

Human Computer Interaction (HCI)

Week 1: Introduction to HCI

Dr Tara Capel and Dr Uta Hinrichs



THE UNIVERSITY
of EDINBURGH

Welcome to HCI!



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Yuqing
Wang

Aulia
Wiradar
mo

Kalliopi
Vakali

Let's get to know you more...



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Enter the event code in the top banner

Event code

YMZIYNJ





Waiting for participants...

<https://app.wooclap.com/YMZIYNJ?from=instruction-slide>

Are you a UG4 or Master student?

①

UG4

39% 28 

②

Master

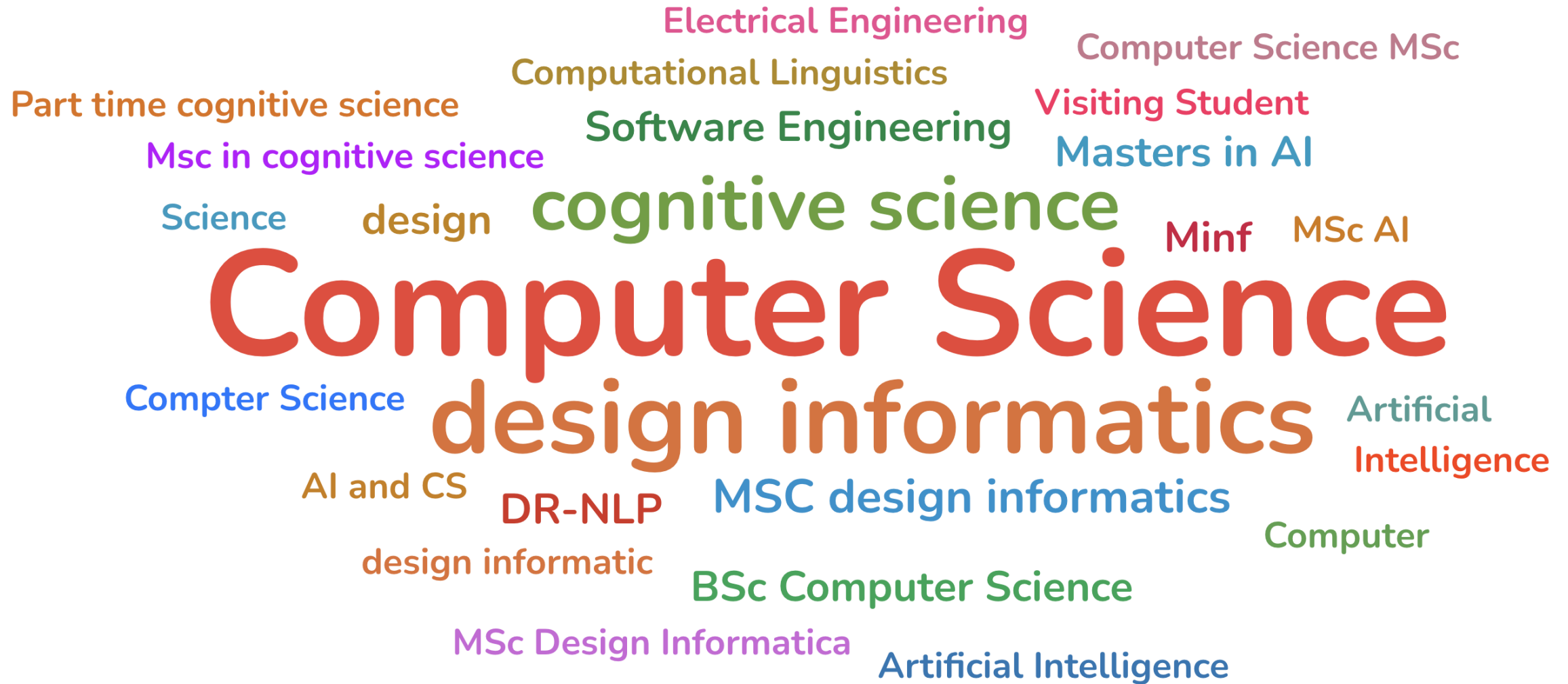
56% 40 

③

Neither UG4 or Master

6% 4 

What is the name of your programme?



What interests you about this course?



Do you have any experience in HCI?



today

- What is this course about?
- Course overview
 - Objectives
 - Course structure
 - Assessment
- What is Human Computer Interaction and why is it important?
 - Definitions & key concepts
 - Examples
- Introduction to Coursework 1
- Next steps

Can you relate?

<https://www.youtube.com/watch?v=HtTUsOKjWyQ>

Can you relate?



<https://www.youtube.com/watch?v=NMS2VnDveP8>

what is this course about?

Design & study of interactive technologies

- Studying the use of interactive technologies
 - Use of technology in context (e.g., how do people use the technology?)
 - Usability (e.g., can people achieve what they want to achieve?)
 - User experience (e.g., how do participants experience the use of technology? How does it influence their thinking, activities, social interactions, etc...?)
 - Designing interactive technologies
 - Drawing from research in HCI, design, human factors, anthropology, behavioural, cognitive, and social psychology, and sociology
 - Grounding design ideas in both empirical evidence and creative methods
- If the user can't use it, it does not work.
- Designing a good system is multifaceted.
- Whether a system is “good” or “usable” always depends on the usage context

Learning objectives

- Get you to think critically about the design of interactive systems and their impact
- Introduce you to key methods to conduct human-centered studies of interactive technology
- Introduce you to methods of designing interactive systems driven by user experience and context
- Get you excited about HCI research and practice

Learning outcomes

1. Apply HCI research and design methods to study people and technologies in real-world contexts and to design, prototype, and evaluate interactive technologies
2. Integrate insights from different disciplinary perspectives on HCI to analyze and address complex design problems
3. Describe key theories, principles, challenges and current areas of research in HCI and their relevance to the design of interactive technologies
4. Communicate research and design processes and outcomes effectively, using appropriate formats to articulate research findings and design rationale

course structure

Course philosophy

- Theory + hands-on work
- Real-world topics and technology
- Group work + individual work
- Participatory & student-driven

