Comp 388/488 - Game Design and Development

Spring Semester 2018 - Week 1

Dr Nick Hayward

course details

Lecturer

- Name: Dr Nick Hayward
- Office: Doyle 307 (LSC)
- Office hours
  - *Monday afternoon by appointment (LSC)*
- Faculty Page

Course schedule

Important dates for this semester

- DEV week: 5th to 12th March 2018
  - *presentation & demo: 16th March 2018 @ 2.45pm*
- Spring Break: 5th to 9th March 2018
  - ***n.b.*** *no formal class: 9th March 2018*
- Easter holiday: 29th March to 2nd April 2018
  - ***n.b.*** *no formal class: 30th March 2018*
- Final class: 27th April 2018
  - *presentation & demo: 27th April 2018 @ 2.45pm*
- Exam week: 30th April to 5th May 2018
  - *Final assessment due on 4th May 2018 by 2.45pm*

Coursework outline

- assessment will include a combination of semester's quizzes or exercises, DEV week, and final demo and report
- DEV week demo
  - *brief group presentation or demo*
- final demo
  - *presentation, online demo, video overview...*
- final report
  - *clearly detail design and development process*
  - *explain implemented differences from DEV week*
  - *where and why did you update the game?*
  - *benefits of updates*
  - *...*
- work may be conducted individually or in groups (max. 5 persons per group)
  - *group report must clearly define each student's work and contributions, where applicable*
  - *no attribution, no mark*

Coursework - part 1

40% of final grade

- at least one week notice before quiz
  - *average time ~40 minutes (can be extended if necessary...)*
  - *taken towards the end of a class*
- exercises, playtesting...
  - *help develop course project*
  - *test course knowledge at each stage*
  - *get feedback on project work*
- extras
  - *code and game reviews*
  - *class discussions*
  - *various other assessments*

Coursework - part 2

(up to ~ DEV Week)

30% of final grade

design a game, which may be played by at least one person

- choose a game genre
  - *why did you choose this genre?*
- outline game theme and story
  - *what is it about?*
  - *what is the purpose of the game?*
  - *outline script for the game*
- outline mechanics of game play
  - *detail options, logic...*
- show storyboards and initial designs
  - *storyboards, mockups, prototypes...*
- show working example
  - *where applicable...*
  - *detail what does and does not work...*
- **language choice**
  - *please contact me to discuss your chosen programming language for this game's design and development*

Coursework - part 2 continued

DEV week assessment will include the following:

- brief presentation or demonstration of current project work
  - *~ 10 minutes per group*
  - *analysis of work conducted so far*
  - *eg: during semester & DEV week*
- presentation, demonstration, or video overview...
  - *outline current state of game*
  - *show prototypes and designs*
  - *explain what works & does not work*
  - *...*

Coursework - part 3

(Up to the end of the semester)

30% of final grade

- final design of game from DEV week...
  - *continue to develop your group's game concept*
- working game (as close as possible)
- explain choices made in the design and development
  - *initial choices*
  - *final implementation choices, options, patterns...*
- show and explain implemented differences from DEV week
  - *where and why did you update the game?*
  - *how did playtesting influence your updates and designs?*
  - *perceived benefits of the updates?*
- how did you respond to feedback from DEV week and onwards...

Coursework schedule

- DEV Week demo
  - *due Friday 16th March 2018 @ 2.45pm*
- final team demo
  - *due Friday 27th April 2018 @ 2.45pm*
- final team report
  - *due Friday 4th May 2018 @ 2.45pm*

Assignments and coursework

Coursework will include

- quizzes, group exercises, discussions... (Total = 40%)
  - *based on course notes, reading, and examples*
- development and project assessment (Total = 60%)
  - *mid-semester assessment (Total = 30%)*
    - presentation & demo of DEV week assessment
    - associated summaries and group work...
  - *final assessment (Total = 30%)*
    - demonstration of final assessment
    - final assessment report

Course grading

Grades will use the following scale,

- 100% to 91% = A
- 90% to 81% = A-
- 80% to 71% = B+
- 70% to 61% = B
- 60% to 51% = B-
- 50% to 41% = C
- 40% to 31% = C-
- 30% to 0% = F

Goals of the course - part 1

- a practical introduction to Game Design and Development
- underlying concepts introduced and demonstrated
  - *particular focus on working examples*
  - *focus on playtesting games...*
- gain practical experience of design and development
  - *applied weekly*
  - *part of project-based assessment*
- exposed to many and various types of games and gaming
  - *different environments*
  - *across multiple genres*
- offer a combination
  - *technical concepts and development*
  - *awareness of aesthetic requirements*
  - *cultural perspectives*
- how to create
  - *well-rounded games*
  - *performant games and gaming environments*

Goals of the course - part 2

- introduction to concepts and work roles in game design and development
- introduction to history of game design and development
- leading designers and examples
- practical methods for design...
- review games, stories, characters...
  - *classic and retro*
  - *genre examples*
  - *game franchises and stories*
- **play and test lots of different games...**

Course outcomes

- introduction to world of game design and development
- preparation for further specific game study and development
- ...

Course structure

Course will include

- weekly bibliography and reading (where applicable)
- weekly notes, examples, extras...
- sample games
- suggested playtesting
- discussions...

Course resources

Website

- course website is available at https://csteach488.github.io
  - *timetable*
  - *course overview*
  - *course blog*
  - *weekly assignments & coursework*
  - *bibliography*
  - *links & resources*
  - *notes & material*

n.b. No Sakai

GitHub

- course repositories available at https://github.com/csteach488
  - *weekly notes*
  - *examples*
  - *source code (where applicable)*

Trello group

- Trello group available at https://trello.com/csteach488
- project groups, weekly assignments, organise research and development...

Group project

- add project details to course's Trello group
  - *Week 1 - Project Details*
- create channels on Slack for group communication
- start working on an idea for your project
- plan weekly development up to and including DEV Week
  - *5th to 12th March 2018*
  - *presentation & demo: 16th March 2018 @ 2.45pm*

Group project - game requirements

- **NOT** a simple clone of an existing game...
- examples of innovative gameplay
  - *does not have to be unique or original*
  - *might be a interesting twist or variant on an existing mechanic, option, concept...*
- might use elements from various other games, genres...
- must be realistic and feasible in one semester
  - *focus on core concept for DEV week*
  - *refine concept, design, gameplay for Final project*
  - *expand game if time permits*
- **Must** have a single player option
  - *playtesting requirements...*
- genre, theme, story &c. are your choice
- game may target different devices - your choice
  - *e.g. desktop, mobile, web, console...*
  - ***Must** be playable in class environment for testing &c.*
- code for game **must** be available for download, testing
  - *i.e. we **must** be able to read, edit, and **play** the game*

n.b. programming language for game development is open to negotiation

Game milestones

- aim for milestones in project development
  - *correspond to weekly Trello assignments*
  - *help guide development of game*
  - *provide structured progression to development, testing...*
- milestones to DEV Week include:
  - *outline of game concept, story, characters...*
  - *initial storyboards for path through game level, world, environment*
  - *gameplay prototype, technical prototype*
  - *alpha code demo*
- milestones to Final demo include:
  - *refine alpha code demo*
  - *beta code demo*
  - *final playtesting*

Playtest sessions

- various sessions throughout semester
- sample games, demos, storyboards...
- chance to play and test various games
- break, critique games
  - *published*
  - *project games*
- offer feedback, comments on each other's games
- prepare examples during the semester
  - *outlines, flowcharts...*
  - *storyboards*
  - *prototypes*
  - *playable components*
  - *demo levels and features...*

Trello - documentation

- weekly assignments to help guide documentation and preparation
- documentation for each stage of game development
  - *pre-production and concepts*
    - initial outline and concept for game and play
    - succinct breakdown of game concept
    - helps to get started quickly, & then iterate...
  - *gameplay specification*
    - detailed outline and concept of gameplay
    - include formal design elements outlined throughout the semester
    - updated throughout the semester...relative to course material
  - *report updates on general progress*
  - *development architecture and specifications*
    - various outlines of software, requirements, general organisation
  - *gameplay manual and guide*
    - final description of game and gameplay
    - general instructions on gameplay
    - any required story outline, background information...
  - *final report*
    - opportunity to finalise documentation
    - report on project successes, failures...
    - what works, doesn't work
    - future developments and improvements
    - final report on testing
    - summary of project

Intro - games and simulations

changing the brain game

> *"The immense amount of time spent with games during a child's formative years has led them to be literally 'hardwired' in a different way than those who came before"*

Carstens, A., and Beck, J. 2005. "Get ready for the gamer generation." Tech Trends 49. PP.22-25.

> *"Immense changes in technology over the past thirty years, of which video games are a major part, have dramatically and discontinuously changed the way those people raised in this time period think, learn, and process information...The change has been so enormous that today's younger people have, in their intellectual style and preferences, very different minds from their parents and, in fact, all preceding generations"*

Prensky, M. 2001. "Digital game-based learning." McGraw-Hill. P.17.

changing the brain game

Prensky (2001) recommends,

- fast-paced to exploit 'twitch speed' information processing capabilities
- emphasis on high player control and multiple tracks
  - *leverage greater multitasking abilities*
- actively engage participants
  - *highly visual environments*
  - *encourage learning by exploration*

Intro - games and simulations

what is a simulation in a gaming context?

what are simulations?

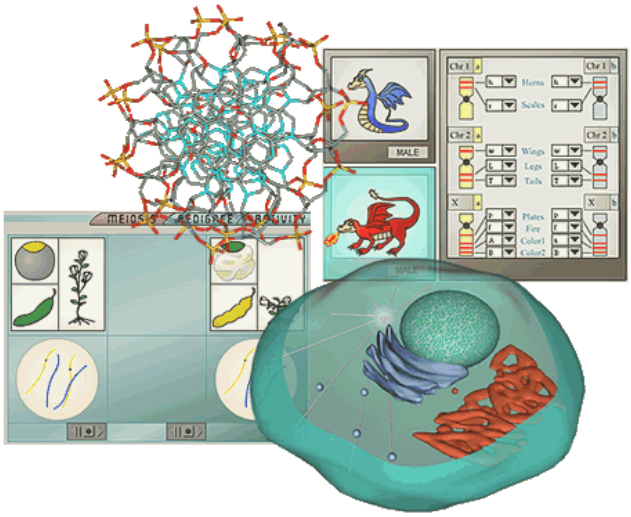
- linear interactive tutorial versus a simulation
- model of a real world system
  - *respond in dynamic and rule-based ways to user responses*
- two basic types of simulation
  - *operational and conceptual*
- operational primarily used to teach procedural skills
- conceptual simulations

Intro - games and simulations

what are games?

- games include a broad array of formats and features
- common elements such as
  - *competitive activity with a challenge and goal*
  - *set of rules and constraints*
  - *specific context*

