



CSCI 499: Introduction to Human-Computer Interaction

Units: 4.0

Fall 2024 – MonWed – 3:30-5:20PM

Location: TBD

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Office Hours: TBD

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Catalogue Description

Principles and methods of HCI. Design principles: Universal design, usability, gestalt principles. User Interface (UI) and User Experience (UX) Design. User Research and usability heuristics. Cognitive Processes and Usability. Prototyping, wireframing, and Evaluation methods in HCI.

Course Description

Building good software and system requires designing it right! This course covers the core concepts and practical skills necessary for understanding and applying HCI principles in real-world contexts. It provides a well-rounded introduction to the field and prepares students for more advanced coursework or careers in HCI like UX and UI Designers and Researchers. This course is an introduction on human-computer interaction and does not expect prior knowledge of human-computer interaction, computer science, or psychology.

The class is built around three broad categories in HCI. First, it introduces HCI theories and principles that puts the user first. Second, the course introduces methods to identify user challenges with existing systems, in the context of cognitive abilities of the user (attention, memory, perception, response to color, depth, context). Finally, the course introduces HCI methods to fix usability problems, prototype and build a working model of the system, and reevaluate the impact of redesign.

Learning Objectives

At the end of the course, students will be able to:

1. Implement human centered design process on a system
2. Research where users potentially struggle with a system, and how to infer user experience from data driven research and analysis.
3. Propose fixes to a system to address specific user needs.
4. Design, Prototype, and implement an interactive wireframe of a system, with explicit documentation and materials to potentially deploy the redesigned system.
5. Assess the quality of any system from the users' perspective.
6. Communicate and present human centered improvement to a system.

Recommended Preparation

Knowledge of software requirements and design at the level of CSCI 201, software lifecycle at the level of CSCI 310, and designing AI agents at the level of CSCI 360.

Course Notes

The class will take place in traditional classroom format. Copy of the lecture materials and readings will be posted on Blackboard. Assignments and other required submissions may also make use of Blackboard. Exams will be in person, and are necessary, to facilitate students' ability to design.

Technological Proficiency and Hardware/Software Required

Most of the software required for the course are open source and free. Students will need to use [Figma](#) (free for education), [RStudio](#) (or R, now Posit), and [Overleaf](#).

Additional information about how to access free versions of the products can be found at [Software available to USC Campus](#). Students may choose to use advanced software like those included in Adobe Creative Cloud Suite, iMovie.

Additionally, students might also find the following links useful: [USC Computing Center Laptop Loaner Program](#), [Zoom information for students](#), [Blackboard help for students](#).

Required Readings and Supplementary Materials

- *Designing with the Mind in Mind, 2nd Edition: Simple Guide to Understanding User Interface Design Guidelines*, 2020. Author: Jeff Johnson Publishers: Morgan Kaufmann. ISBN/SKU 978-0124079144. Available through USC Libraries [here](#).
- *Rocket Surgery Made Easy* by S. Krug, 2010. Available through USC Libraries.

- *About Face: The Essentials of Interaction Design* by Alan Cooper, Robert Reimann, David Cronin, Christopher Noessel, Jason Csizmadi, and Doug LeMoine. Wiley, 2014. Available through USC Libraries.
- Usability Engineering by Jakob Nielsen. Available [here](#) through USC libraries.

Optional Readings and Supplementary Materials

- *Simple and Usable: Web, Mobile, and Interaction Design* by Giles Colborne, 2011. (Available [from Amazon and others in kindle or paperback purchase formats](#)). Also available through USC Libraries.

Description of Assignments and How They Will Be Assessed

Project & Presentation:

At the end of the class, students will submit a final project report makes up 25% which include the following components: Proposal & Motivation 10%, Formative research into your users and their tasks: 20%, Prototype: 35% (10% as of first design gallery, 25% at end), Evaluation plan: 10%, Evaluation: 25%. Another 5% is allocated for presentations at the end of the term.

Assignments:

There will be 3 assignments which include identifying UX/UI problem, studies users, proposes redesign and evaluates the design. Submitting required materials will show progress on solving their term research project. Groups can use their own graduate research project or choose a project involving user research.

Exams:

There will be midterm and final exam. Exams will be closed book, paper based (to enable sketching) and in-person. Exams are comprehensive.

In-class activities:

In-class activities include participation in activities to better grasp user research concepts, and also contribute towards the term project. Design gallery is an activity where all groups will provide feedback to other projects. Activities will lead to higher engagement with materials, improve conceptual understanding, and promote collaboration among peers.

Quizzes:

Quizzes will be paper-based, and based on materials from prior weeks.

Participation

In class activity and quizzes impact grades.

Grading Breakdown

Assessment Tool (assignments)	% of Grade
Project & Presentation	30%
HW/Quizzes	15%
Assignments	15%
Midterm	15%
Final	15%
In-class activities	10%
TOTAL	

Grading Scale

Letter grade	Corresponding numerical point range
A	95-100
A-	90-94
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

Assignment Submission Policy

Assignments and In-class activity materials should be submitted on blackboard (or in specific cases to a USC maintained folder) before 11:59pm on the due date.

