CS xxx: Intro to Human-Computer Interaction

Willamette University, Fall 2022

Instructor:

Fred Agbo, PhD
friday.agbo@uef.fi
Office:
Office Hour:

Web:
Lecture: MWF (TBD)
Lecture Hall: (TBD)

(This syllabus is subject to modification as the semester progresses - particularly the schedule. Text highlighted in yellow color are just placeholders and would be updated subsequently)

Brief Course Description

As computational systems have moved to become pervasive parts of our lives, it becomes even more important to consider how they can be best designed to be useful and useable by people (or "users"). But who is a "user", how do we understand what they want, and how can we design user interfaces that are effective and efficient for them? This course covers the foundations of Human-Computer Interaction - the study of how computer systems can be designed to support the needs of the people whom we intend to use them. The course provides an introduction to **User-Centered Design (UCD)**, **User Interface (UI)**, and **User Experience (UX) design**. The course also provides knowledge on current trends in human-computer interaction, the requirements, and constraints of interaction, and design processes, focusing on the ways of understanding user needs, requirements, and testing designs. At a basic level, we will cover Usability, UCD, prototyping, how this process fits into existing software product development, as well as looking to how the relationship between computers and humans is evolving, and how we might interact with computer systems in the future. *This course will take a practical approach where students would learn by doing.*

Prerequisite(s): This course is meant for computer science students who naturally had complete introductory courses including CS 151. It would be an additional advantage for students that have previously completed *software engineering* course. However, because of the interdisciplinary application of concepts to learned in this course, I would encourage even non computer science majors to try it out.

Resources for this course:

There are plenty of resources on HCI online, but this course will try to use a few books. Information about these books is available on the course website <here>. Please, feel free to contact me for any material and I will be willing to help.

Course Objectives:

At the end of this course the student should:

- Understand key aspects of human perception and cognition, and how these impact the design of Human-Computer Interfaces.
- Understand the importance of Human-Computer Interaction in the design of products and services.
- Understand how and where usability and user interaction specialists fit into the software and product development lifecycle.
- Be able to define and describe the key stages of a UCD process.
- Understand the key techniques used at each stage of the UCD process and have practical experience in their application through exercises.
- Gain knowledge of the requirements and constraints of HCI, and ability to apply different design methods.
- Be able to compare and contrast qualitative and quantitative evaluation techniques.
- Be able to propose and justify an appropriate evaluation technique to a given problem
- Have awareness of existing interaction paradigms, their advantages, and disadvantages
- Have awareness of cutting-edge interaction research and developments in user interaction paradigms, design, and evaluation.
- Have awareness of practical issues in the application of HCI in an industrial context.

Course Structure and Assessment

This course will consist of lectures, home-works, group projects, and a final exam. Each course component is very important to gain expected learning outcomes including grades. Looking at its comprehensive nature, students are encouraged to give their best in all the components of the course. Full attendance and participation are mandatory in all the components of the course.

- **Lecture**
  Lectures will be held every TBD, (except for holidays or other events from the university that may override). The time for the lecture is TBD. Please check out the course syllabus <here>. Slides and other resources for the lecture can also be accessible from the course webpage. While I explore how to conform to accessibility best practices, I will appreciate your feedback and let me know if some of the materials are inaccessible. Also, I am open to learning new ways of implementing accessibility in this course and any tips is welcome.

- **Homework**
  There will be several homework to be completed on individual bases during this course. I will decide on the number of homework to be administered. Each homework would contain

problem sets that focuses on demonstrating knowledge gained from previous classes. All homework must be submitted to me on the due date via email.

- **Projects**
  This course consists of one major project that would require students to execute in group of 2 to 3 students per group. In exceptional cases, a student can be allowed to work alone but that arrangement would be approved by me. The course will practically work students through UX design process within a context of one of the HCI genres. There will be concept presentation, group report, and peer-reviewing from each group. All of these activities will contribute towards the grade on project.

- **Fina Exams**
  The final exam for this course would be written in the class and students can provide in depth reflection on topics learned during the course. The exam shall be open, and the use of computer is allowed. However, no communication among each other and students are to submit their exams via email on the due time TBD.

Feedback and Course Grading

I will ensure that feedback is provided on each homework, projects, and final exam. Aside from the feedback, certain percentage of the grade will be awarded to students for active participation in the classroom, project activities, and through communications on Discord created for this course. The weighting of the grades include:

- Participation 10%
- Homework 20%
- Projects 40%
- Final Exam 30%

Course Policies:

Late Submission and Incomplete Policy

I am adapting Jed's course policy which I found very generous enough! I totally understand that as human, things can sometimes come up or go wrong and you are unable to get an assignment turned in on time. This kind of situation calls for some flexibility where I could consider accepting of late submission. However, this flexibility MUST be subject to my awareness and approval. Therefore, if any student is in this kind of unfortunate situation and would need more time to submit homework or project a bit late, please, contact me immediately. I must receive an email and reply to it in order to implement this policy. As a matter of rule, no lateness beyond 1 day (24 hours) can be tolerated for any given homework/project.

