CS4474B/CS9552B: Human-Computer Interaction

Course Information

Title: Human-Computer Interaction (CS4474B/CS9552B)
Term: Winter 2026
Lectures: Mondays 2:30 to 5:30pm
Location: [redacted]

List of Prerequisites

CS3307
Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.
Students enrolled in this course are likely final-year undergraduate or first-year graduate students. They are expected to have a strong understanding of programming, frameworks and techniques. Having taken courses in cognitive science or psychology of thinking can be helpful for this course, but not necessary.

Instructor and Teaching Assistants

Instructor: Dr. K. Sedig
Office hrs: Mondays 12:00 to 2:00pm (by appointment)

TAs: Ali Sharifi Kia (ashari45@uwo.ca) & Vladimir Zhurov (vzhurov3@uwo.ca)
Office hrs for TAs: to be determined

Course Description

This course provides an overview of several areas in human-computer interaction (HCI). Broadly speaking, HCI is an interdisciplinary subject concerned with the design, evaluation, and implementation of interactive systems for human use and with the study of major phenomena surrounding how humans work with technology. HCI addresses any interaction with computers by humans, as users or developers, as individuals or as groups.
This course consists of class discussions, reading assignments, presentations, and a team-based project. On completion of the course, students are expected to have strong theoretical knowledge of and practical experience in the fundamental aspects of conceptualizing, designing, and evaluating interactive systems that are useful and usable. Design of usable technology draws on knowledge of computer, information, cognition, and communication sciences. It is expected that students will develop sufficient background in HCI issues to do more advanced work in this area.

Learning Objectives

- To identify and describe HCI concepts/terminology/issues used in the design and evaluation of interactive computing systems
- To design human-centered software, consciously incorporating and applying HCI principles in the design process
- To evaluate the effectiveness of a piece of software in the light of the discussed HCI principles
- To think deeply about users' needs and distinguish the differences between system-centered design and human-centered design

Structure and Method of Evaluation

This course is based on the experiential model of learning. It has both a theoretical component as well as a practical component. The theoretical component includes notes, readings, and discussions whereby students learn concepts, principles, and techniques. The practical component includes a term-long project. The project is intended to help students apply the concepts and principles and get to reflect on their own and other people's practice. In this component, students work in teams. Teams get to design prototypes of different HCI systems that incorporate and integrate many interface elements and principles. Assigned readings as well as class discussions provide students with the foundation to work on their projects. Students are expected to study and understand the theoretical principles and concepts carefully. Course notes are shared with you and you have to study them carefully. Class time will be used for discussing the notes and questions and answers. As such, regular attendance and engagement in discussions is essential to an understanding of the theoretical component of the course. The project provides an opportunity to see how theoretical concepts and principles have practical applications.

Course Website

Students should check OWL (https://westernu.brightspace.com/d2l/home) on a regular basis for news and updates. This is the primary method by which information is disseminated to all students in the class, and by which assignments are submitted.

Textbook (Required)

Sharp, Helen; Preece, Jennifer; & Rogers, Yvonne (2019). *Interaction Design: Beyond Human-Computer Interaction (5th Ed.)*. Wiley. (available through Amazon.ca—Paperback ($73) or Kindle ($69); may also be available at the university bookstore)

Other useful resources:

Lidwell, W., Holden, K., & Butler, J. (2023). *Universal Principles of Design: 200 Ways to Increase Appeal, Enhance Usability, Influence Perception, and Make Better Design Decisions*.
Norman, D. (2013). *The Design of Everyday Things*. Basic Books.
Weinschenk, S. (2020). *100 Things Every Designer Needs to Know About People*. New Riders.

Some Topics

This course will cover many topics; some topics that will be discussed include the following:

- Framework for designing interactive systems
- Human-centered interactive systems design
- Usability and evaluations
- Principles of design
- Metaphors in design
- Conceptual models

Method of Evaluation

The overall course grade, out of 100, will be calculated as listed below.

Component	Value
Reading Assignment Summaries	10%
Midterm Exam	20%
Group Project	35% (group mark)
Final Exam	35%

Communication & Email Policy

All course-related emails should come from a Western email address—gmail and other emails can be lost. No emails from other accounts will be read or accepted. Also, any email you send should have a proper subject line (e.g., <CS4474: Project Initial Proposal>). Otherwise, you may not receive a reply. Emails should be sent to the instructor as well as the TAs. If you do send us an email, we generally answer within 5 days, depending on the volume of emails received during that week. However, we always try our best to reply to your emails as soon as we can. *Please do not expect replies to emails during weekends or after 6pm.*

Course Notes and Class Discussions

Course notes and class discussions will provide an overall formal framework for an understanding of the course materials. They supplement the materials in the textbook. Course notes will be shared with you via OWL. You need to study course notes carefully. The notes also contain links to many videos to help you develop a deeper understanding of studied concepts. Understanding of the concepts covered in the notes is essential for you to do well in your exams and the projects.

