Course Syllabus

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This page <u>tiny.cc/hsyllabus</u> \Rightarrow (<u>http://tiny.cc/hsyllabus</u>) is the GoTo place that explains and links to all the relevant course components, including the Google Docs.

<u>The page tiny.cc/hquercus</u> \Rightarrow (http://tiny.cc/hquercus)_links to the announcements and will have the weekly modules: These specify and provide links to what you need to do.

CSC 428/2514 Human-Computer Interaction Research: Course Overview and Objectives

This HCI course is about **designing interventions** (with and without technology) to change people's behavior. Interventions can be interfaces, instructions, and interactions from computer to human, human to computer, human to human.

The HCI Research course's structure is around reading research papers as an advanced *Seminar* where you learn from primary papers vs lectures. The goal is to prepare you to identify and use papers that can help you tackle real-world problems in academic research and/or industry jobs.

Course Description: The course covers Applications & HCI MetaSkills of a #Designer-Mindset (Wk2) for the process of designing interventions, which is a foundation for the three key areas explained below. <u>tiny.cc/hoverview</u> \Rightarrow (http://tiny.cc/hoverview) provides a visual overview of the topics.

Methods for HCI Research/Practice. These include the HCI Research process (Wk5), data collection methods like Interviews and analysis (Wk4), Randomized A/B Experiments (Wk8), Statistical Analysis of A/B Experiments (Wk9), and Participatory Design between users and designers (Wk12).

HCI for Social Good Application. Examples of how to use HCI for enhancing Mental Wellbeing (Wk3), and in Reflection & Learning (Wk6).

HCI for Intelligent Technology. Designing technology that intelligently helps people, using both *Artificial* Intelligence/Machine Learning (Wk10), and tech for *Human* Collective Intelligence, like Crowdsourcing & Human Computation (Wk11).

Go to <u>tiny.cc/hoverview</u> \Rightarrow (<u>http://tiny.cc/hoverview</u>) when you want to see how a topic fits into the course.

HCI Research Course Overview

- This course: HCI is about DESIGNING INTERVENTIONS to change people's behaviour.
- Interventions (with and without technology) include (1) Interfaces; (2) Instructions; (3) Interactions.
- HCI interventions occur from (a) computer to human, (b) human to computer, (c) human to human (aka Psychology).

Wk2. Designer-Mindset for Interventions

HCI for Social Good

Wk3. HCI & Mental Wellbeing

Wk6. HCI & Reflection in Learning <u>Methods/MetaSkills for</u> <u>HCI Research/Practice</u>

Wk4. Interviews & Analysis

Wk5. Process of HCI Research

Wk11. Collective Intelligence, Crowdsourcing & Human Computation

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HCI for Intelligent

Technology

Wk10. HCI & Artificial

Intelligence/Machine Learning

Wk8. Randomized A/B experiments

Wk9. Statistical Analysis of A/B Experiments Wk12. Participatory Design

Lecture Schedule

The schedule may be subject to changes, which will be announced.

	Lecture Topic	Folder link
Week 1: Mon Jan 6	Welcome, Course Introduction	<u>Week1 - Introduction</u>
Week	Designer	Week2 - Designer Mindset & Intelligent Adaptive Interventions
2:	Mindset in HCI	(https://drive.google.com/drive/folders/1Qys4JIzAgyJmr-vsIFDJ7 CJf01p8u4s?
Mon	HCI Research	<u>usp=drive_link)</u>
Jan	MetaSkill of a	
13	#Designer-	
	Mindset helps	
	you constantly	
	experiment to	
	improve	
	everyday	

	Interventios,	
	getting better at	
	"achieving goals	
	within	
	constraints".	
	What is the	
	Goal of an	
	Intervention?	
	What is the	
	behaviour we do	
	or don't want	
	people to	
	engage in?	
	Why? What are	
	the Constraints	
	we have? How	
	can we	
	experiment and	
	get data to	
	figure out which	
	Interventions	
	are best, when?	
	HCI & Mental	
	Wellbeing	
Week	Case studies of	
3:	using HCI &	Week3 - HCI & Mental Wellbeing 🕞
Mon	Psychology to	(https://drive.google.com/drive/folders/1KJ92WjqBn61fblnjugqUhIF_p_zDf8RR?
Jan	do interventions	usp=drive_link)
20	to help people	
	manage mental	
	wellbeing.	
Week	Interviews &	Week4 - Interviews & Analysis ⊟→
4:	Analysis	(https://drive.google.com/drive/folders/1zLrWC_FPiESUJJ_pZRhmc6uWaOc2IW2N
Mon	HCI Research	usp=drive_link)
Jan	MetaSkill of how	

