

**UNIVERSITY OF WATERLOO**  
**Cheriton School of Computer Science**

**CS499R/PSYCH482/CS798**

**Games for Health**

**Winter 2016**

**Course Administration**

Course coordinator: Chrysanne Di Marco, Davis Centre 1308, [cdimarco@uwaterloo.ca](mailto:cdimarco@uwaterloo.ca)  
Workshop assistants: Games Institute researchers (TBA)

Course time and location: Fridays 12:00–1:50, DC1316

Note: Exceptions will be announced in-session and posted on the course website.

Course website: <http://www.cs.uwaterloo.ca/~cdimarco/cs798w16>

**Course Description**

The Winter 2016 Games for Health course is an individual and group reading course, research seminar, and game design course that will review the current major applications of games in healthcare. Readings will cover the major fields in healthcare where games are being used. Case studies will survey a representative set of current health-related games, from best-practices to examples indicating just how far this field has yet to develop.

**Coursework**

The coursework includes: a game design project and poster presentation, in-class game-design workshops, paper presentations, case study reviews, and class discussions. Presentations and case studies will be done alone or by a two-person team (see Grading Breakdown below for more details).

The project will involve the design of a health-related game prototype (board, card, paper, or digital). The project may be done by a team of one to four persons.

**No programming will be required**, although students may take their game design further towards a working implementation if they wish. However, project marks will not be based on implementation. Full marks may be obtained for a paper prototype. Students are encouraged to tailor the project to their interests about various aspects of game design, their academic backgrounds, and individual expertise.

**Auditing the Course**

Auditors are welcome if there are extra seats in the seminar room.

## Course Objectives

By the end of this course students should have a good understanding of the current major topic areas for health-related games, an appreciation for what makes for good “gamification” in healthcare, and the ability to apply good game design principles in healthcare applications.

## Recommended Background

There are no formal requirements other than interest in the topic and ability to read and analyze technical material. Some pre-existing knowledge of popular video games would be helpful but is not necessary. Background in other relevant fields (e.g., psychology, health sciences, narrative, art, design) may also be useful. Multidisciplinary teams are encouraged. Course staff will assist with team formation.

## Grading Breakdown

- Course project (60% of final grade):
  - One-page project proposal (5%)—due Friday February 5
  - In-class design workshops (10%)—Jan 29, Feb (TBA), March 11
  - Poster presentation (10%)—(TBA)
  - Project draft design document—for feedback only
  - Final project design document (35%)—due Friday April 1
- Presentations of papers and case studies (30% of final grade)
  - **Graduate students:**
    - \* 5 presentations are required (25% of the final grade)  
At least 2 presentations must be done individually.  
3 additional individual or team presentations are also required.
    - \* Additional essay (5% of the final grade)  
An in-depth individually written “thinkpiece” on some aspect of games for health (1000–1500 words)
  - **Undergraduate students:**
    - \* 3 team presentations are required.
    - \* Optional Bonus “thinkpiece” essay  
(1000–1500 words, up to 5% of the final grade)
- Participation (class discussions, workshops, weekly attendance) (10% of final grade)

## **Course Texts and Recommended Resources**

All readings will be available either on the course website, from the course coordinator, or electronic versions from University of Waterloo Library Course Reserves.

**Note: Instructions for accessing our course library e-reserves will be posted on the course website.**

### **Texts**

Jane McGonigal, *Reality is broken: Why games make us better and how they can change the world* Penguin Books, 2011

S. Arnab, I. Dunwell, and K. Debattista (editors), *Serious games for healthcare: Applications and implications* IGI Global, 2013

K. Bredl and W. Bosche (editors), *Serious games and virtual worlds in education, professional development, and healthcare* IGI Global, 2013

B. Schouten, S. Fedtke, T. Bekker, M. Schijven, and A. Gekker (editors), *Games for health: Proceedings of the Third European Conference on Gaming and Playful Interaction in Health Care* Springer, 2013

Jesse Schell, *The art of game design: A book of lenses* CRC Press, second edition, 2014

Jesse Schell, *The art of game design: A deck of lenses* Schell Games, second edition, 2014 (cards to accompany the book)

### **Other useful resources**

Games for Health Organization and Conference (<http://www.gamesforhealth.org>)

Game Developers Conference (<http://www.gdconf.com>)

Serious Play Conference (<http://www.seriousplayconference.com>)

Jane McGonigal's website with sample serious games: <http://janemcgonigal.com/>

## **Project Guidelines**

The course project will involve the design of a paper or digital prototype of a health game. Students who wish to take their project further towards a working game may submit an extended prototype, but this is entirely optional. Full marks may be obtained for a paper prototype. Project marking will not be based on implementation.

