

Advanced Human-Computer Interaction

CSE 155, 4 Units, FALL 2020

<https://www.asarif.com/courses/cse155/fall2020.html>

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Catalog Description

Introduces students to the basic concepts in the theory and practice of Human-Computer Interaction (HCI). Teaches how hardware and software design influence the interaction between human and computers to provide insights into the design and development of safe, effective, and enjoyable interactive systems.

Textbooks and Other Required Materials

This course uses the following textbook.



I. Scott MacKenzie

2013

Human-Computer Interaction: An Empirical Research Perspective

Morgan Kaufmann, San Francisco, CA, USA

Course Objectives

Students of this course are expected to achieve the following learning outcomes through an understanding of basic theory and practices in Human-Computer Interaction (HCI):

- CO 1. An ability to think critically about interactive computer systems.
- CO 2. An ability to account for both human and system factors in the design of interactive computer systems.
- CO 3. An ability to make design decisions by applying appropriate concepts and strategies.
- CO 4. An ability to verbalize, discuss, and articulating key concepts and issues.
- CO 5. An ability to describe interactive computer systems, issues, and solutions in clear, understandable language.
- CO 6. An ability to work individually and in teams to attain a common goal.
- CO 7. Practice a high standard of professional ethics.
- CO 8. Engage in continuing professional development by adapting new methods, technologies, and tools.

Program Learning Outcomes

This course satisfies the following program learning outcomes:

- PLO 1. An ability to apply knowledge of computing and mathematics appropriate to the discipline [CO3].
- PLO 2. An ability to analyze a problem and identify the computing requirements appropriate for its solution [CO1].
- PLO 3. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs [CO3].
- PLO 4. An ability to function effectively as a member of a team in order to accomplish a common goal [CO3].
- PLO 5. An understanding of professional, ethical, legal, security, and social issues and responsibilities [CO7].
- PLO 6. An ability to communicate effectively with a range of audiences [CO4].
- PLO 7. An ability to analyze the local and global impact of computing on individuals, organizations, and society [CO1,2].
- PLO 8. Recognition of the need for an ability to engage in continuing professional development [CO8].
- PLO 9. An ability to apply mathematical foundations, algorithmic principles, and computer science theory to the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices [CO3].

PLO 10. An ability to apply design and development principles in the construction of software systems of varying complexity [CO3].

Prerequisites by Topic

CSE 100: Algorithm Design and Analysis.

Course Policies

Class participation is required. Late submission is not permitted.

Lecture. Lectures will be delivered via Zoom. The instructor or a guest instructor will deliver a lecture. Students must prepare for each lecture ahead of time by studying the respective reading material, as applicable. There will be no group discussion this term due to COVID-19.

Group Projects. Students must form a group of 4-5 to work on a project that applies the techniques and skills acquired in the class. Each project will involve the design, development, and evaluation of an interactive computer system of choice. All groups will report the findings of their projects in a report (maximum 6 pages, excluding references, in the ACM SIGCHI format). Groups projects will prepare students for real-world software and systems design. Upon completion of the projects, all students will anonymously rate their group members based on their contribution in the project.

Lab. All labs will be conducted remotely: <https://soe.ucmerced.edu/mylab>. Students must use the [UC Merced VPN](#), when accessing from an off campus location. Since there will be no in-person labs this term due to the spread of COVID-19, students will join the Zoom meeting, mute themselves, and work on their projects. The virtual machines have all software needed for this course: image and video editors and statistical software. A TA will be available via Zoom for students seeking assistance and resolutions to problems with projects, including a design or development issues. Some labs will be dedicated to specific learning objectives, for example how to use common statistical tools or how to create a demonstration video.

Academic Dishonesty Statement

1. Each student in this course is expected to abide by the University of California, Merced's Academic Honesty Policy. Any work submitted by a student in this course for academic credit will be the student's own work.
2. Students are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. They may give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an email, an email attachment file, a diskette, or a hard copy. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Policy can also be extended to include failure of the course and University disciplinary action.
3. During examinations, students must do their own work. Talking or discussion is not permitted in the examinations, nor comparing papers, copying from others, or collaboration in any way. Any collaborative behavior during the examinations will result in failure of the exam and may lead to failure of the course and University disciplinary action.

Student Accessibility Services

University of California, Merced is committed to creating learning environments that are accessible to all. If you anticipate or experience physical or academic barriers based on a disability, please feel welcome to contact me privately so we can discuss options. In addition, please contact Student Accessibility Services (SAS) at (209) 228-6996 or disabilityservices@ucmerced.edu as soon as possible to explore reasonable accommodations. All accommodations must have prior approval from Student Accessibility Services on the basis of appropriate documentation.

If you anticipate or experience barriers due to pregnancy, temporary medical condition, or injury, please feel welcome to contact me so we can discuss options. You are encouraged to contact the Dean of Students for support and resources at (209) 228-3633 or <https://studentaffairs.ucmerced.edu/dean-students>.

Topics

The course covers the following topics:

- Understanding users' needs, desires, and expectations.
- Identifying and modelling human and system factors.
- Interactive system design methodologies, usability testing, and user experience design (UX).
- Qualitative and quantitative research methods and data analysis.
- Research ethics and working with human subjects.
- Preparing demonstration videos, writing papers, and presentations.

Hours

Lecture	Day	Time	Meeting ID	Password	TA
	Tuesday	1:30 - 2:45 pm			
	Thursday	1:30 - 2:45 pm			
Lab	Monday	4:30 - 7:20 pm			Tafadzwa Dube
	Wednesday	1:30 - 4:20 pm			Tafadzwa Dube
	Thursday	4:30 - 7:20 pm			Yuan Ren
	Friday	4:30 - 7:20 pm			Yuan Ren
Office	By appointment				

Assessment and Grading Policy

Midterm	30%
Project Presentation	10%
Final Report	20%
Final	40%