



CS-770[†] Human-Computer Interaction, *Fall 2025*

OVERVIEW

CREDITS

This is a three-credit course.

CANVAS COURSE URL

<https://canvas.wisc.edu/courses/475834>

COURSE WEBSITE

<https://cs770.github.io/Fall25/>

COURSE PIAZZA URL

<https://piazza.com/wisc/fall2025/cspsychpsych770>

COURSE DESIGNATIONS AND ATTRIBUTES

Graduate course in computer science, psychology, and educational psychology

MEETING TIME AND LOCATION

MW 1:00 pm – 2:15 pm in **Morgridge B2590**

INSTRUCTIONAL MODE

In person, synchronous. Lectures will be recorded and posted for later viewing.

SPECIFY HOW CREDIT HOURS ARE MET BY THE COURSE

The credit standard for this course is met by an expectation of a total of 135 hours of student engagement with the course learning activities (at least 45 hours per credit), which include regularly scheduled instructor-student meeting times (during class), reading, writing, problem sets, studio time, labs, field trips, and other student work as described in the syllabus.

COURSE DESCRIPTION

This course introduces graduate students in computer science, psychology, educational psychology, and related disciplines to research topics, principles, and methods in *human-computer interaction (HCI)*. HCI is an interdisciplinary area concerned with understanding how humans interact with computing systems and designing technologies that support and enrich human life. Research in HCI examines social, cognitive, and physical phenomena surrounding

[†] Cross-listed as Psych/EdPsych-770

technology use with the dual goals of understanding impact and creating guidelines for the design and evaluation of interactive systems.

The course is organized into three modules:

1. **Seminar** — You will engage with major research topics in HCI through weekly readings and student-led discussions. Preparation involves creating a discussion-provoking slide each week that demonstrates your ability to apply, critique, and extend the readings.
2. **Methods** — You will gain hands-on experience with qualitative and quantitative human-subjects research methods through lectures, tutorials, and weekly assignments. Each assignment begins in class and is completed individually outside of class, giving you the opportunity to practice applying research methods in realistic scenarios.
3. **Project** — Working in small groups, you will conduct a semester-long research project in a critical or emerging domain of computing. The project will involve applying HCI methods, prototyping, conducting studies with human subjects, and culminates in an ~8-page research paper in ACM Proceedings format.

The course is designed primarily for graduate students in computer science, psychology, and educational psychology. Advanced undergraduates (with significant research experience and/or enrollment in the L&S Honors program) and graduate students from other programs may take the course with permission of the instructor. These students should meet with the instructor after the first class session or during the first office hours of the semester to discuss enrollment.

REQUISITES

No prerequisites are required to take the course.

INSTRUCTORS AND TEACHING ASSISTANTS

INSTRUCTOR TITLE AND NAME

Professor Bilge Mutlu

INSTRUCTOR AVAILABILITY

Mondays 2:15 - 3:00pm — Morgridge 2513

INSTRUCTOR EMAIL/PREFERRED CONTACT

Preferred contact is meeting during office hours or by emailing hci-class@cs.wisc.edu.

TEACHING ASSISTANTS

Yuna Hwang

TA OFFICE HOURS

Mondays 2:30 - 3:30pm — [Zoom](#) (👉 press link to connect)

Wednesdays 2:30-3:30pm — Morgridge 2513

TA EMAIL/PREFERRED CONTACT

Preferred contact is TA office hours or by emailing hci-class@cs.wisc.edu.

LEARNING OUTCOMES

COURSE LEARNING OUTCOMES

Student will be able to:

- Define research questions, construct hypotheses, map out and identify gaps in the research literature, and situate research questions and hypotheses in existing knowledge
- Gain familiarity with seminal research across various topics in human-computer interaction
- Determine the research approach that best fits a research question, identify variables of interest for empirical investigation, and design qualitative, quantitative, and hybrid studies
- Determine appropriate objective, behavioral, physiological, subjective, and composite measures for empirical investigation
- Design survey questions, construct scales, and assess reliability and validity
- Analyze qualitative and quantitative data using grounded theory and statistical methods
- Carry out a project to investigate an original research question in human-computer interaction
- Write an academic paper to report on research design and findings

COURSE TOPICS & SCHEDULE

The table below provides a full list of the topics covered in the seminar and methods modules of the project as well as the assignment and project deliverable schedules. Specific topics and due dates might change during the semester, and students should refer to the version of the topics and schedule on the course website.