### **Getting started with an overview**

- 2010 talk by Jesse Schell (major game designer, involved in health games):  
[http://www.ted.com/talks/jesse\\_schell\\_when\\_games\\_invade\\_real\\_life?](http://www.ted.com/talks/jesse_schell_when_games_invade_real_life?)

- 2014 review of the current state of games for health:  
<https://mobihealthnews.com/34303/in-depth-burgeoning-opportunities-in-health-gaming/>

### **Project requirements**

1. One-page proposal (due Friday February 5).  
 Give a short description for each of these criteria for your proposed game:
  - Overview of your Game Concept: what is unique or innovative.
  - Health problem the game will address.  
 Why is this problem not well-addressed by the healthcare system?
  - Methodologies, theories, tools, etc. your prototype will draw on.
2. In-class game-design workshops (Jan 29, Feb (TBA), March 11).  
 Participation in workshops counts for part of overall class participation mark.  
 Specific workshop deliverables will be announced closer to the dates.
3. Poster presentation (TBA).  
**Note: The poster presentation may be held as an informal public event at the Games Institute.**
4. Draft Design Document (1500–2000 words, due date to be negotiated)
  - (i) Review and update your Game Concept, following up from discussions with Games Institute researchers, the CAMH Education Services team, and our other collaborators.
  - (ii) Focus on the game mechanics: describe the interactions.
  - (iii) How do the game mechanics foster “progressive gameplay”, i.e., move the game along.
  - (iv) Tie together the progressive gameplay with assessment—how does this in turn lead to the desired health outcomes?
  - (v) How does the game play out to the end? What does it mean to “win”?  
 Or, what is the reward structure in your game?
  - (vi) Optional (if your game concept relates to these aspects):
    - Description of the Avatar, and other Characters.
    - Technical specifications (e.g., wearable sensors).

5. Final Design Document (3000-4000 words, due Friday April 1):
- Overview of Game Concept (updated from your initial proposal).
  - Behaviour change and other desired health-related outcomes.
  - Tying assessment to gameplay.
  - Gameplay structure/strategy (e.g., levelling-up).
  - Gameplay mechanics (e.g., player actions; how game progresses).
  - Description of Avatar (if any) and other Characters (if any).
  - Reward structure.
  - “Look-and-Feel” of how the game is played: video trailer or in-person walkthrough with prototype.
  - Team members and individual tasks.

Note: These design criteria from Karl Kapp’s SlideShare presentation at:  
<http://www.slideshare.net/kkapp/creating-a-game-design-document?related=1>

### **Course Outline (details on course website)**

- Session 1: Organizational Meeting—Friday January 15
- Session 2: Games versus Gamification/S14, F15 projects—January 22
- Session 3: Board and Card Games/Workshop 1—January 29
- Sessions 4: Exergaming—February 5 **\*\*\*DATE MAY CHANGE\*\*\***
- Session 5: Cognitive and Mental Health—February 12
- **\*\*\*NO SESSION FRIDAY FEBRUARY 19—READING WEEK\*\*\***
- Session 6: Games for Children and Youth/Games for the Elderly—Feb 26
- Session 7: Narrative and Storytelling in Games I—March 4
- Session 8: Social and Virtual Reality Games—DATE TBA
- Session 9: Workshop 3: Review of Prototype Design—March 11
- Session 10: Personalization in Games—March 18
- Session 11: Narrative and Storytelling in Games II/Closing Panel Discussion—DATE TBA
- Session 12: Project Poster Presentation—DATE TBA