Lectures + hands-on tutorials

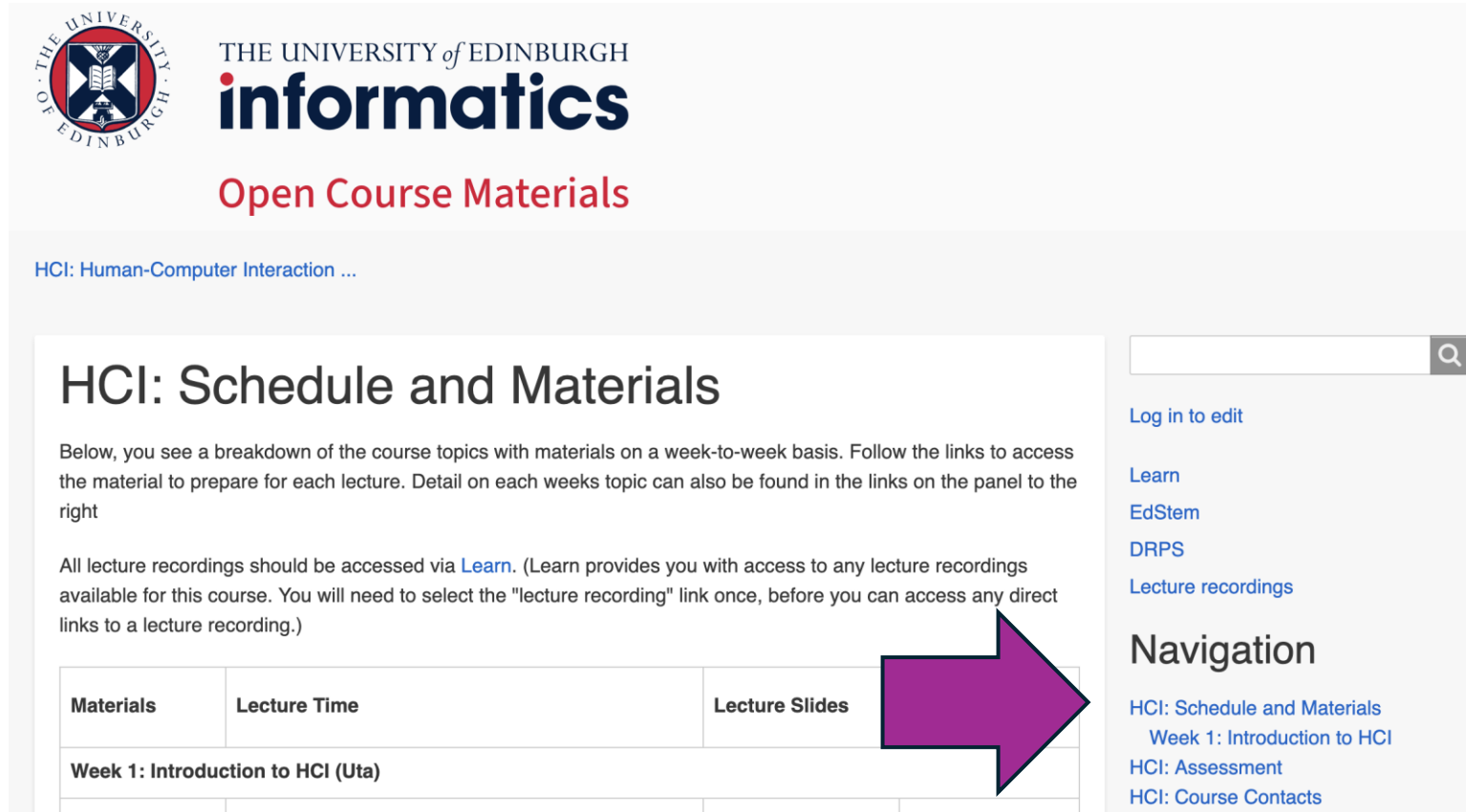
- Lecture (in-person)
 - Wednesdays 10:00 – 12:00; Adam House Basement Theatre
 - Lectures will be recorded; recordings will be made available on Learn shortly after the lecture
 - Attendance is highly recommended!
 - Questions are always welcome anytime!
- Tutorials (1-hour; in-person)
 - Tutorial slots throughout the week
 - Attendance is mandatory!

workload

- 20 credits ~ 12-14 hours/week
- 2 hours lecture
- ~ 2 hours lecture preparation
- 1 hour tutorials
- ~7 hours coursework

Lecture preparation

- Lecture material will be made available in advance to the next lecture via [OpenCourse](#)
 - Readings
 - Lecture videos
 - Activities



The screenshot shows the 'Open Course Materials' page for 'HCI: Human-Computer Interaction ...'. The page header includes the University of Edinburgh logo and the text 'THE UNIVERSITY of EDINBURGH informatics Open Course Materials'. Below the header, there is a section titled 'HCI: Schedule and Materials' with a search bar on the right. The main content area contains a paragraph explaining the course structure and a table with columns for 'Materials', 'Lecture Time', and 'Lecture Slides'. A large purple arrow points from the 'Lecture Slides' column to the 'Navigation' sidebar on the right. The sidebar includes links for 'Log in to edit', 'Learn', 'EdStem', 'DRPS', 'Lecture recordings', and a 'Navigation' section with links to 'HCI: Schedule and Materials', 'Week 1: Introduction to HCI', 'HCI: Assessment', and 'HCI: Course Contacts'.

THE UNIVERSITY of EDINBURGH
informatics
Open Course Materials

HCI: Human-Computer Interaction ...

HCI: Schedule and Materials

Below, you see a breakdown of the course topics with materials on a week-to-week basis. Follow the links to access the material to prepare for each lecture. Detail on each weeks topic can also be found in the links on the panel to the right

All lecture recordings should be accessed via [Learn](#). (Learn provides you with access to any lecture recordings available for this course. You will need to select the "lecture recording" link once, before you can access any direct links to a lecture recording.)

Materials	Lecture Time	Lecture Slides
Week 1: Introduction to HCI (Uta)		

[Log in to edit](#)

[Learn](#)
[EdStem](#)
[DRPS](#)
[Lecture recordings](#)

Navigation

[HCI: Schedule and Materials](#)
[Week 1: Introduction to HCI](#)
[HCI: Assessment](#)
[HCI: Course Contacts](#)

Lecture preparation

- Lecture material will be made available in advance to the next lecture via [OpenCourse](#)
 - Readings
 - Lecture videos
 - Activities
- During class we will review the material and deepen your learning through discussions
- Please prepare prior to the lecture!