	Date	Seminar	Date	Methods	Date	Project
		<i>Mondays</i>		<i>Wednesdays</i>		<i>Due Fridays</i>
W01	Sep 1	No class	Sep 3	Course Introduction	Sep 5	No deliverable
W02	Sep 8	History of HCI	Sep 10	Introduction to HCI Methods	Sep 12	Team Formation
W03	Sep 15	HCI Theories & Frameworks	Sep 17	Choosing Methods	Sep 19	Topic selection
W04	Sep 22	Human-AI Interaction	Sep 24	Design-led Inquiry	Sep 26	
W05	Sep 29	Artificial Agents	Oct 1	Probes & Diary Research	Oct 3	Literature survey, RQ
W06	Oct 6	CMC, Telepresence	Oct 8	Observational Research	Oct 10	
W07	Oct 13	CSCW, Augmented Work	Oct 15	Qualitative Data Analysis	Oct 17	
W08	Oct 20	Mobile/ Tangible Computing	Oct 22	Designing Experiments	Oct 24	Research Design
W19	Oct 27	Augmented/Virtual Reality	Oct 29	Metrics & Measurement I	Oct 31	
W10	Nov 3	Physiological Computing	Nov 5	Metrics & Measurement II	Nov 7	

W11	Nov 10	Accessibility, Assistive Tech.	Nov 12	Statistics: Descriptive	Nov 14	
W12	Nov 17	Privacy, Ethics	Nov 19	Statistics: Inferential	Nov 21	Data Collection
W13	Nov 24	No class – Thanksgiving	Nov 26	No class - Thanksgiving	Nov 28	No deliverable
W14	Dec 1	Responsible Design & Use	Dec 3	Writing & Reporting	Dec 5	Data Analysis
W15	Dec 8	Final Presentation	Dec 10	Final Presentation	Dec 12	Final paper

GRADING

GRADING WEIGHTS

Assessments	Points
Seminar: Seminar preparation	15
Methods: Assignments	30
Project: Milestones	30
Project: Final Presentation & Paper	20
General: Participation	5
<i>Total</i>	<i>100</i>

GRADING SCALE

The grading scale will be used as a rough guide to assign final grades, and adjustments will be made to ensure that the grade distribution reflects the general pattern of CS graduate courses. As a rule of thumb, students who make a submission for all required work should expect to get an **A** or an **AB** in class.

A	93.5–100	Excellent work (Exceeds expectations)
AB	89.5–93.4	Good work (Robustly meets all stated requirements)
B	83.5–89.4	Adequate work (Meets the spirit of all stated requirements)
BC	79.5–83.4	Slightly below adequate (Missing small required elements or turned in late without approved extension)
C	73.5–79.4	Below adequate (Missing required elements or turned in late without approved extension)
D	63.5–73.4	Well below adequate (Missing many required elements or turned in late without approved extension)
F	63.5	Inadequate (Work not turned in, no extension requested)

COURSE STRUCTURE

MODULE 1: SEMINAR

The **seminar** module will cover key principles and literature in HCI through a set of readings. The topics for this module are listed in the **COURSE TOPICS & SCHEDULE** table, and a comprehensive list of readings will be posted on the course website.

The first 30 minutes of class on Mondays will begin with a brief instructor introduction to that week's topic, followed by student-led discussions. These discussions will be based on slides prepared by students in advance. The goal is not to summarize the papers, but to demonstrate that you can *understand, apply, critique, and spark dialogue* around the readings.

Weekly Preparation

Each week, you will:

- **Read:** Skim all assigned papers and read at least one in depth.
- **Create:** Prepare a single slide that represents your engagement with the readings. All slides will be collected in a shared Google Slides deck for that week.
- **Discuss:** After the instructor's introduction, 3–5 slides will be chosen at random, and their creators will each lead ~5 minutes of class discussion.

