large size of the class, please do not email the professor directly unless you have an issue you cannot discuss with your section TA (such as a dispute with your TA).
CMPS80K, Spring 2012, Section 01: Course Policies

Course Policies

Illness or emergency. The UCSC health center does not provide medical excuses. In recognition of this, you should simply email your TA before any lecture or lab meeting that you are too ill to attend. Every student, regardless of illness, will have their two clicker quizzes with the lowest grade dropped from the grading process. If you miss more than one quiz due to illness, please contact your TA. Similarly, if an assignment will be unavoidably late due to illness, please contact your TA. The same policies apply for family emergencies, transportation failures, and so on.

Accommodations. If you qualify for classroom accommodations because of a disability, please submit your Accommodation Authorization from the Disability Resource Center (DRC) to the professor during his office hours in a timely manner, preferably within the first two weeks of the quarter. Contact DRC at 459-2089 V, 459-4806 TTY, http://drc.ucsc.edu/.

Academic integrity. Of course, academic integrity is expected of all students. Operating another student’s clicker is academic dishonesty and will be reported to your college for disciplinary action. All answers on quizzes should come from your memory of course material. All ideas and writing in the multi-game analysis should be yours unless credited to others (and properly cited). All project work presented as yours should be carried out by you. And so on.

Team problems. If you are having issues with your project partner, please let your TA know as soon as possible. Learning about working together as a team is an important part of this course — and learning isn’t always easy. In general, the following policies apply.

First, if partners want to swap in the first few weeks of the project, that’s fine as long as everyone is happy with the swap.

Second, if teams want to break up in the first few weeks (without a mutually agreed swap that ends up with two-person teams) there needs to be a clear reason. (For example, one team member refusing to do their share of the work, even after direct discussion of the issue.) Whatever the reason is, it needs to be established to the satisfaction of the TA, presumably through meeting with the TA at office hours. When a team breaks up for this kind of clear reason, the former team members can join existing teams (though three-person teams are held to higher standards), form new two-person teams, or in rare cases do a solo project (with lower expectations).

Third, after the first few weeks, teams are fixed (unless one member drops the class, leaves school, etc). However, if your partner is not pulling their weight, you should still let a TA know. We may be able to meet with you to intervene, and we may also be able to do differential grading (which will not be possible if you complain after the project is done).
CMPS80K, Spring 2012, Section 01: Lecture Slides

PDFs of lecture slides will be posted within a few days after each lecture.

Attachments

- 80k-s12-w1-l1.pdf, application/pdf, 608,153 bytes
- 80k-s12-w1-l2.pdf, application/pdf, 781,457 bytes
CMPS80K, Spring 2012, Section 01: Additional Resources

There are resources here for the class.

Attachments

- 80k-tutorial2-resources.zip, application/zip, 146,906 bytes
Back to game mechanics
Mechanics operate in worlds — usually with themes
Robot Unicorn Attack, Scott Stoddard and Adam Ford, 2010
Robot Unicorn Attack

• Mechanics: forward movement is continuous, like Canabalt, otherwise standard platformer

• World: Focus on potential “paths” and when obstacles are revealed

• Theme: Goofy sendup of “epic journey against adversity” — lots of failure, but it feels insignificant
Limbo, Arnt Jensen, Jeppe Carlsen, et al, 2010
Limbo

- **Actions:** walking, jumping — also swinging, dragging, pushing (weak/ordinary jump)
- **World:** relatively precise jumps, deadly, but more puzzling than dexterity
- **Theme:** also a journey, but to what end is slowly revealed
Robot Unicorn and Limbo

- Both are about traveling through a space
- Both involve not knowing what comes next, then knowing and playing differently
- In one case we play differently by being able to “react to what hasn’t yet been revealed”
- In the other case we try different solutions to puzzling situations
- These mechanics work for these themes
Can any theme work with a platformer?
Congo Jones and the Loggers of Doom,
To consider theme further, we need more than mechanics.
Building from mechanics

• A core mechanic of Chess is piece *movement*

• The fact that movement is turn-based is very important

• So is the fact that pieces move in defined ways that are different from each other

• This interacts with the *capture* mechanic — ending a movement on the same space as an enemy piece

• This produces *dynamic* of projecting force
Core mechanics of Poker

- Shuffling (randomizing) cards & giving fixed number to each player — maybe # shared
- Betting based on partial information of random situation (only own hand is known) in turns, possibly folding
- Getting (& perhaps giving up) cards, in turns
- Betting/folding in new partial info state
- Revealing hands, fixed rank of combinations
What kind of game is Poker?
Is it a game of chance, acting, or reason?

- Random cards
- Hidden and limited information, but more for player who goes last each turn
- Bluffing and other pretending
- Reasoning about hands of others (fixed, non-repeating set of cards, seeing behavior)
- Playing the long-term numbers, not the individual hand
Dynamics of poker

• A lot of luck — and maybe a lot of acting and reasoning

• The luck leads to peaks and valleys — getting punished & punished for good play, then rewarded & rewarded for bad play

• Game exploits our non-logical behavior (behavioral economics). Novice players lose more the more hands they win — weighing frequent small gains over large losses
Aesthetics of poker

- A wild ride on moment to moment chance
- combined with the absolute need to stay focused on reasoning about the current situation to improve long-term odds
- while you try to mis-signal other players and get them caught up in emotion
Aesthetics of poker

• The aesthetics are about the interplay of cool reason, human emotion, and the random world

• It’s three kinds of fun mixed together!

• Frank Lantz: One of the roots of formal game theory, which taught us that nuclear war is unwinnable

• Poker maybe saved the world!
Upcoming

• Read Fullerton chapter for Friday
• Team selection document due next week
• One page mechanics analysis next week
• Tutorial #2 next week