COMP 3008A – Human-Computer Interaction
School of Computer Science, Carleton University
Course Outline

Main course details

Overview
- *Course instructor*: Nadine Marie Moacdieh
- *Email*: nadine.moacdieh@carleton.ca
- *Student hours*: Thursdays from 1-2 pm or by appointment; you can come to HP 5135 or join on Zoom (link will be posted to Brightspace).
- *Classroom*: Room location is posted on Carleton Central
- *Lecture times*: Tuesdays and Thursdays from 2:35 to 3:55 pm (in person)
- *Course website*: On Brightspace
- *University dates and deadlines:* please check the official academic dates

Teaching assistants (TAs)
A list of TAs and their emails will be posted to Brightspace once the course starts.

Course calendar description
Fundamentals of the underlying theories, design principles, development and evaluation practices of human-computer interaction (HCI). Topics may include: theories of interaction, user interface frameworks, desktop, web, mobile, and immersive applications, usability inspection and testing methods, and qualitative and quantitative approaches to HCI research. Includes: Experiential Learning Activity. Precludes additional credit for SYSC 4130. Prerequisite(s): (COMP 2404 or SYSC 3010 or SYSC 3110) and (COMP 2406 or SYSC 4504). Lectures three hours a week.

Materials
- *Textbook (**optional**):* Interaction Design: Beyond Human-Computer Interaction (5th edition) by Helen Sharp, Yvonne Rogers, and Jenny Preece. Wiley Publishing, 2019
    - Available at the Carleton University Bookstore and from online retailers like Amazon) for around $73. Older versions are fine.
    - Note that students are not required to purchase textbooks or other learning materials for this course.
- *Other course resources:* Additional materials will be available on Brightspace throughout the term. Preliminary course slides will be posted to Brightspace before class and complete slides will be posted after class. Lectures will not be recorded. In the case of instructor illness or heavy snow, lectures will be given over Zoom.
- Note that all materials created for this course (including, but not limited to, lecture notes, in-class examples, assignments, and exams) remain the intellectual property of the instructor. These materials are intended for the personal and non-transferable use of students registered in the current offering of the course. Reposting, reproducing, or redistributing any course materials, in part or in whole, without the written consent of the instructor, is strictly prohibited.

Topics covered

Human-computer interaction (HCI) is a field of study related to the evaluation and design of interfaces that maximize efficiency, accuracy, and safety for users in different situations. Topics covered in this course include user-centered design principles, basics of human cognition, interface design principles, gathering information about the user via interviews, surveys, and other techniques, quantitative and qualitative data analysis approaches, basic experiment design, prototyping, and usability testing.

Date	Tentative lecture outline	Deliverables*	Topic
T Jan 6	1. Introduction to HCI		
Th Jan 8	2. Basic HCI concepts		Introduction
T Jan 13	3. Design principles		
Th Jan 15	4. Attention and visual search	**Assignment 1**	
T Jan 20	5. Perception, memory, cognitive frameworks		
Th Jan 22	6. Human error		
T Jan 27	7. Observations		Understanding the user
Th Jan 29	8. Interviews	**Assignment 2**	
T Feb 3	9. Surveys		
Th Feb 5	10. Personas and task analysis		
T Feb 10	11. InfoVis and function allocation		Interface design
Th Feb 12	12. Conceptual models	**Assignment 3**	
No classes (Winter break)			
T Feb 24	13. Prototypes		
Th Feb 26	14. Midterm review session		
T Mar 3	**Midterm 1**		
Th Mar 5	15. Initial evaluation		
T Mar 10	16. Participant ethics		
Th Mar 12	17. Usability testing	**Assignment 4**	
T Mar 17	18. Design of experiments		
Th Mar 19	19. Experiment considerations		Testing and evaluation
T Mar 24	**Midterm 2**		
Th Mar 26	20. Introduction to quantitative data analysis		
T Mar 31	21. Differences between groups		
Th Apr 2	22. Writing good reports		
T Apr 7	23. HCI research directions	**Project**	HCI research

*Note that all assignments are due on Friday of that week. The project is due in two parts on Tuesday and Wednesday.

Learning objectives

Upon completing COMP 3008, you will be able to:

- Explain the importance of usability in the context of interface design
- Describe the different steps and key aspects of a user-centered design process
- Describe different types of human cognition, their limitations, and factors that affect them as related to human-computer interaction
- Identify the types of errors that people can make and how those can be overcome in design
- Carry out a heuristic evaluation using well-known interface design principles
- Gather and analyze user and context information using techniques such as interviews, focus groups, and surveys
- Create different types of conceptual models and prototypes using Balsamiq and Figma.
- Select and conduct the appropriate form of usability testing to evaluate a design
- Design a formal usability experiment, including the necessary ethical considerations
- Analyze quantitative experiment data using basic statistical techniques

Assessment scheme

Component	Notes
Assignments (40%)	- Four individual assignments to be submitted on Brightspace. - Every assignment has a due date and a grace period. You can submit during the grace period, but you cannot ask questions about the assignment. Assignments submitted after the grace period will not be accepted. If you have any extenuating circumstances, you can submit the appropriate form (see Deferral section). - You have one week after an assignment grade is posted to contact your TA with any questions or concerns; after one week, no requests can be made and all grades are final.
Midterm (30%)	- There are two midterm dates during the semester. Midterm 1 is mandatory whereas Midterm 2 is optional. If you choose to do Midterm 2, your highest grade will be considered. Both exams are comprehensive (up to the material covered at that point) - The midterms will take place in class during class time. - The exams are closed book, closed notes. - You have one week after the midterm grade is posted to contact your instructor before all grades are final.
Project (30%)	- Your project will build on the assignments you have completed and will consist of a recorded presentation (15%) and a final report (15%). The project will also be done individually. - All project deliverables must be submitted on time, otherwise you will lose 1 point per minute.