Reading Assignment Summaries

You have weekly readings from the textbook. A thorough and deep understanding of the readings is essential if you want to do well in other components of the course. These readings will help you contribute to and participate in class discussions knowledgeably and effectively. To help you keep up with the reading materials, you are required to submit a *one-page summary* of the assigned readings every week (see **Course Schedule**). This summary should *highlight and present the main issues or concepts* discussed in the readings. You can do these summaries in whatever manner you think helps you understand the concepts. Those who do not submit their summaries will receive a zero mark for that reading summary. Those who submit their summaries will receive a full mark. These summaries *will not be returned* to you. You can calculate your mark for this component based on the number of summaries that you submit.

Midterm & Final Exams

Midterm exam will be in the form of multiple-choice and short open-ended questions, with maybe one or two long questions. For this exam, you are responsible for, and need to study, all lecture notes (including videos) and assigned readings up to and including the materials for the week prior to the exam. *If you miss this exam due to illness, there will be no makeup exam. Your midterm exam will be re-weighed to the final exam automatically for all those who miss the midterm exam.*

The final exam will cover everything that has been studied during the course (lecture notes & their videos as well as the assigned readings from the textbook), from the beginning to the end.

Class Attendance and Participation

Not only you are supposed to attend lectures, but also you are to keep up with the materials covered in the course and participate intelligently, informatively, and regularly in class discussions. You should generate discussions in class, pose questions, answer questions, bring ideas to class, etc. In other words, you should fully participate in the course and not be a passive observer.

Policy on Electronic Devices

The following are not allowed during lectures:

1) Using cell phones
2) Checking emails
3) Chatting with friends online
4) Playing video games
5) Browsing social media

Personal computers should only be used for note-taking purposes.

Project

This component of the course is structured to make you gain experience in designing new HCI systems by applying the theoretical concepts learnt in the course to a concrete problem. In teams of 5 to 6 people (depending on the number of registered students), you will design and implement an application (henceforth referred to as *app*). The project involves a complete reconceptualization and redesign of an existing app that exists in the public domain. The instructor will give all teams two options to choose from between two existing online apps: 1) a digital game, and 2) a visual learning tool for children. The project will have the following deliverables:

1. team profile and proposal,
2. implemented prototype,
3. final report,
4. peer evaluation, and
5. final class presentation.

The most important thing about the project is for you to learn to consciously apply the theoretical concepts and principles of the course in your design.

Project Submissions

For your submissions, use a format that does not require special software. Use only the following: .docx, .pptx, .jpg, and PDF. The team profile and proposal, final report, and presentation will be submitted electronically through the OWL system. The prototype and its source code will be submitted using GitHub platform. Regarding the details of the implemented prototype, you need to consult with the TAs.

Team Profile and Application Proposal

This document has two parts: Team Profile and Application Proposal. In the team profile, you will identify your team members and provide a brief background of them (e.g., what other courses they have taken, knowledge of tools, etc.). In the proposal, you will describe what you want to do to redesign (i.e., topic of your project), and the scope of your project. You need to make sure that your scope is manageable and that your team members have enough expertise to carry it out. This document will be a *maximum of 4 pages long*.

Final Implementation (Prototype)

The prototype will be a *fully functional implementation* of your design as an interactive system. You can use any tool or programming environment you choose with which to implement your prototype. *Make sure you DO NOT spend time learning a new language or a tool to implement your design*. Use a tool that you know well so that you can *concentrate on design rather than implementation issues*.

Final Design and Report

Your final, implemented design will be assessed based on the final report and final implementation (prototype). All its elements should be clear to the instructor and the TA(s).

The final report will consist of the following 5 sections: an executive summary, a navigational map of your system, and a list of at least 20 design principles that you have used (with justifications), a final heuristic evaluation of the system, and your thoughtful recommendations for how the system can be improved in the light of your final evaluation. Note: I must emphasize strongly that your mark on this component will be a reflection of how you conceptualize and incorporate semiotic and representation principles, how diverse and elaborate your interactive features are, how good your conceptual models and metaphoric structures are, and so on. The most important is how you can weave and integrate as many design principles and ideas in sophisticated ways into your app. You will derive a set of evaluation heuristics from the course materials and use it to evaluate your system. *Make sure that your report and the language you use are based on the concepts and ideas studied in the course.*

Since this is a group project, it must be submitted on time. Even if one student in the group is unable to participate, the rest of the group is responsible for making sure to submit all the components of the project in time.

Presentation

At the end of the term you will give a class presentation of your app. This presentation will be 15 minutes long, depending on the number of teams. For the benefit of the rest of your classmates, you will describe the evolution of your design: your motivation for choosing the project, your design, your prototype, and so on. You will do this collectively as a team. There will also be 5-10 minutes after your presentation for questions, comments, and class discussion. You will submit a copy of your presentation in electronic form through the OWL system. *Note*: Your prototype does not need to be complete by the time of the presentation. If you want, your final report can be based on the state of the prototype at the time of the presentation to reduce the amount of work that you need to do. This is an informal presentation. *Also, you can bring snacks to share with others while you are doing your presentations.*

Peer evaluation

On the last day of classes, you will evaluate your team-mates or peers in terms of how cooperative they were, how much effort they put into the project, whether they attended your meetings, and so on. The project mark of students whose peer evaluation is *below 80%* will be adjusted to reflect their lack of participation in the project. That is, someone who gets 70% on peer evaluation will receive 70% of the total project mark for the group. Each student should get *at least 50%* on this component of the project to pass the course. *Please note*: Students who fail on their peer evaluation will automatically fail the course, unless, based on justifiable reasons provided by the student, the instructor judges otherwise. In case there are team members who do not attend team meetings or do not contribute to the work of the project, it is the responsibility of other team members to immediately report this to the instructor or the TAs to seek advice. Do not wait until the end of the term to resolve such issues.

Project marking scheme

Group Project	**35% (group mark)**
Team Profile & Application/Topic Proposal	***2%***
Final Implementation *Fully functional app: 8%* *Limited functional app: 6%* *Full app & some bugs: 6%* *Full app & many bugs: 4%* *Limited app & some bugs: 4%* *Limited app & many bugs: 2%* *No app: 0%*	***8%***
Final Design and Report	***22%***
Degree of design complexity of app (how complex app is and how design principles are interwoven together.): 5% *(Very Basic: 1%, Simple: 2%, Medium: 3%, Complex: 4%, Very Complex: 5%)*	
Executive summary of your project: 1%	
Storyboard and script of app and how to navigate through the screens: 2%	

List of design principles used in the app [20+ principles], with reference to their location in the app and justification: 10% *Evaluation of app using heuristics and suggestions for future improvement: 4%*	
Project Presentation	***2%***
Peer Evaluation	***1%***

Course Schedule

The table below contains the schedule and due dates of the reading summaries and project components. Note: Your summaries are due before each class—e.g., Summary #1 is due on January 12th at 2:30pm. You are encouraged to submit your summaries before this deadline so as not to be late.

Week	*Summaries Due Dates (#Chapter: date)*	*Other Due Dates*
#1		
#2	#1: 1-12	
#3	#2: 1-19	
#4	#3: 1-26	Project team profiles & proposals: 1-27
#5	#12: 2-2	
#6	#4: 2-9	
#7		Reading Week: 2-17
#8	#7: 2-23	Midterm Exam: 2-24
#9	#8: 3-2	
#10	#13: 3-9	
#11	#14: 3-16	
#12	#16: 3:23	
#13		Final project submission; Project presentation groups: 3-30
#14		Project presentation groups: 4-6

Academic Policies

The website for Registrarial Services is http://www.registrar.uwo.ca. In accordance with policy, http://www.uwo.ca/its/identity/activatenonstudent.html, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. Also note that electronic devices will not be permitted on tests and exams. Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf

Support Services

Students who are in emotional/mental distress should refer to Mental Health@Western http://www.uwo.ca/uwocom/mentalhealth/ for a complete list of options about how to obtain help.

University Students' Council: http://westernusc.ca/services/

Absences & Missed Course Components

Students must familiarize themselves with the University Policy on Academic Consideration – Undergraduate Students in First Entry Programs posted on the Academic Calendar: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for attempted or completed work, whether online or in person. The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult Accessible Education.
For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage: https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests normally must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request without supporting documentation in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Examinations scheduled during official examination periods (Defined by policy)
- Submission of all project components

When a student mistakenly submits their one allowed Academic Consideration request without supporting documentation for the assessments listed above or those in the Coursework with Assessment Flexibility section below, the request cannot be recalled and reapplied. This privilege is forfeited.

There will be *no makeup assignments*. If you are unable to meet a course requirement due to illness or other serious circumstances (including work that is worth less than 10% of the total course grade), in consultation with the TAs or the instructor, a missed component may be re-weighed. For policy on missing the midterm exam, refer to that section in the outline.

Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the Western Multicultural Calendar: https://multiculturalcalendar.com/ecal/index.php?s=c-univwo
You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Accessibility

You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

Support Services
Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: https://www.uwo.ca/se/digital/.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, http://westernusc.ca/services.