Willamette Policies:

This section has been largely developed/adapted from the Willamette University Academic Policy which can been accessed via this link https://willamette.edu/arts-sciences/catalog/policies/. As a result, the instructor employer's view constitutes the information represented here except for minor

edits made by the instructor to adapt the context to the specific case study of this class. I will appreciate if students can reach out to me on any issues that have not been represented regarding policies that guides this class.

Academic Honesty

Cheating is defined as any form of intellectual dishonesty or misrepresentation of one's knowledge. Plagiarism, a form of cheating, consists of intentionally or unintentionally representing someone else's work as one's own. Integrity is of prime importance in a college setting, and thus cheating, plagiarism, theft, or assisting another to perform any of the previously listed acts is strictly prohibited. An instructor may imposed penalties for plagiarism or cheating ranging from a grade reduction on an assignment or exam to failing the course. An instructor can also involve the Office of the Dean of the College of Liberal Arts for further action. For further information, visit:

http://www.willamette.edu/cla/catalog/resources/policies/plagiarism_cheating.php.

Time Commitments

Willamette's Credit Hour Policy holds that for every hour of class time there is an expectation of 2-3 hours work outside of class. Thus, for a class meeting three days a week you should anticipate spending 6-9 hours outside of class engaged in course-related activities. Examples include study time, reading and homework, assignments, research projects, and group work.

Diversity and Disability

Willamette University values diversity and inclusion; from my background, I have promoted diversity in several ways and now that I'm in Willamette where there is commitment to diversity and inclusion, we will ensure a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. If there are aspects of the instruction or design of this course that result in barriers to your inclusion or accurate assessment or achievement, please notify the professor (in this case Fred) as soon as possible. Students with disabilities are also encouraged to contact the Accessible Education Services office in Matthews 103 at 503-370-6737 or accessible-info@willamette.edu to discuss a range of options to removing barriers in the course, including accommodations

Tentative Course Outline:
The weekly coverage might change as it depends on the progress of the class. However, I highly recommend you follow along with the reading, as it makes a large difference!

Week	Monday	Wednesday	Friday	HW&PS
1	Aug 29	Aug 31	Sep 2	Sept 4
Introduction	Syllabus | **PDF** |	Intro to HCI| **Slide** |	Genres of HCI | **Slide** |	HW 0
2	Sept 5	Sept 7	Sept 9	Sept 11
Understanding Users	Labor Day (No classes!)	Understanding Users | **Slide** |	Human Perceptions And cognition | **Slide** |	HW 1
3	Sept 12	Sept 14	Sept 16	Sept 18
User-centered design (UCD)	UCD Guidelines, Principles and Theories part 1 | **Slide** |	UCD Guidelines, Principles and Theories part 2 | **Slide** |	UCD Guidelines, Principles and Theories part 3| **Slide** |	HW 2
4	Sept 19	Sept 21	Sept 23	Sept 25
Design Process	Design Process part 1 | **Slide** |	Design Process part 2 | **Slide** |	Design Process part 3 | **Slide** |	HW 3
5	Sept 26	Sept 28	Sept 30	Oct 2
Users Experience (UX)	Understanding UX |**Slide** |	Evaluation of UX part 1 |**Slide** |	Evaluation of UX part 2 |**Slide** |	HW 4
6	Oct 3	Oct 5	Oct 7	Oct 9
Users-centered Design Case studies	Case study 1 | **Slide** |	Case study 2 | **Slide** |	Case study 3 |**Slide** |	Project 1
7	Oct 10	Oct 12	Oct 14	Oct 16
Project Week	Project 1 | **text** |	Project 1 |	Mid-semester day	--
8	Oct 17	Oct 19	Oct 21	Oct 23
Interaction Design	Mid-term exam (presentations)	Interaction design part 1 | **Slide** |	Interaction design part 2 | **Slide** |	--
9	Oct 24	Oct 26	Oct 28	Oct 30
Immersive Environments	2D interactive environments |**Slide** |	3D interactive environments part 1 |**Slide** |	3D interactive environments part 2 |**Slide** |	--

10	Oct 31	Nov 2	Nov 4	Nov 6
Immersive Environments	3D with Unity game engine part 1 | **Slide** |	3D with Unity game engine part 2 | **Slide** |	3D with Unity game engine part 3 | **Slide** |	--
11	Nov 7	Nov 9	Nov 11	Nov 13
Prototyping	Prototyping Part 1 |**Slide**|	Prototyping Part 2 |	Vereran Day (No classes)	Project 2
12	Nov 14	Nov 16	Nov 18	Nov 20
Project Week	Project 2 | **text** |	Project 2 |	Project 2 |	---
13	Nov 21	Nov 23	Nov 25	Nov 27
Fall break	Fall break	Fall break	Fall break	---
14	Nov 28	Nov 30	Dec 2	Dec 4
Project Week	Peer-reviewing | **text** |	Peer-reviewing |	Peer-reviewing |	Project 2 due
15	Dec 5	Dec 7	Dec 9	Dec 11
Reviews	Reviews	Reviews	Final exams (Project reports)	-