Tutorials

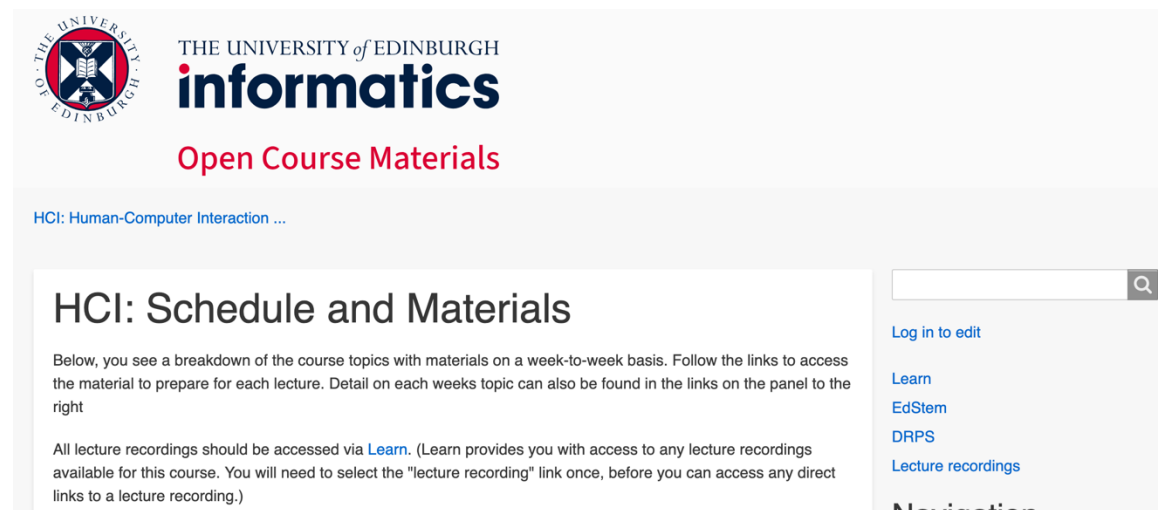
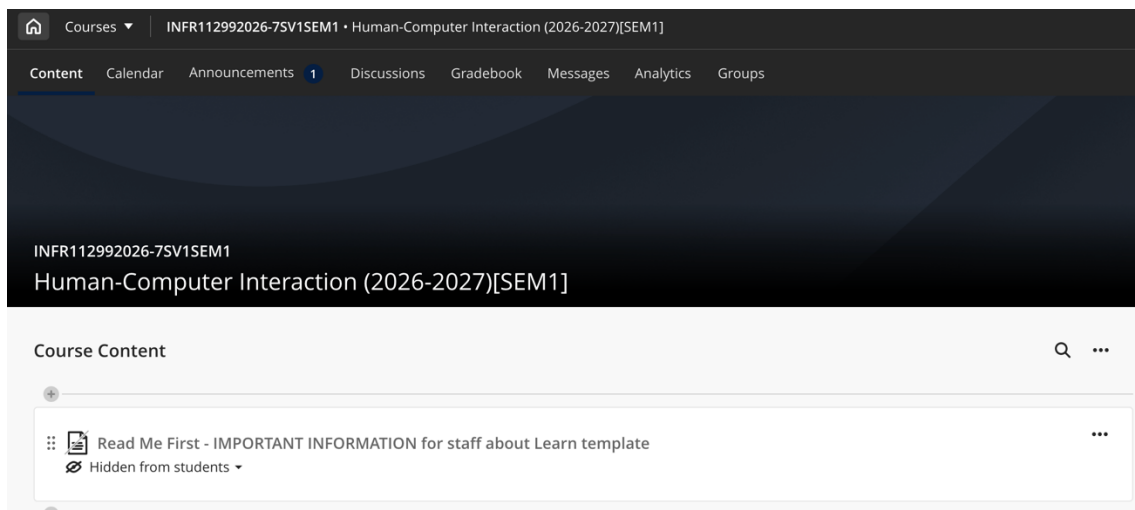
- Practical exploration of study and design methods
- Hands-on activities directly related to your coursework
- Formative feedback on coursework
- Discussion of lecture content

Important!

- Coursework and tutorial enrollment
 - For Coursework 1 you will work in groups of 3 students
 - Groups should attend the same tutorial group!
 - **You should not change your tutorial group after Week 02**

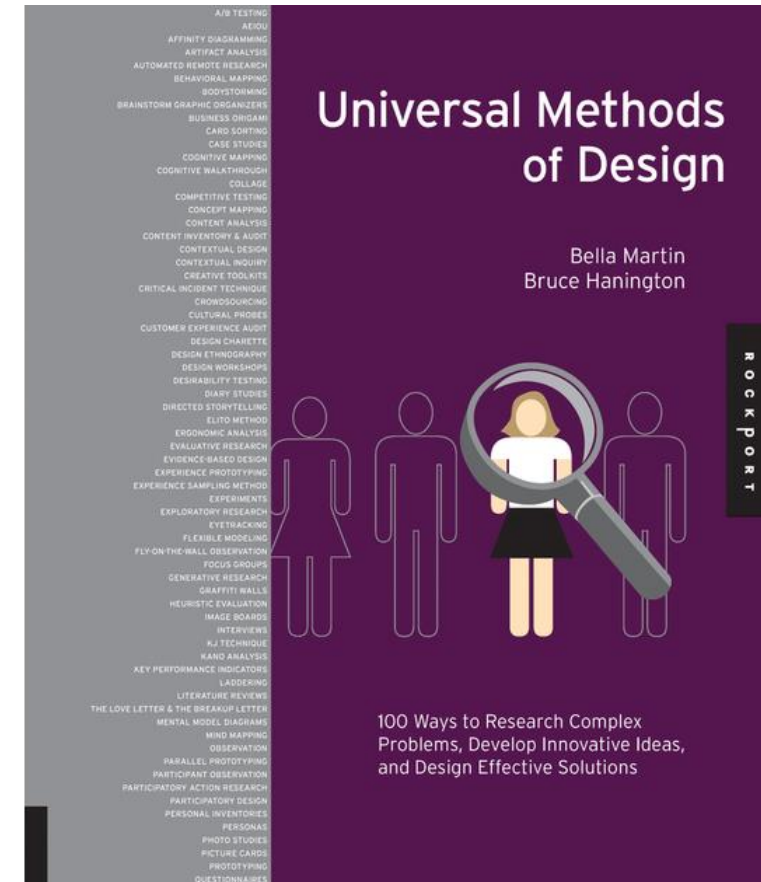
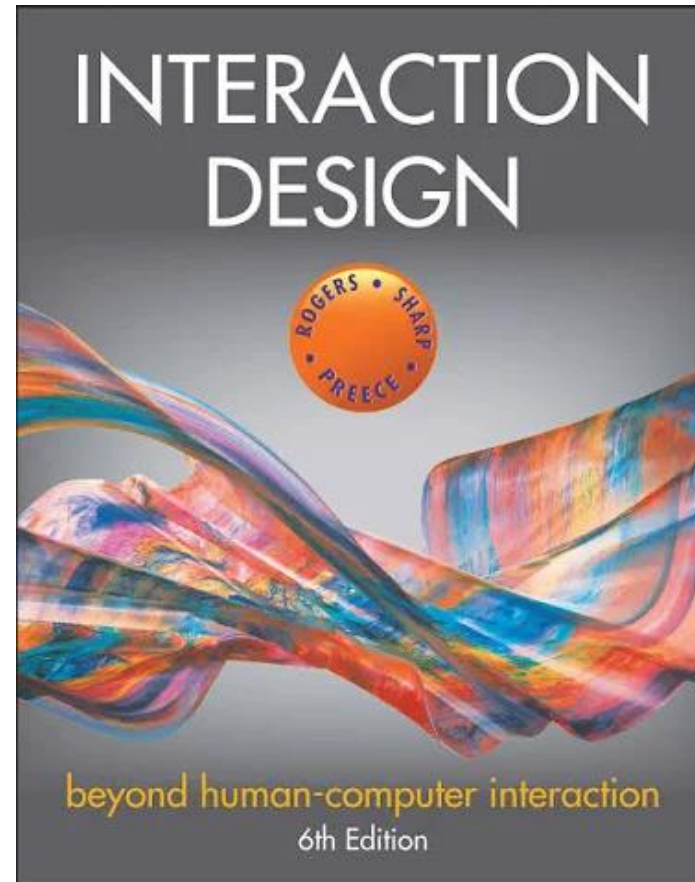
where to find course materials

- Course Learn page
 - Coursework information
 - Lecture recordings
 - General announcements
- OpenCourse
 - Lecture slides
 - Lecture materials
 - Readings
 - Video lectures
 - Activities
 - Tutorial materials



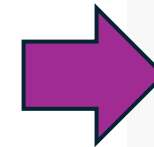
resources

- Readings will be listed on OpenCourse!



means of communication

1. EdStem Discussion board (replaces Piazza)
 - Access via Learn
 - General questions on course materials, coursework, etc.
2. Your tutor
 - Individual questions regarding course content, materials, coursework etc...
 - Get in touch in tutorials or via email
3. Coerce organizer (Tara Capel)
 - Individual questions regarding course content, materials, coursework etc...
 - Get in touch via email



Home Courses ▾ INFR112992026-7SV1SEM1 • Human-Com

Content Calendar Announcements Discussions

Includes assessment information and submission dropb

+

Coursework Planner
Visible to students ▾
Overview of all coursework including submission and feed

+

Lecture Recordings
Visible to students ▾
Access to lecture recordings for this course (Opens in a n
player. Captions may be automatically generated and so
please speak to your lecturer or request caption-correcti

+

ed EdStem Discussion
Visible to students ▾
Next Generation Course Discussion Platform

+

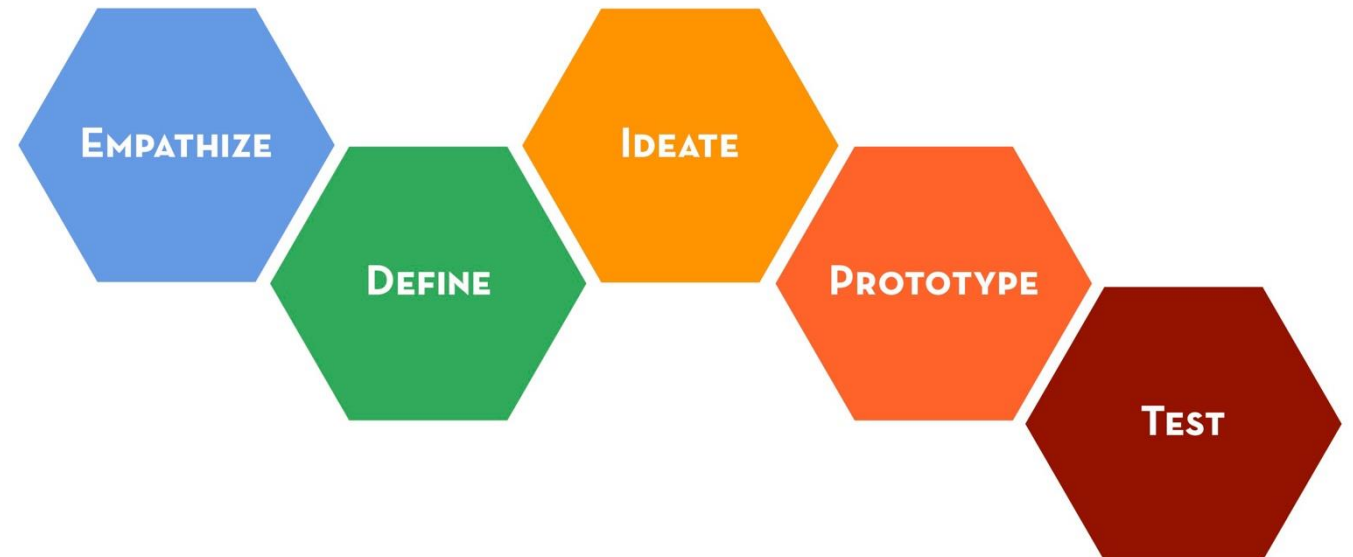
Week 0 to-do list
Visible to students ▾
Please take a few minutes to work through this short list
yourself with key dates.

assessment

assessment

→ Assessment will follow a human-centered design process

- CW1: Human-centered research in a real-world context
- CW2: (Re-)Design of an interactive prototype



CW1: Human-centered research in a real-world context

Weight	50% (summative)
Assessment type	Report
Individual/Group	Groupwork
Goals	Create technology design suggestions, based on findings from human-centered research in a real-world context.
Link to learning outcomes	L1 – L4
Due date	Nov. 13, 2026; 12:00 (noon)