Note that while attendance is not required nor tracked, there is the possibility of earning extra points by participating in select in-class activities during the semester. You are encouraged to bring your laptop with you to class for these activities.

Course policies

Communication

- Please ask all questions related to lecture material, course policies, assignments, midterms, and the project using the appropriate discussion forums on Brightspace
- You can also attend instructor student hours to ask questions or discuss further
- Email your TA if there is a matter related to an assignment grade; please do not post these to a forum. The course instructor must be cc'd on all emails addressed to TAs.
- Any deferral requests (see Deferral section) should be communicated by email to the course instructor.
- Email your instructor in the case of confidential information or personal matters.

Deferral

As per Carleton University policies, if you have extenuating circumstances that temporarily prevent you from completing an assignment, you can fill in the Academic Consideration for Coursework Form. You must do this within three days of the deadline AND email the course instructor within that time. You will then receive a one-week extension for the assignment.

If you are sick or have personal circumstances (e.g., death in the family) that prevents you from doing Midterm 1, you will also need to fill in the form. Your grade on Midterm 2 will then be considered. Midterm 2 is optional unless you have missed Midterm 1. If you do not have a valid excuse for missing Midterm 1, your two Midterm grades will be averaged (i.e., your grade of zero will be kept).

Note that the Academic Consideration for Coursework Form should only be used for short-term concerns (less than five days) and can only be used once in the course. If you are experiencing longer-term, chronic, or ongoing challenges (including situations where you miss both midterms), you must fill out a Long Term Academic Consideration Form, submit supporting documentation, AND contact the course instructor. These situations will be dealt with on a case-by-case basis. For such cases, you may also want to consider reaching out to the Paul Menton Centre and/or the Care Support team (see the University Policies section).

Academic integrity

- Assignments must be done individually and should be your own work. You can discuss your thoughts and ideas with classmates. However, you cannot share your work with classmates or submit anything except what is your own work.
- Cheating during a midterm is strictly prohibited, where cheating includes copying another person's work during the exam, sharing your work with another person during the exam, discussing with another person during the exam, not stopping when time is up, not following exam instructions, or in any way conspiring to get a grade in a dishonest way
- You cannot post questions/answers online (to sites like Chegg, CourseHero, etc.). You are never permitted to share or upload course materials without explicit permission from your instructor.
- Use of any generative AI to generate assignment/project material will be considered academic misconduct. This includes, but is not limited to, chatbots (e.g., ChatGPT, Google Bard, Bing Chart), research assistants (e.g., Elicit), and image generators (e.g., Stable Diffusion, Dall-E),

etc. An exception to the above rule is made for automated grammar and punctuation checking tools (such as Grammarly).

- References to any material you use but did not originate must use the IEEE/APA/MLA citation style. Failure to reference materials correctly or copying exact wording from online sources can result in severe penalties, and the use of manufactured (i.e., falsified) or misleading references will be treated as evidence of plagiarism and considered academic misconduct.

- All cases of plagiarism or cheating will be pursued through official university channels. Academic integrity offences are reported to the office of the Dean of Science. Penalties for such offences can be found on the Faculty of Science academic integrity webpage. You can also check the official university policies on academic integrity. If you are unsure of the expectations regarding academic integrity, please ask your instructor.

Respect and inclusion

The course instructor and TAs in this course are committed to fostering a learning environment that is inclusive for everyone. All students in the class, the instructor, TAs, and any guests should be treated with respect during all interactions, including any communications in class, through email, during student hours, or on any forum. Please feel free to contact your instructor via email or in person if you have any experiences in this class that made you feel uncomfortable.

School of Computer Science policies

Laptop policy

Every student that has been enrolled in a 1000-level (i.e., first year) course offered by the School of Computer Science after the 2020/2021 school year is required to have a laptop. This includes COMP1001, COMP1005, and COMP1006. For more information, please visit https://carleton.ca/scs/scs-laptop-requirement/ and then review the requirements at https://carleton.ca/scs/scs-laptop-requirement/laptop-specs/.

Undergraduate academic advisor

The Undergraduate Advisors for the School of Computer Science are available in Room 5302HP; or by email at scs.ug.advisor@cunet.carleton.ca. The undergraduate advisors can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisors will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and Writing Tutorial Services.

SCS computer laboratory

Students taking a COMP course can access the SCS computer labs. The lab schedule and location can be found at: https://carleton.ca/scs/tech-support/computer-laboratories/. All SCS computer lab and technical support information can be found at: https://carleton.ca/scs/tech-support/. Technical support staff may be contacted in-person or virtually, see this page for details: https://carleton.ca/scs/tech-support/contact-it-support/.

University policies and resources

Land acknowledgement
Here at Carleton University, it is important that we acknowledge that the land on which we gather is the traditional and unceded territory of the Algonquin nation.

University dates and deadlines
For information about Carleton's academic year, including registration and withdrawal dates, see Carleton's Academic Calendar.

Grading
In accordance with the Carleton University Undergraduate Calendar Regulations, the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A- = 80-84	B- = 70-72	C- = 60-62	D- = 50-52
F = <50			

WDN = Withdrawn from the course; DEF = Deferred ; FND = (Failed, no Deferred)

Mental health and wellness
The Carleton Wellness Website has many resources to help support you during your time at university. Consider using these resources to help you manage your mental health.

Accommodations
Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes are outlined on the Academic Accommodations website (https://students.carleton.ca/course-outline/).