CS449 – Human Computer Interaction

1. TITLE AND CREDIT HOURS

Human-Computer Interaction
3 SU Credit course, 6 ECTS credits

2. INSTRUCTOR

Name	Office	Email	Office Hours
Kürşat Çağıltay	FENS 2073	kursat.cagiltay@sabanciuniv.edu	By appointment (e-mail is preferred)

3. CATALOG DESCRIPTION

HCI research is concerned with developing information technology that is compatible with the needs of users. Emerging out of shared concerns in the fields of computer science, psychology, information science, ergonomics, sociology, graphic design and education, HCI researchers study users and groups as social and psychological beings with intentions, attitudes, capabilities, personalities, and desires. In studying users, we learn about the manner in which information tasks are performed, how information is construed and conceptualized, how pervious experience influences current interactions, and how users change over time. Understanding these processes is central to designing new media and tools that will support human use, augment human learning, enhance communication and lead to more acceptable technological developments at the individual and the social levels.

This course provides students with a sound introduction to the discipline of HCI and examines the issues of human factors and the design of computer application interfaces. It is organized around a collection of readings and real-world exercises concerned with applying HCI research to the design of computer interfaces.

The format of this course is problem-centered. The lectures and other resources will be used to support the problems that students are working on throughout the semester.

4. COURSE OBJECTIVES

After (even before) graduation, most of the students will be employed in organizations that use Information and Communication Technologies (ICT) extensively. Today, computers are part of life. The number of individuals using computers at work and at home has increased rapidly in the last decade and this growth is expected to continue. ICT and Information Systems (IS) are used by all kind of organizations to increase effectiveness and efficiency.

This rapid growth in utilization has come from information technology becoming useful for many more activities of interest. Yet frustrations with technology abound. Much technology is hard to use or otherwise disappoints us. Human-computer interaction is a discipline motivated at least in part by a desire to understand the mismatches between people and computers--and, we hope, improve the fit by adapting the computers rather than the people.

This course will help students build a solid foundation that helps them understand, design, use, and evaluate usable computer interfaces.

The key objectives of this course include:

- Develop a theoretical and empirical understanding of user-centered design of computer interfaces, and their uses,
- Develop valid and reliable usability evaluation plans for any information technology
- Provide a foundation of understanding about HCI issues
- Provide an understanding of the social, psychological, and ethical issues associated with HCI design
- Offer a set of first-hand experiences which augment conceptual understanding of course content.

5. STUDENT REQUIREMENTS

Students' primary responsibilities will be making weekly readings, critiquing and analyzing them, finding related case studies/hands-on experiences, and organizing and participating class discussions. This series of integrated exercises, both in-class and outside of class time, will link with concepts covered in lectures and readings.

The classroom is designed to be a nourishing environment for promoting individual and team learning. This learning includes analytical, practical, and collaborative project skills. You will be expected to come to class, well prepared to discuss that day's materials.

6. COURSE PHILOSOPHY AND THE INSTRUCTORS' ROLE

I believe that the best way of learning is realized in authentic real-life environments. Therefore, I will try to provide such learning sources for students. In addition to this, experts will also be invited to some class sessions to share their real-life experiences with you. I encourage you to bring and share cases from your current or previous work experiences. As a part of authentic learning environment, rather than using traditional assessment methods (exams etc.), the grading will mainly be based on real life projects.

Traditionally a teacher is seen the primary resource for knowledge and makes that knowledge available to students through lectures and demonstrations. However, especially in ICT/IS field, the teacher cannot know everything, and a teacher no longer needs to be front and center. "Guide on the side," describes the role that modern teachers can take. This does not mean that the role of the teacher is diminished. In fact, the opposite is true. Therefore, in this course, we hope that there can be less "sage on the stage" and more "guide on the side." Such an approach definitely requires your participation and contribution.

7. TEXTBOOK(S) AND OTHER RECOMMENDED MATERIAL

A reading package will be used. Required and optional readings will be available on SUCOURSE.

Useful Web sites:
ACM SIGCHI
http://www.acm.org/sigchi/
ACM SIGCHI brings together people working on the design, evaluation, implementation, and study of interactive computing systems for human use. ACM SIGCHI provides an international, interdisciplinary forum for the exchange of ideas about the field of human-computer interaction (HCI).

HCIBIB

http://www.hcibib.org/

HCI Bibliography : Human-Computer Interaction Resources

Bad Designs Page:

http://www.baddesigns.com

This is a great site for examples of the sorts of bad designs that exist all around us. The entries here are fine but lack any theoretical analysis.

8. ASSIGNMENTS AND GRADES

The following assignments and grades are tentative, depending on the class size, some assignments may be replaced with a Mid-Term Exam !

Reading reflections and/or HCI Trends Analysis report = 10 pts

Participation/Attendance = 5pts

Task Analysis report = 10 pts

Design diary report = 5pts

Heuristics Based Usability testing (Group or Individual) = 5 pts

End User Based Usability testing (Group or Individual) = 15 pts

Cognitive Modeling Assignment (Group or Individual) = 10 pts (This assignment requires CogTool cognitive modeling software, make sure it works on your own computer: https://www.cogtool.org/)

Final Project / Term Paper (Group) = 40 pts

9. WEEKLY PROGRAM – (Tentative)

1. Introduction: What is HCI and why is it important?
2. From interface to interaction: HCI Theories, frameworks
3. What is a good user interface: Guidelines, Styles, and Evidence
4. Usability engineering
5. Beyond usability engineering: Understanding the user (part 1) Human Cognition
6. Beyond usability engineering: Understanding the user (part 2) Perception & Individual differences
7. Evaluation strategies for usable interface design: Heuristic Evaluation and Cognitive Walkthrough
8. Evaluation strategies for usable interface design: User based testing & eye tracking
9. Evaluation strategies for usable interface design: Cognitive Modeling
10. HCI Research Methods: Quantitative and qualitative
11. UI Prototyping & Wireframes, Personas, Use Scenarios, and Storyboards
12. Software engineering methodologies and User-Centered Design
13. Interaction and cutting-edge technologies: XR, BCI, HRI

14. Ethics in the design of information systems for users