CW2: (Re-)design of an interactive prototype

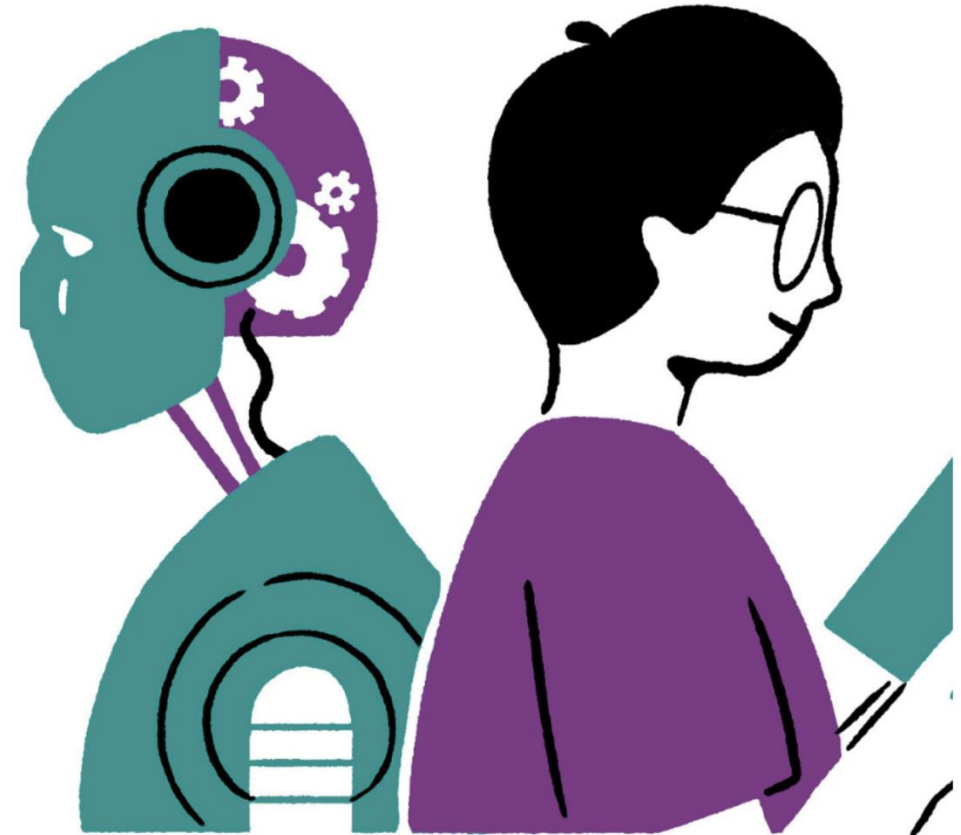
Weight	50% (summative)
Assessment type	Design pictorial
Individual/Group	Individual
Goals	To design an iterative prototype, based on the design suggestions developed in CW1.
Link to learning outcomes	L1 – L4
Due date	Dec. 11, 12:00 (noon)

Use of generative AI

- A lot of tools relevant for the study and design of interactive technology now contain gen AI features (e.g., Figma for prototyping)
- You may use generative AI – within the restrictions applied by the University

<https://information-services.ed.ac.uk/computing/comms-and-collab/elm/generative-ai-guidance-for-students/using-generative>

- We strongly encourage a critical use of gen AI
 - Positive and negative influence on design decisions
 - Observed limitations
 - Methods of validating AI outputs
 - Handling of attribution and authorship



Any questions?

what is HCl & why is it important?

Let's come back to wooclap



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Event code

YMZIYNJ





Waiting for participants...

<https://app.wooclap.com/YMZIYNJ?from=instruction-slide>

What is HCI?

Human-computer interaction (HCI) is a **multidisciplinary field of study** focusing on the **design of computer technology** and, in particular, the **interaction between humans (the users) and computers**.

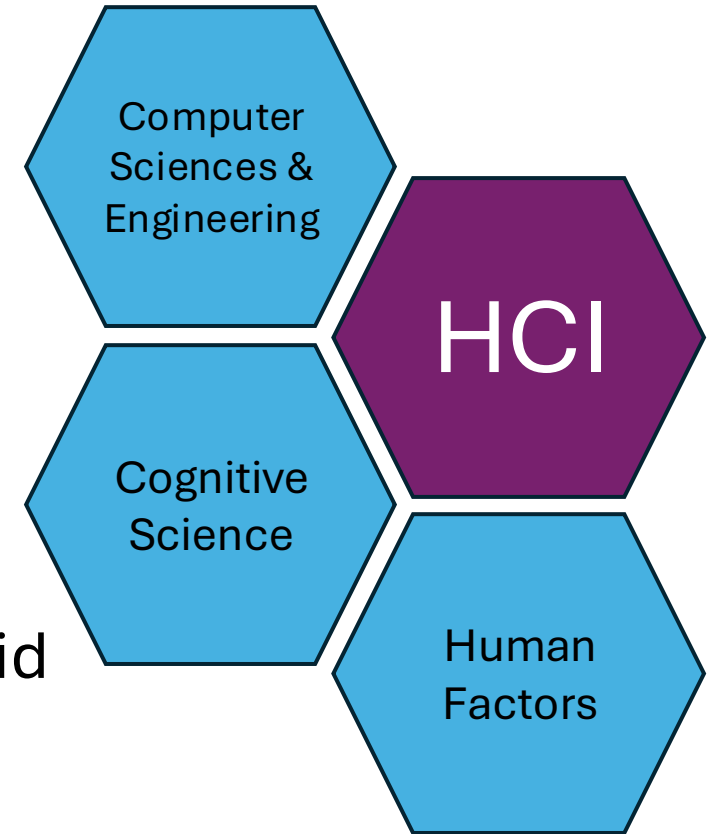
While initially concerned with computers, HCI has since expanded to cover almost all forms of information technology design.

Interaction Design Foundations (IxDF)

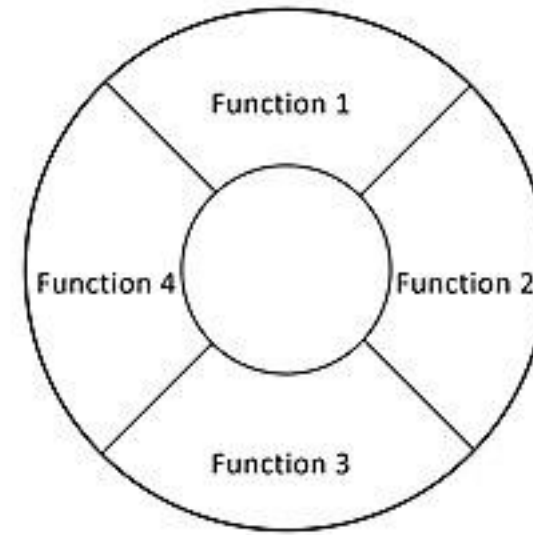
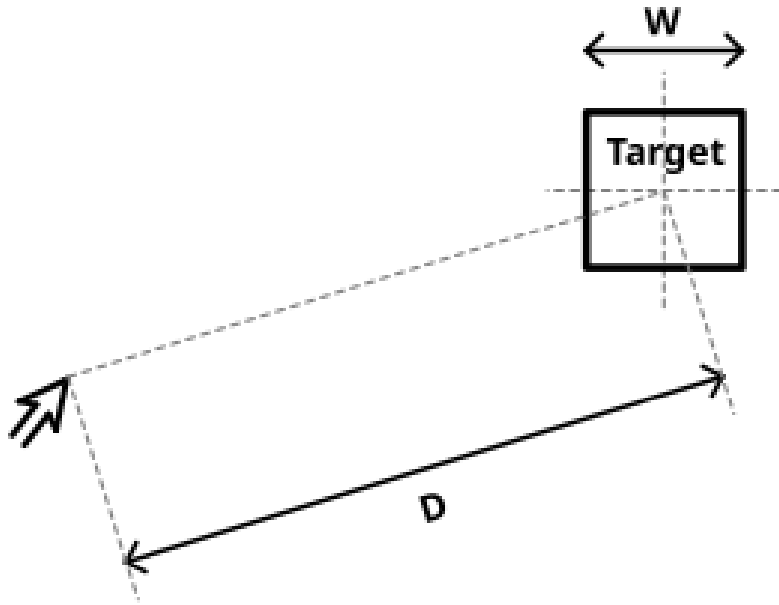
<https://ixdf.org/literature/topics/human-computer-interaction>

1st wave of HCI

- Focus on very specific tasks and usage scenarios
 - Mostly work-related scenarios
 - Assumed the individual use of (desktop) computers
- Focus on efficiency, effectiveness, safety
 - Usability defined based on error rates and speed
- Humans as simple models to be studied through rigid guidelines, formal methods, systematic testing
 - Quantitative methods
 - Generalizability
- Goal: the development of clear design guidelines
 - Context and human agency are not taken into effect



Example: Fitts' law studies

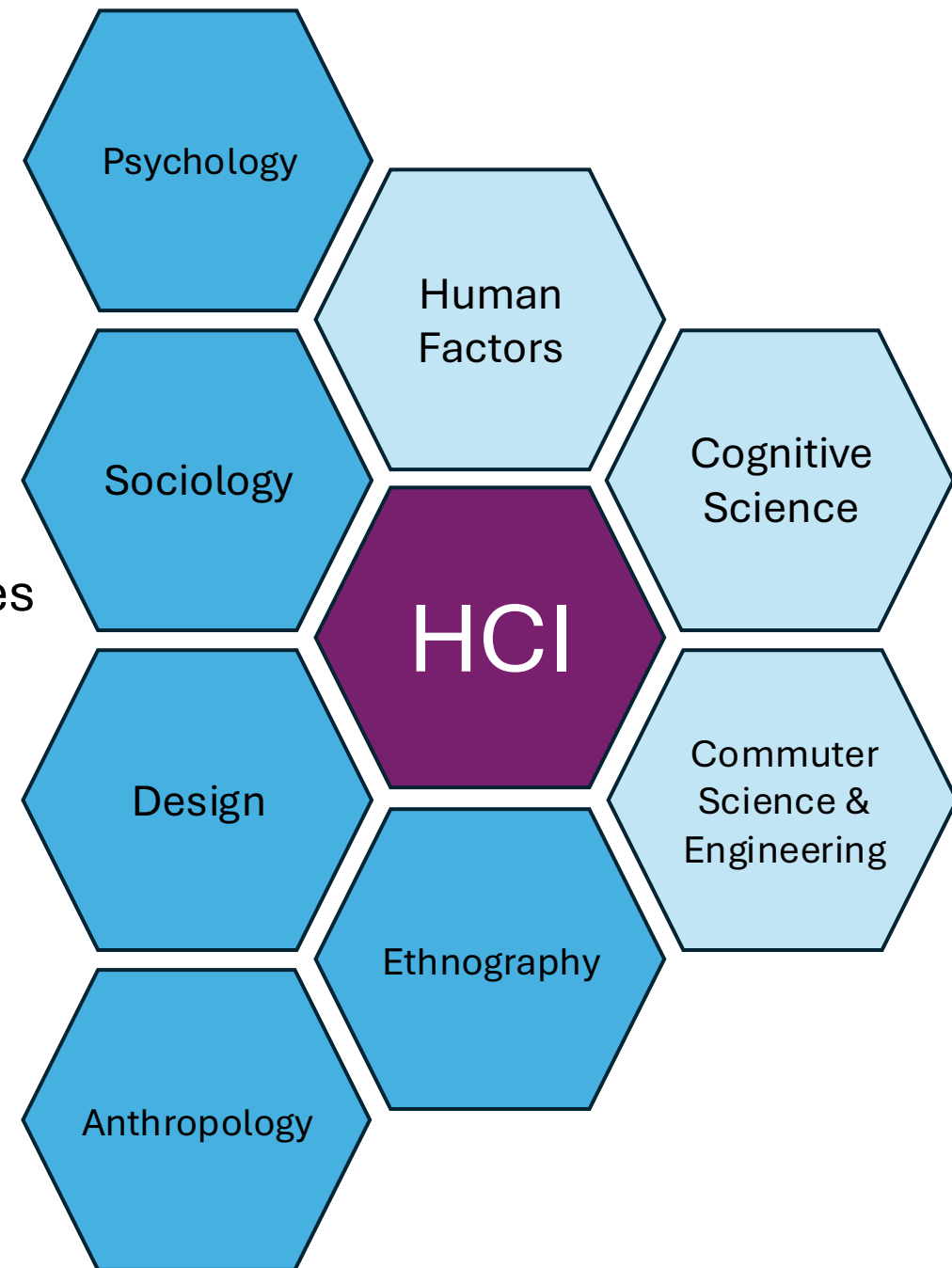


Radial Menu

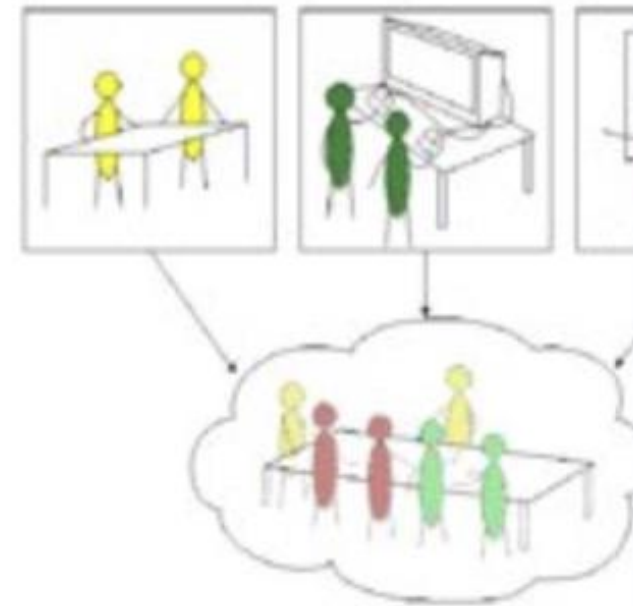
https://en.wikipedia.org/wiki/Fitts%27s_law

2nd wave of HCI

- “From human factors to human actors”
- Consideration of groupwork
 - Groups working with collections of applications
 - Work settings and well-established communities of practice (e.g., organizations)
- Focus on efficiency remains
- Context becomes important in the analysis and design of HCI
- Expansion of methods
 - Participatory design workshops
 - Prototyping
 - Contextual inquiry