Slide Formats

Your slide should not summarize the readings. Instead, choose one of the following formats:

1. **Provocation** — A bold claim, critical question, or surprising tension from the readings. Highlight a quote, figure, or idea and pose a thought-provoking question for debate.
2. **Critical Artifact** — A sketch, diagram, storyboard, or conceptual prototype that interprets or extends an idea from the readings. Use your artifact to spark discussion about implications, limitations, or alternative perspectives.
3. **Policy or Design Recommendation** — Imagine you are advising a policymaker, product team, or researcher. Provide a concise recommendation grounded in the readings, and identify remaining tradeoffs or open questions.

Submission

- Add your slide to the Google Slides deck created for that week.
- Submit your slide's URL (by copying from the address bar) on Canvas.
- Slides are due by *Monday, 1:00 pm* (the start of class).

MODULE 2: METHODS

In the **methods** module, you will be introduced to a range of human-subjects research methods and procedures commonly used in HCI. These will be covered through readings, lectures, tutorials, and applied exercises.

The first half of class on Wednesdays will focus on lecture and demonstrations of that week's method. During the second half of class, you will begin a hands-on assignment designed to help you practice the method. You will continue working on this assignment outside of class and submit your completed work the following week (by the beginning of the following Wednesday's class). You are encouraged to start the in-class portion of the assignment with a classmate, but assignments must be finalized and submitted individually.

Each assignment will ask you to engage more deeply with the method by applying it to real materials, datasets, or examples. For instance, if the week's topic is research metrics, you might be given a published HCI paper and asked to:

- Identify the metrics used in the study,
- Evaluate whether these metrics are appropriate,
- Propose an alternative metric (if relevant), and
- Describe how that metric could be measured and captured.

Assignments will vary week to week depending on the method but will be designed to be manageable in scope. The expectation is that you will make progress during class, then refine and complete the work outside of class.

These assignments are intended to give you practical experience with research methods beyond lecture content, preparing you to critically analyze existing work and apply methods in your own research projects. You are encouraged to start the in-class portion of the assignment with a classmate, but assignments must be finalized and submitted individually.

MODULE 3: PROJECT

In the **project** module, you will conduct a semester-long project to explore HCI research in critical and emerging domains of computing. This module provides the opportunity to integrate and apply what you have learned across the course.

Goals of the Project

Through this work, you will gain experience in:

- Completing the required human-subjects research training program and preparing an Institutional Review Board (IRB) application,
- Developing a theoretical and empirical understanding of an application domain,
- Applying exploratory and experimental research methods in HCI,
- Prototyping user interfaces,
- Designing exploratory and experimental studies,
- Recruiting participants and conducting studies with human subjects, and
- Creating generalizable knowledge about how computing can improve aspects of human life.

Structure

The project will be completed through a series of deliverables distributed across the semester, as outlined in the COURSE TOPICS & SCHEDULE table. Each deliverable will build toward a final paper in the ACM Proceedings format (~ 8 pages), which will serve as the capstone for the project.

You will work in groups of about three students. While the project is collaborative, accountability matters: 20% of your project grade will be determined by teammate evaluations.

REQUIRED TEXTBOOK, SOFTWARE & OTHER COURSE MATERIALS

The instructional content for the **seminar** module will include individual research articles that will be posted by the instructor on the course website. The **methods** module will use [*Research Methods in Human-Computer Interaction, Second Edition*](#), by Jonathan Lazar, Jinjuan Heidi Feng, Harry Hochheiser, Morgan Kaufmann (2017) (digital version freely available through the UW–Madison Library.) Software requirements for assignments will be provided in the assignment handouts. All other materials will be provided by the instructor.

COURSE POLICIES

POLICIES FOR COURSE CONDUCT

Attendance: Students are expected to attend class, arrive on time, participate in group hands-on activities, and offer comments on readings. In addition, students are expected to offer feedback on and suggestions to improve their classmates' work. If a student needs to miss a class, he/she should inform the instructor and the TA ahead of time email to hci-class@cs.wisc.edu.

Late Policy: The class follows a student-friendly “late days bank” model. You have a total of 3 late days to use across the semester for seminar slides or methods assignments. A late day extends a deadline by 24 hours without penalty. You may use these late days in any combination (e.g., one assignment submitted 2 days late and another 1 day late). Once you have used all of your late days, late seminar or methods assignments will not be accepted without prior approval from the instructor. Project deliverables are not eligible for late days and must be submitted on time to ensure timely feedback and coordination across teams.

Emergencies and Exceptions: Inform the instructor immediately by emailing hci-class@cs.wisc.edu of any crisis that preclude you from attending a class or an exam.

Special Needs: Students with special needs should inform the instructor immediately via email so that accommodations can be made.

Religious observances: Let the instructor know well in advance if an assignment, deadline, or major project milestone interferes with an important religious or cultural observance/event.

Communication: All class material, including assignment handouts, readings, supplemental materials, and pointers to other resources, will be available on or linked through the course

website. All questions regarding assignments, code/analysis, deadline, or expectations that is of interest to all students should be posted on the course Piazza. All communication on individual matters must be done via email through the hci-class@cs.wisc.edu address. Please do not email the instructor or the TA directly. Announcement will be made via Canvas, so students should configure their notification settings to receive announcements in a timely manner.

Office Hours: Office hours are the best time to get feedback from the instructor on assignments and projects. Other questions, concerns, individual issues, and team communication problems can be discussed by appointment. The instructor will also be available for questions via email anytime and phone during work hours.

Classroom recording: Because pictures and videos we present in class can be copyright-protected or subject to human-subjects protection, no student may record or tape any classroom activity without the express written consent of the instructor. If a student has a disability that requires him/her to record or tape classroom activities, he/she should contact the [UW-Madison McBurney Disability Resource Center](#) to arrange an appropriate accommodation.

Generative AI Policy: The course follows the UW–Madison's most permissive generative AI policy, which states:

You are welcome to use artificial intelligence (AI) tools and applications (such as ChatGPT, DALL-E, etc.) in this class as they support the learning objectives of this course. Please be aware you are responsible for the information you submit based on an AI query (i.e., ensure your professor has allowed you to publicly post course content such as assignment or assessment prompts and that the AI generated results do not contain misinformation or unethical content). Your use of AI tools must be documented and cited to conform to this course's expectations.

Therefore, you may use these tools to generate your work. However, you are expected to apply critical thinking in your selection of source material, generation of any prompts, and assessment of the generated content (for accuracy, appropriateness, etc.). Students are expected to cite the tool you used in generating content (e.g., “Text summary developed with the help of ChatGPT 5,” “Image generated using Gemini Imagen 4”). However, these tools may not be used in writing your project deliverables, as the learning objective of this activity is to prepare you to write academic research papers, and most publishers have restrictive generative AI policies.

RULES, RIGHTS & RESPONSIBILITIES

See the Guide's to Rules, Rights and Responsibilities at <http://guide.wisc.edu/undergraduate/#rulesrightsandresponsibilitiestext>.

ACADEMIC INTEGRITY

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of

the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to <https://conduct.students.wisc.edu/academic-integrity/>.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

McBurney Disability Resource Center syllabus statement: The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform the instructor of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. The instructor will work either directly with the student or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. In addition to completing an electronic Faculty Notification Letter request through McBurney Connect, it is important for students to contact the course instructor directly by the end of the third week of the semester to set up a meeting to discuss implementation of any necessary accommodations. This early communication helps ensure that accommodations can be implemented in a timely manner. For example, if an alternative exam room is needed, arrangements must be made well in advance of an exam date to ensure room availability and to secure a room booking. <https://mcburney.wisc.edu>

Additional disability statement: In addition to completing an electronic Faculty Notification Letter request through McBurney Connect, it is important for students to contact the course instructor directly by the end of the third week of the semester to set up a meeting to discuss implementation of any necessary accommodations. This early communication helps ensure that accommodations can be implemented in a timely manner. For example, if an alternative exam room is needed, arrangements must be made well in advance of an exam date to ensure room availability and to secure a room booking.