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27	to use and	
	analyze	
	interviews as a	
	way to get	
	knowledge out	
	of other people's	
	heads, into a	
	form you can	
	interpret it and	
	use it for design	
	of interventions.	
	Process of HCI	
	Research	
	Walkthrough of	
	a process for	
	how to do an	
	HCI research	
Week	project. We	
5:	define 'research	Week5 - Process of HCI Research 🕞
Mon	project' as	(https://drive.google.com/drive/folders/1hMan0SGGaK8NL2LjFt0S0ysnbT2tNJQE?
Feb	gathering data	usp=drive_link)
3	to answer a	
	question, so it	
	helps in both	
	practical	
	industry goals	
	and academic	
	research.	
Week	HCI & Reflection	Week6 - Reflection in Learning ⊟→
6:	in Learning &	(https://drive.google.com/drive/folders/1gc3nbcV4aXyfU7IRx6-qUdYItWLfCHI2?
Mon	Other Domains	usp=drive_link)
Feb	Understanding	
10	how prompting	
	people to reflect	

what helps	
learning can be	
misleading.	
Week 7:	
Mon Reading week	
Feb	
17	
Randomized A/B experiments	
8. Experiments Week8 - Randomized A/B experiments	
Mon that compare (https://drive.google.com/drive/folders/1xeE0kEBZHERsxIId94uu68xp	mml
Feb alternatives to usp=drive link)	
24 discover how to	
change &	
enhance user	
experiences.	
Week Statistical <u>Week9 - Statistical Analysis of A/B Experiment</u>	
9: Analysis of A/B (<u>https://drive.google.com/drive/folders/16R3rYbL1WnvymrHLwdQZRRNRMo</u>	<u>1768P</u> 1
Mon Experiments uspearie inter	
Mar A real-world	
example of now	
from an A/R	
experiment on	
email	
messages This	
arounds vour	
understanding	

	of statistics, to prepare for 'data science' activities in industry, as well as research.	
Week 10: Mon Mar 10	HCI & Machine learning/Artificial Intelligence Integrating HCI & Artificial Intelligence to build systems that let people organize and qualitatively test out ideas, such as in writing.	<u>Week10 - HCI & Machine learning/Artificial Intelligence</u> ⊟→ (<u>https://drive.google.com/drive/folders/1_lu-Tj5ipB_RM42o466Yq5HUxMusqNAr?</u> usp=drive_link)
Week 11: Mon Mar 17	Collective Intelligence, Crowdsourcing & Human Computation	Week11 - Collective Intelligence, Crowdsourcing & Human Computation (https://drive.google.com/drive/folders/15-E52OnNe_oaTPJtzIIRkX6hBC7tcF0i? usp=drive_link)
	Using HCI in designing workflows and technology to harness the collective intelligence of 'crowds' of people. This 'artificial' artificial intelligence can	

	be a complement or improvement over AI.	
Week 12: Mon Mar 24	Participatory Design & Recap of Course Topics Part 1 Participatory design is a method for involving more users and stakeholders in designing interventions.	<u>Week12 - Participatory Design (Course Recap Part 1</u>) ⊟→ (<u>https://drive.google.com/drive/folders/1hrU_LXg3f7JSTnHCRrRjQTn4XluKaq5R?</u> <u>usp=drive_link</u>)
Week 13: Mon Mar 31	Recap of Course Topics Part 2 Not revisiting content means the time invested doesn't have the full impact of you synthesizing, and seeing how to apply it. These required recaps allow you to review what you've learned about HCI, and how to use it!	<u>Week13 - Course Recap Part 2 (Required Attendance) Write Final Wrap-Up</u> <u>Reflections</u> ⊟⇒ (<u>https://drive.google.com/drive/folders/1kCwZt898iW2xTLNqKH6EvivXrPyjPKt6?</u> usp=drive_link)

Classes:

Monday 6:00 PM - 8:00 PM

Thursday 6:00-7:00 PM [Guest Speakers]

Delivery

Online at tiny.cc/hclasszoom (http://tiny.cc/hclasszoom)

Course Website: tiny.cc/hquercus (http://tiny.cc/hquercus)

Class-Structure

Mon 6-8

6:10-6:20 Professor explain how the week's topic is #Situated-Within-Course, & remind on the #Learning-Questions to focus on iterating your answers to.

6:20-7:00 Professor-Led Lecture & tiny.cc/hamajoseph ⇒ (http://tiny.cc/hamajoseph).

7:00-7:10 Break

7:10-8:00 Student-Led: Give presentation complementing topic, with #Learning-Questions. Share #Discussion-Questions, video, Breakout Rooms on #Discussion-Questions & #Learning-Questions.