Course-Specific Policies

Late submissions will be considered at 50% scale (i.e., if student gets 60/100, they'll be given 30 points), unless previously discussed with the instructor and an alternate agreement is reached.

Attendance

In class participation and quizzes have impact on grade.

Student athletes with approved Travel Request Letters, students who give advance notice of religious or cultural observation, and students with approved medical leave documentations will be allowed to participate in at most 2 in-class activities to make up for the grades lost due to missing in-class activities and quizzes.

Academic Integrity

Unless otherwise noted, this course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). The general USC guidelines on Academic Integrity and Course Content Distribution are provided in the subsequent "Statement on Academic Conduct and Support Systems" section.

For this class, students are expected to adhere to the following guidelines:

- Assignments that require you to complete computer programs, plagiarism will include the submission of code written by, or otherwise obtained from someone else.
- Assignments designated as "group work", all assignments are expected to be completed individually.
- For assignments marked individual submissions, you are expected to submit work that demonstrates your individual mastery of the course concepts.
- Designs and sketches with substantial similarity, provided without explanation, will be evaluated on grounds of plagiarism.

If found responsible for an academic violation, students may be assigned university outcomes, such as suspension or expulsion from the university, and grade penalties, such as an "F" grade on the assignment, exam, and/or in the course.

Please ask the instructor [and/or TA(s)] if you are unsure about what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

You may not record this class without the express permission of the instructor and all other students in the class. Distribution of any notes, recordings, exams, or other materials from a university class or lectures — other than for individual or class group study — is prohibited without the express permission of the instructor.

Use of Generative AI in this Course

Generative AI permitted but limited as follows: In this course, you are permitted to use artificial intelligence (AI)-powered programs to help you, but only on assignments that explicitly indicate a permitted use of AI. However:

- You should also be aware that AI text generation tools may present incorrect information, biased responses, and incomplete analyses; thus, their answers may not meet the standards of this course.
- To adhere to our university values, *you must cite any AI-generated material (e.g., text, images, and other content) included or referenced in your work and provide the prompts used to generate the content.* Using an AI tool to generate content without proper attribution will be treated as plagiarism and reported to the Office of Academic Integrity.

Please review the instructions in each assignment for more details on how and when to use AI Generators for your submissions.

Course Evaluations

Course evaluation occurs at the end of the semester university-wide. It is an important review of students' experience in the class.

Course Schedule

	Topics/Daily Activities	Readings/Preparation	Deliverables
Week 1	Syllabus+Logistics Introduction to HCI	Norman, Chap 1,2	In class – Rapid UX
Week 2	No Class (Labor Day) Design Thinking: Human Centered Design	Nielsen, Chap 4 Cooper, Chap 2 Norman, Chap 6	In class – Bad Design vs. Error Assignment 0: Team formation and project selection
Week 3	The Gulfs Design Principles	Cooper, Chap 3,4 Nielsen, Chap 5	-- --
Week 4	% UX Laws	N/Ng: Heuristics	In class – Diagnosing UI Quiz 1
Week 5	Cognitive Psychology %	Johnson, Chap 1-2 Johnson, Chap 3-5	Assignment 1: Project Description and Personas In class – Improving Design
Week 6	% Usability: Inspection	Johnson, Chap 6-9 Nielsen, Chap 2	-- In class – CW Mock
Week 7	Usability: Persona Usability: Inquiry	Nielsen, Chap 7	In class – Persona In class – Interview Mock
Week 8	Analyzing qualitative data Prototyping: Lofi		Quiz 2 In class – Group work
Week 9	Data Analysis Usability: Usability testing	Krug, Chap 10 – 13 Nielsen, Chap 6 Krug, Chap 4-8	-- In class – UX testing Mock
Week 10	Designing UI Interaction Design	Cooper, Chap 8-11 Cooper, Chap 7, 15,16	-- In class – Fixing usability problems
Week 11	% Interface Design	Cooper, Chap 18,20,21 Cooper, Chap 12,13	-- Assignment 2: User Research, Redesign prototype, and Evaluation Plan In class – paper prototypes
Week 12	No Class (Veterans Day) Prototype: Wireframe, Storyboards	Krug, Chap 10-11 Krug, Chap 12-13	-- Quiz 3
Week 13	Design Gallery Intelligent + Accessible Design	Online	In class - Design Gallery --

Week 14	Design in Business Ethical Considerations	Norman, Chap 7	-- Assignment 3: User Evaluation and Improvements
Week 15	Project Presentations %		Presentations %
Week 16	Study Days		
FINAL	Refer to the final exam schedule in the USC <i>Schedule of Classes</i> at classes.usc.edu .		Final Exam Project Report

Statement on Academic Conduct and Support Systems

Academic Integrity:

The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, comprises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see [the student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. [The Office of Student Accessibility Services](#) (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each

course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

[Diversity, Equity and Inclusion](#) - (213) 740-2101

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

[USC Emergency](#) - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

[USC Department of Public Safety](#) - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.