Image - Dragons and Genetics I



Games and learning with dragons

- BioLogica - Legacy

Image - Dragons and Genetics 2

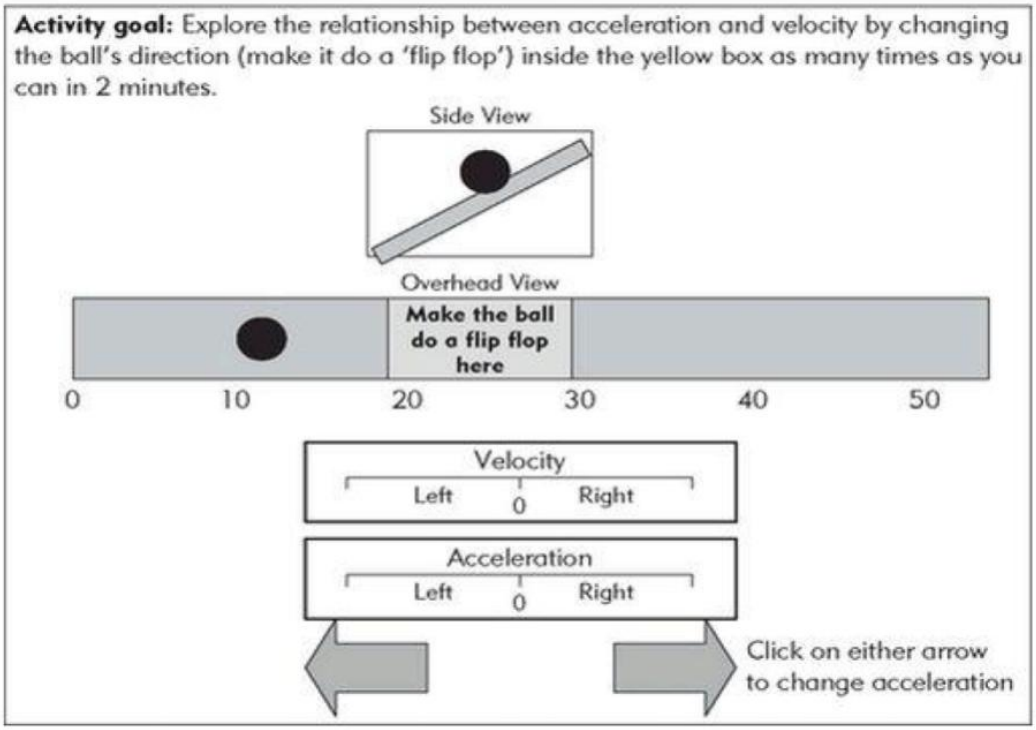
Games and learning with dragons 2

- BioLogica - Current

Video - Dragons and Genetics 3

- Geniverse - Explore heredity and genetics by breeding and studying virtual dragons

Image - Games, Teaching, Abstraction...



Games - flip flop

- Rieber, L.P. 2005. "Multimedia learning in games, simulations, and microworlds." The Cambridge handbook of multimedia learning. Cambridge University Press.
- Hays, R.T. 2005. "The effectiveness of instructional games: A literature review and discussion." Technical Report 2005-004. Washington.

A bit of fun - The Oregon Trail

I need ONE leader, and FOUR volunteers

- The Oregon Trail - Wikipedia entry
- The Oregon Trail - Play Online

Intro - games and simulations

match game to learning goal

- Strategy, Family, Role Play, Adventure, Other...
  - *Entertainment Software Association*
- effective games and simulations for e-Learning should align features, goals...with desired instructional outcome
- Oregon Trail games appropriated by children
- Physics game counter-productive to the given physics principles
- is this inherently a bad thing?
  - *from a learning perspective - Yes*
  - *gaming perspective - No*
- transference not a bad thing...
- playtesting helps resolve many issues...
  - *shift in focus from developer and designer to players*

Intro - games and simulations

match game to learning goal

> *"Jeopardy-style games, a staple of games in the classroom, are likely to be best for promoting the learning of verbal information (facts, labels, and propositions) and concrete concepts. Arcade-style games..." (P.22)*

Van Eck, R.N. 2006. "Digital game-based learning." Educause Review 41. PP.17-30.

Games

- The Oregon Trail - Wikipedia entry
- The Oregon Trail - Play Online

References

- Carstens, A., and Beck, J. 2005. "Get ready for the gamer generation." Tech Trends 49. PP.22-25.
- Hays, R.T. 2005. "The effectiveness of instructional games: A literature review and discussion." Technical Report 2005-004. Washington.
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