COMP 585H: Serious Games

Bulletin Description
Concepts of computer game development and their application beyond entertainment to fields such as education, health, and business. Course includes team development of a game.

General Course Info
Term: TERM SPRING 2015
Department: COMP
Course Number: 585H
Website: http://www.cs.unc.edu/Courses/comp585H-s15

COMP 585 Class
Time (full class) TR 9:30-10:45
Time (sections) Section 1, TR 9:05-10:20
Section 2, TR 9:30-10:45
Location: SN 011

COMP 585H Additional Meeting
Time (full class) F 9:00-10:00
Location: FB 008

Instructor Info
Name: Diane Pozefsky
Office: FB 146
Email: pozefsky@cs.unc.edu
Phone: 919 590-6117
Web: http://www.cs.unc.edu/~pozefsky
Office Hours: Open Door Policy

Textbooks and Resources
There are no required or recommended textbooks. All recommended or required readings will be available or referenced on the class website.

Sakai will be used for the submission of assignments and the returning of comments and grades.

Game development will use freely available software that the student will be expected to download.

Course Description
COMP 585H is taught in conjunction of COMP 585: that is, it is a single set of lectures that all students will attend. In addition, COMP 585H students will attend an additional hour class and have an additional project separate from the class assignment. The additional lectures will be given by the instructor or other faculty members who are working in areas of interest. As appropriate, outside speakers will also be brought in. The additional topics and projects
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will be built around the specific interests of the students but will include more in depth development and design of topics taught in COMP 585. Possible topics include techniques for adapting the difficulty of a game to a player’s achievements or topics of current research within the department such as advanced simulations of human behavior, sound simulation or use of devices such as Oculus Rift or Google Glass. COMP 585H students may work in teams or individually on their projects.

Serious Games are training, learning, or propaganda games used in schools, the military, companies, and the public service sector. The premise behind studying serious games is three-fold:

- First, games are a legitimate artistic media and just as we teach and preach through other forms of art, we can do so through games as well. Because people learn through doing, it is a way for players to absorb concepts in an efficient and memorable manner.
- Second, games are a natural way for "digital natives" to interact with concepts. If we want to engage this population, we should do so in a media that interests them.
- Finally, if people are going to play games, perhaps we can give them some games with additional value beyond entertainment (think classics vs. romance novels).

This course is intended as a broad introduction to the field of serious games. We will look at a number of examples of existing serious games in order to learn through case studies. The focus will be on game design but we will also look at development issues. We will explore serious game development and how the components of games may be applicable to other areas.

In order to study serious games, however, we need to study games. We will look at the design of games. While the course project has you building a game, the intent is to focus on its design and understand what makes a good game. Students will be expected to articulate and justify their design decisions. We will look at non-computer games as well as computer games because a good game is good independent of its embodiment.

Target Audience

COMP 585H is intended for computer science majors who are members of the Honors program and have the requisite background to be pursuing advanced topics that entail research and development of new techniques.

Prerequisites

COMP 410 and 411.
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Goals and Key Learning Objectives
By the end of the course, each student will
- Understand all elements of good game design at a general level and understand at least one element in significant detail
- Be aware of research areas in computer science with potential application to game design
- Be able to design elements of a game and explain the benefits of those design decisions
- Be able to identify elements of an existing game and critique the decisions
- Understand the interdisciplinary nature of game design through their team experience
- Understand the elements of games that are universal and those that are unique to video games
- Understand the basics of computer game development
- Be able to use a game development platform for basic tasks
- Be able to instrument a game in order to evaluate its effectiveness
- Be able to critique serious games as games and in their effectiveness

Course Requirements
The major project of COMP 585 is the instructor-mentored team design and implementation of a serious game. Teams will meet regularly with the instructor. Project grades are based on design, implementation, documentation, effort, teamwork, and accomplishment.

Additional assignments include a research presentation, creation of non-computer games, and a game critique. These other assignments will include a mix of team and individual activities. Class presentations require preparation meetings with the instructor.

The final exam will be take-home and will typically be the design of a game to meet a specific need (for example, to teach people about the importance of privacy or helping a patient with rehab).

The additional COMP 585H project can be an enhancement to a game or can be a stand-alone proof-of-concept component that could be incorporated into the game.

Key Exams and Assignments
Besides demonstrating your team game to the instructor on a regular basis, demos of it and of the non-computer games will be made in class. Other key dates will be critique and research presentations; these will be scheduled individually.

Final game presentations are given at the time of the scheduled final exam.
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Grading Criteria
Course grade for COMP 585H will be 90% COMP 585 grade and 10% Honors project. This makes the grading weights as follows:
Team game: 36%
Research presentation: 22.5%
Game critique: 13.5%
Non-computer games: 9%
Final exam: 9%
Honors project: 10%

All presentation grades include both content and style. While not everyone is a natural speaker, communication is a critical skill and students are expected to master the basics.

Course Policies
Attendance: While attendance is not taken in the COMP 585 class, I expect student attendance at all peer presentations. For other classes, I only point out that there is no textbook in this class because the content is not available in any simple form. If you are interested in the content, you need to listen to lectures. We also have a number of outstanding not-to-be-missed outside speakers during the class. Attendance at the honors section lectures is required and absences need to be discussed with the instructor.

The course final is given in compliance with UNC final exam regulations and according to the UNC Final Exam calendar.

Honor Code
Collaboration and peer-learning are necessary for team projects. Only the individual assignments are not to be done collaboratively. These are open book, open notes, and open network.

Example Topics
Topics typically covered in the class include the following. Specific topics will be determined by class interest

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<thead>
<tr>
<th>What is a game?</th>
<th>Virtual reality</th>
<th>Characters</th>
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<tr>
<td>Serious games</td>
<td>Landscapes</td>
<td>Artificial Intelligence</td>
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<tr>
<td>What is a critique?</td>
<td>Environments</td>
<td>Augmented Reality Games</td>
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<td>Elements of a game</td>
<td>Games as a business</td>
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<td>Game genres</td>
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<td>Gameplay</td>
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<td>Balance in games</td>
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<td>Game mechanics</td>
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<td>Graphics</td>
<td>Narrative</td>
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Schedule
The schedule for the class will be published on the web and will be based on the topics of interest to the students.

Disclaimer
This syllabus may not be updated during the semester. Updated information will be published on the class website. If there are discrepancies between the information here and on the website, the website information is considered definitive.

Last updated 12 January 2015