Thu 6-7

Class-Designers (students) responsible for hosting guest speakers to come in. Joseph can line up the guests. For each guest, contact them and have them provide a 5 minute recording and 0.5 to 1.0 page Google Doc explaining who they are, what they do in their job. Get students from the class to add in questions to the Google Doc, for the guest to look at.

What to do each week?

Go to <u>tiny.cc/hquercus</u> \Rightarrow (http://tiny.cc/hquercus) and follow the module for the week: It links to the readings, the #Learning-Questions (to think about during the readings), the #Reflections,

and the heading to check your class role (class/tutorial designer, breakout room, tiny.cc/hamajoseph : (http://tiny.cc/hamajoseph).

There is also a #ToDos announcement each week.

Grading Scheme: tiny.cc/hgradedwork ⊟→

(http://tiny.cc/hgradedwork)

- Before Reflection & Algorithm (15%)
- After Reflection & Algorithm (10%)
- MOU (4%) [Mar 31]
- Class Design (15%) [Due within a week of Class. Use <u>tiny.cc/hsignup</u> ⇒ (<u>http://tiny.cc/hsignup)</u> to sign up]
- Assignment 1 (15%) [Feb 14]
- Assignment 2 (30%) [Mar 31]
- Contribution To Class (5%) [Ongoing]
- Generative AI Activities (8%) [Mar 31]

Read details at tiny.cc/hgradedwork (http://tiny.cc/hgradedwork)

Prerequisites: CSC318H1; STA237H1/ STA247H1/ STA255H1/ STA257H1/ ECE302H1

(https://engineering.calendar.utoronto.ca/course/ece302h1) / STA286H1/_CHE223H1 (https://engineering.calendar.utoronto.ca/course/che223h1) / CME263H1 (https://engineering.calendar.utoronto.ca/course/cme263h1) / MIE231H1 (https://engineering.calendar.utoronto.ca/course/mie231h1) / MIE236H1 (https://engineering.calendar.utoronto.ca/course/mie236h1) / MSE238H1 (https://engineering.calendar.utoronto.ca/course/mie236h1) / MSE238H1 (https://engineering.calendar.utoronto.ca/course/mse238h1) / ECE286H1 (https://engineering.calendar.utoronto.ca/course/ece286h1) ; CSC209H1/ proficiency in C or C++ or Java/ APS105H1 (https://engineering.calendar.utoronto.ca/course/ece180h1) / CSC180H1

Corequisites: None

Exclusions: CSC428H5. NOTE: Students not enrolled in the Computer Science Major or Specialist program at A&S, UTM, or UTSC, or the Data Science Specialist at A&S, are limited to a maximum of 1.5 credits in 300-/400-level CSC/ECE courses.

Recommended Preparation: A course in PSY;

(STA248H1/STA250H1/STA261H1)/(PSY201H1, PSY202H1)/(SOC202H1, SOC300H1)

Distribution Requirements: Science

Breadth Requirements: The Physical and Mathematical Universes (5)

Program Area Section: Computer Science

Asking Questions & Support

1. Q-and-A discord channel:

https://discord.com/channels/1149024854566252634/1199846247457099868 (https://discord.com/channels/1149024854566252634/1199846247457099868) Make sure to tag the TAs Andrii (@andrew2k), Zahra, and Joseph (@josephjaywilliams) so they see the message.

- Email <u>hciteaching@cs.toronto.edu (mailto:hciteaching@cs.toronto.edu)</u> with questions specific to you or to set up office hours.
- 3. Fill out your availability for online (or in-person) study groups, office hours, Assignment Group Meetings at this link: <u>tiny.cc/havailability</u> ⇒ (<u>http://tiny.cc/havailability</u>)

This will help people nominate times when anyone can jump onto a call (<u>tiny.cc/hclasszoom</u>) → (<u>http://tiny.cc/hclasszoom</u>)) for Study Groups, or meeting for Assignment Group Meetings (which helps save time). It will also help the TAs & Joseph schedule office hours to talk to you, or other meetings. For example, Joseph tried to meet very student at least once as part of a group.

Contact: (Email <u>hciteaching@cs.toronto.edu (mailto:hciteaching@cs.toronto.edu)</u> with questions not answered on Discord or to make appointments for office hours)

- Andrii Lenyshyn <u>andrii.lenyshyn@mail.utoronto.ca</u> (mailto:andrii.lenyshyn@mail.utoronto.ca) TA
- Joseph Jay Williams williams@cs.toronto.edu (mailto:williams@cs.toronto.edu) Instructor

Date	Details	Due
Wed Sep 25, 2024	Tiny.cc/hmoualgorithm (https://q.utoronto.ca/courses/380282/assignments/1417130)	due by 6pm

Course Summary: