

CSE40424 Human-Computer Interaction
Spring 2025
Tuesday/Thursday 3:30pm - 4:45pm
Debartolo Hall Room 140

INSTRUCTOR

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Office Hours: Tuesdays, Thursdays 2:00 PM - 3:00 PM or by appointment using [Calendy](#).

All office hours are held on [Zoom](#).

COURSE INFORMATION

Description

You will engage in an in-depth exploration of the field of Human-Computer Interaction (HCI) including its history, goals, principles, methodologies, successes, failures, open problems, and emerging areas. Broad topics include theories of interaction (e.g., conceptual models, stages of execution, error analysis, constraints, memory by affordances), design methods (e.g., user-centered design, task analysis, prototyping tools), visual design principles (e.g., visual communication, digital typography, color, motion), evaluation techniques (e.g., heuristic evaluations, model-based evaluations), and emerging topics (e.g., information visualization, affective computing, natural user interfaces).

Learning Objectives

Upon successful completion of this course, you will be able to:

- **(LO1)** Demonstrate knowledge of and conceptual understanding of the underlying theory of human-computer interaction and master the basic principles of effective computer interface design and evaluation.
- **(LO2)** Apply state-of-the-art methods and techniques to critically evaluate existing computer interfaces.
- **(LO3)** Apply the interaction theories, design methods, visual design principles, and interface evaluation techniques towards the *design, implementation, and evaluation* of a new computer interface.
- **(LO4)** Learn about new and exciting trends, paradigms, and applications in HCI by reading and critiquing peer-reviewed publications in this area.
- **(LO5)** Develop a general appreciation for the science of HCI, its past, present, and future.

Plan to Achieve the Learning Objectives

Content, activities, and assessments have been carefully selected to help you meet or exceed the learning objectives as illustrated below.

- **LO1:** Lectures, readings, and quizzes
- **LO2:** Interface evaluation assignments, peer feedback, term project
- **LO3:** Semester-long team project
- **LO4:** Lectures, reflections on and discussions of the state of the art
- **LO5:** All activities in addition to considerable autonomy in selecting content for assignments, the team project, presentations, and reflections (65% of your grade involves content and materials that you or your team will select based on your interests).

Course Materials

Materials will include a combination of Don Norman's book (required), Erik Klimczak's book (required), and other materials that will be provided by the instructor.

- **(Required)** [The Design of Everyday Things: Revised and Expanded Edition](#) (2013 edition) by Don Norman (Basic Books)
- [Design for Software: A Playbook for Developers \(2013\)](#) by Erik Klimczak (Wiley). This book is available online through the Hesburgh Library
- **Copies of book chapters and peer-reviewed publications** will be distributed and/or made available online over the course of the semester

Prerequisites

There are no formal prerequisites for the course with the exception that all students should be able to create simple web applications (e.g., using HTML, Python, CSS, JavaScript) and be willing/able to work effectively in teams.

Communication

If you have a question or need to communicate with the instructor/TAs, please consider the following pipeline:

1. **Post your question on Canvas**
 - All announcements and course information will be posted on Canvas.
 - Post *general* questions about your projects, presentations, assignments, and readings on the Canvas Discussion page.
 - The instructor and TAs can answer your questions there, and everyone can see the answers.
2. **Send an email to the TA**
 - Urgent and specific questions about your projects, assignments, readings, and grades.
 - Please include "[CSE40424]" in your email when emailing the TA.
3. **Sending an email to the instructor**
 - Specific or sensitive questions about your projects and grade resubmissions.
 - Please include "[CSE40424]" in your email when emailing the instructor at aszyman2@nd.edu

We will try our best to respond quickly, but please allow up to two business days for the response. Please feel free to send reminders if you do not receive a response within that time frame.

Teams

You will be asked to form a team of three students for the team project and presentations on cutting-edge HCI topics. Each member of the team will receive the same score on each team assignment. At the end of the semester, you will grade your team members' contributions. If extraordinary circumstances arise, the instructor reserves the right to deduct points from a student if it has been demonstrated that the student has not adequately contributed to the team's work.

Assessment

You will be evaluated on the basis of individual assignments (IA) and team assignments (TA). 50% of the assessments will be based on individual performance, and the remaining 50% will be based on team performance. A brief description of the various assignments and evaluation components is provided in the table and summarized below. The instructor will add specific details for each assignment over the course of the semester (see Schedule link on Canvas Resources).

Assessment Item	Number of items	Percentage of total grade (%)
<i>Individual Evaluation</i>		
Quizzes	5	20%
Individual Assignments	2	15%

State of the Art: Paper Discussion	10	7.5%
Class Participation	2	7.5%
Team Evaluation		
Project Sprints	4	40%
Peer Evaluation	2	5%
State of the Art: Team Presentations	1	5%

Individual Evaluations:

- **Quizzes (LO1, LO5: 20% of the total grade)**
There will be up to five short quizzes to test basic conceptual understanding of the material covered in the classes and the course readings. The quizzes will include open-ended, True/False, and multiple-choice questions. The quizzes are not expected to be particularly difficult but will focus on important facts and conceptual understanding of the content.
- **Assignments (LO1, LO2, LO3, LO5: 15% of the total grade)**
You will be asked to complete three individual assignments at various points in the course. These assignments are associated with key milestones in the course. For example, the first assignment asks that you select and perform an evaluation of an interface of your choosing based on visual design principles that we will cover in the course. A second assignment might ask you to comparatively evaluate two interfaces, while a third might ask you to design a usability study to evaluate an interface or to design an entirely new interface. These will be timed to occur mostly during demo weeks for team projects.
- **State of the Art Papers: Paper Discussion (LO4, LO5: 7.5% of total grade):**
In preparation for the presentation/discussion, all students will be expected to read the paper and respond to an online pre-reading prompt published on *Canvas*. The exact weight of each preparation exercise will vary based on the number of teams (i.e., weight for an individual response = $10/\text{number of presentations}$), but 10 presentations are envisioned at this time.
- **Class Participation (7.5% of total grade):**
We will evaluate how regularly you attend class and how actively you participate in class discussions, activities, office hours, and online conversations. It will also include your pre-class preparation as measured by small pre-class tasks to go along with daily readings. We will post two grades: one evaluation before the Spring Break (3.75%), and another evaluation before the Final Presentations (3.75%). You will have an opportunity to discuss your grade with the instructor and TA.

Team Evaluations:

- **Semester-Long Project (LO1, LO2, LO3, LO5: 40% of the total grade)**

At the core of the course is a semester-long *team* project where you will have an opportunity to apply all the principles and techniques covered in the course towards the design, implementation, and evaluation of a functional interface prototype. You will have considerable freedom in selecting a target application for your project, but the selection of topic and scope of the project will be done in consultation with the instructor. It is imperative that your team selects a topic that is personally meaningful to the team members since you will be working on this project for a major part of the semester. The project will be evaluated on the basis of the following four components that align with the various stages of the User-Centered Design Process:

- **Project Sprint 1: Proposal/UserResearch (25 pts).** The project proposal is an agreement between the instructor and your team. Although it might be necessary to slightly deviate from your proposed project and scope, you are to a certain degree committed to the work specified in the proposal. You will also complete the critical user research in this sprint.
- **Project Sprint 2: Ideate + Prototype (25 pts).** This sprint will focus on generating ideas and low-fidelity prototypes for your design. You will not develop a computer prototype at this time.
- **Project Sprint 3: Heuristic Eval + Computer Prototype (25 pts).** This focuses on conducting a heuristic evaluation and your first computer prototype for your design.
- **Project Sprint 4: Usability + Demo Video (25 pts).** The last sprint will include a refined working prototype, detailed summative usability testing, and a video demo.
- **Peer Evaluation (5% of total grade):**
You will be required to submit a peer evaluation. The main purpose of this evaluation is to identify and penalize group members who fail to make satisfactory contributions to your team. There will be two assessments: one evaluation after the Project Spring 2 submission (2.5%), and a second evaluation after the Final Presentations (2.5%)
- **State of the Art Papers: Team Presentations (LO4, LO5: 5% of total grade):**
Your team will select a peer-reviewed publication (from a list of acceptable papers) of interest to your group and of relevance to the course. Eight minutes of certain classes (see Schedule for specifics) will be devoted to a class presentation/discussion of the paper that your group will lead. All group members are expected to participate in the presentation.

Grad Requirements

Students taking the course for graduate credits must complete additional requirements. In addition to the regular course requirements, all grad students will:

1. Create a lecture module on a current HCI topic (e.g. a specific methodology, a particular technology, etc.)
2. Complete a team project (2 person teams) based on a novel research question/problem
 - a. Sprint 1: Proposal + Lit Review

- b. Sprint 2: Study/System Design
- c. Sprint 3: Data Collection + Implementation
- d. Sprint 4: Analysis + Reflection + Video

Grading Scale

Grades will be assigned via the scale listed below. Rounding or curving of grades is not anticipated.

A	$93 < A < 100$
A-	$90 < A- < 93$
B+	$87 < B+ < 90$
B	$82 < B < 87$
B-	$80 < B- < 82$
C+	$77 < C+ < 80$
C	$72 < C < 77$
C-	$69 < C- < 72$
D	$60 < D < 69$
F	$0 < F < 60$

Posting Grades

Your scores on the various assignments will be posted on Sakai.

Workload

You will be required to spend a significant amount of time on out-of-class work. This includes reading 50-100 pages for each quiz, working on the group project completing individual assignments, preparing presentations, reading state-of-the-art papers, and preparing for each class by completing the weekly reading and preparatory activities (e.g. videos, prep tasks). I will attempt to keep this total load at approximately 5-8 hours/week **outside** of class meeting time.

Late Submissions

Unless specified in the particular assignment, late submissions will be accepted with a 50% deduction within the 24-hour period following the submission deadline. The deduction will be waived if due to circumstances out of the student's control and appropriate documentation is provided.

Extension Token

To accommodate unforeseen challenges that you may face during this semester, we will provide one extension token for your Individual Assignments. An extension token allows you to turn in an assignment up to 48 hours late. You will be allowed to submit up to one individual assignment late. In order to use an extension token, you must email the TA one day in advance. Without advanced notice, the extension token will not be valid. Extension tokens will not be allowed for group projects (i.e., team assignments) or quizzes.

Missed Quizzes

Students who will have to miss a quiz for extraneous circumstances out of the student's control will be allowed to reschedule ***if the instructor is notified in advance*** and appropriate documentation is provided. Group presentations (e.g., in-class reflections) cannot be rescheduled.

Regrading assignments

Regrade requests are due no later than one week after the grade is published on Canvas. Regrade requests are intended to correct grading errors, not to negotiate a higher grade. When work is submitted for regrade, the entire work may be regraded, which may result in a lower grade.

OTHER IMPORTANT INFORMATION

Privacy Practices in This Course

This course is a community built on trust; in order to create the most effective learning experience, our interactions, discussions, and course activities must remain private and free from external intrusion. As members of this course community, we have obligations to each other to preserve privacy and cultivate fearless inquiry. We are also obliged to respect the individual dignity of all and to refrain from actions that diminish others' ability to learn. Please note the following course principles:

Using learning materials

Course materials (videos, assignments, problem sets, etc) are for use in this course only. You may not upload them to external sites, share with students outside of this course, or post them for public commentary without my written permission.

Using live class recordings

We may record some class meetings to support remote students and to provide everyone in the class with useful study aids. These recordings will be available for review through Panopto. The University strictly prohibits anyone from duplicating, downloading, or sharing live class recordings with anyone outside of this course, for any reason.

Sharing student information

Our materials and activities may provoke arguments or spirited discussion; some of us may volunteer sensitive personal information. Do not share others' personal information on sensitive topics outside of our course community. Student work, discussion posts, and all other forms of student information related to this course are private.

Sharing course information with others

Sharing private information about our course community (including discussions, activities, presentations, student work, etc) with others for the purpose of inviting external attention, intrusion, ridicule, or harassment is an egregious breach of trust.

Violating these principles will be handled according to the appropriate University protocol.

Policy on generative AI (ChatGPT and similar services)

We will adhere to Notre Dame's current policy: "Representing work that you did not produce as your own, including work generated or materially modified by AI, constitutes academic dishonesty. Use of generative AI in a way that violates an instructor's articulated policy, or using it to complete coursework in a way not expressly permitted by the faculty member, will be considered a violation of the Honor Code." For more details, please check out Notre Dame's Generative AI Policy for Students.

While you can use generative AI to edit documents and revise grammar, we will not accept using these tools to generate reports, build interfaces, or documents from scratch. If you or your team uses ChatGPT or similar Generative AI tools to complete an assignment, you must disclose their use, cite them, and then explain how you used them and/or how these tools edited the output. We want to encourage you to be honest about their use. We will use these tools during the class for exercises and demonstration purposes.

Plagiarism/Cheating and Honor Code

Plagiarism or cheating in any form is unethical and detrimental to education and *will not be tolerated*. With the exception of team projects, all work submitted by a student is expected to be a student's own work. Plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to look up resources in the literature (including the internet) for their assignments, but *appropriate references must be included for the materials consulted, and appropriate citations must be made when the material is taken verbatim*.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor's discretion) a failing grade in the course. The instructor may also decide to forward the incident to the Departmental Honesty Committees for further disciplinary action.

Students in this course are expected to abide by the **Academic Code of Honor Pledge**:

"As a member of the Notre Dame community, I acknowledge that it is my responsibility to learn and abide by principles of intellectual honesty and academic integrity, and therefore I will not participate in or tolerate academic dishonesty."

For all assignments, the following table summarizes how you may work with other students and use print/online sources:

	Resources	Solutions
Consulting	cite	not allowed
Copying	cite	not allowed

Further information can be found at <https://honorcode.nd.edu/>

Support for Student Mental Health at Notre Dame

Care and Wellness Consultants provide support and resources to students who are experiencing stressful or difficult situations that may be interfering with academic progress. Through Care and Wellness Consultants, students can be referred to [The University Counseling Center](#) (for cost-free and confidential psychological and psychiatric services from licensed professionals), [University Health Services](#) (which provides primary care, psychiatric services, case management, and a pharmacy), and [The McDonald Center for Student Well Being](#) (for problems with sleep, stress, and substance use). Visit [care.nd.edu](#).

Students with Disabilities

Any student who has a documented need and is registered with Disability Services should speak with the professor as soon as possible regarding accommodations. Students who are not registered should contact the [Center for Student Support and Care](#). Students with visible and invisible disabilities can register with Sara Bea Accessibility Services to receive appropriate accommodations.

Diversity, Equity, and Inclusion

The University of Notre Dame is committed to social justice and diversity. We share that commitment and strive to maintain a positive learning environment based on open communication, mutual respect, and non-discrimination. In this class, we will not discriminate based on race, sex, age, economic class, disability, veteran status, religion, sexual orientation, color, or national origin. Any suggestions as to how to further such a positive and open environment will be appreciated and given serious consideration. In addition, we challenge all students to aspire to more. It's one thing to avoid racist, sexist, classist, etc. remarks. It's another to share in the struggles of our brothers and sisters who have been historically marginalized and disadvantaged and to help do our part to dismantle systemic issues. Additional information about the University's discrimination, harassment, and sexual misconduct policies, including campus resources available to assist individuals with concerns, is available online at the [Office of Institutional Equity](#).

Schedule

Please see the Canvas website for the most up-to-date schedule, reading list, and due dates.

Changes to the syllabus

The syllabus is subject to change. This includes changes in the readings, deadlines, and assignments. Please be aware of potential updates by checking the website. We will assess students' feedback frequently to adjust the syllabus.