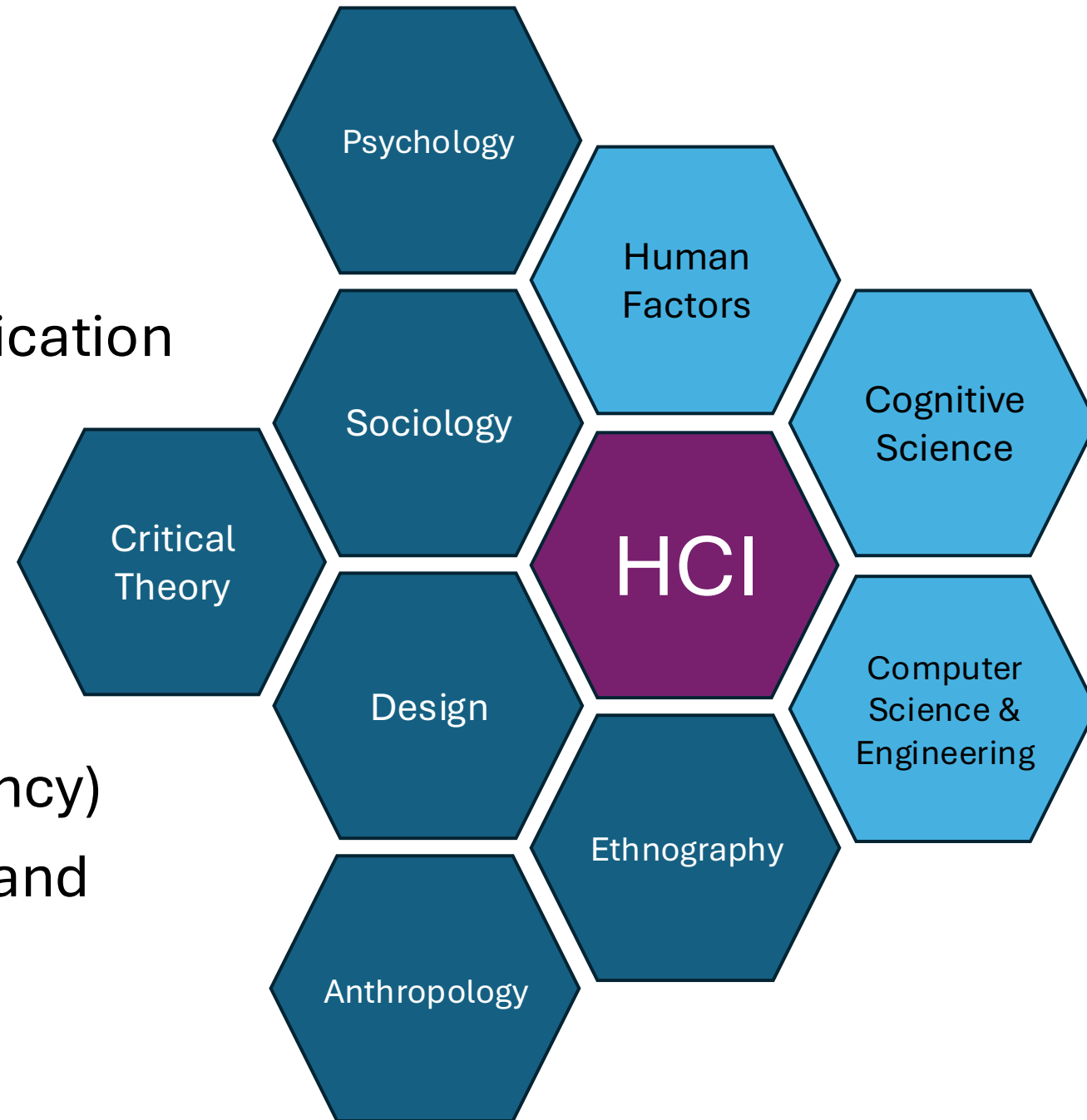


Example: groupware



3rd wave of HCI

- Broadening of context and application types beyond the workplace
 - Home
 - Everyday lives
 - Culture
- Challenging values (e.g., efficiency)
- Embrace **situated experience** and meaning making



Further readings (optional)

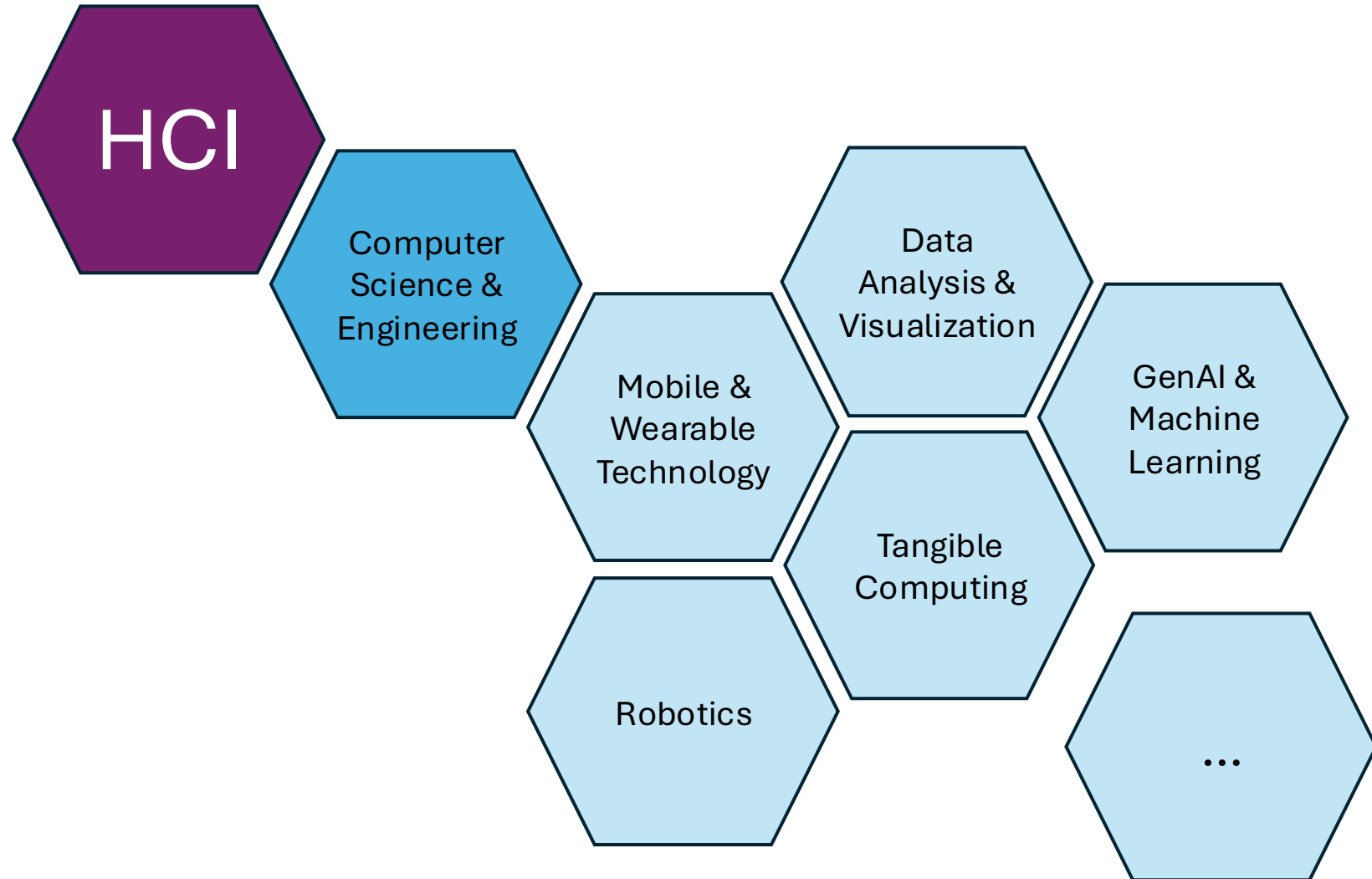
- Liam J. Bannon. *From Human Factors to Human Actors: The Role of Psychology and Human-Computer Interaction Studies in System Design*. In Design at Work. 1991.

<https://www.taylorfrancis.com/chapters/edit/10.1201/9781003063988-3/human-factors-human-actors-role-psychology-human-computer-interaction-studies-system-design-liam-bannon>

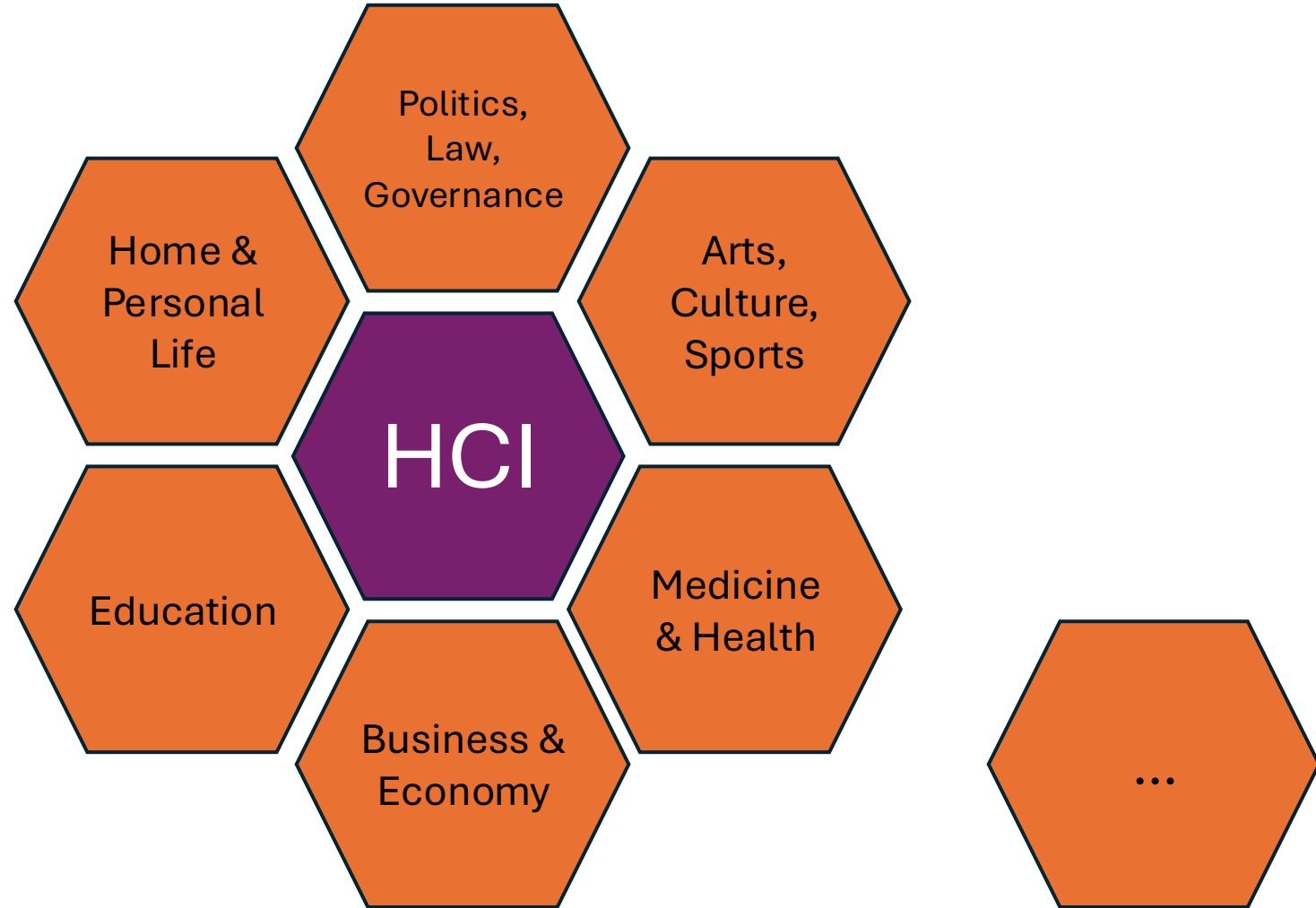
- Susanne Bodker. Third-Wave HCI, 10 Years Later—Participation and Sharing. Interactions. 2015.

<https://dl.acm.org/doi/pdf/10.1145/2804405>

Link to computer science



HCI is everywhere



Why is HCI (still) important?

- We evolve technology every day
 - We are faced with new challenges of how to interact with technology
- New technology often still suffers from the same design issues we have known since 25 years
 - E.g., lack of an “undo” button
 - We still forget about the importance of HCI and good interaction design

What is HCI?

- A research field
 - 30 conferences within the ACM special interest group in Computer-Human Interaction alone (SIGCHI)
- A practice
 - User Interface (UI) & interaction design
 - Interaction design
 - User experience (UX) design



CHI

ACM Conference on Human Factors in Computing Systems



COMPASS

ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies



EduCHI

Annual Symposium on HCI Education



CSCW

ACM Conference On Computer-Supported Cooperative Work And Social Computing



DIS

ACM Designing Interactive Systems



IDC

ACM Interaction Design and Children Conference

Goals of HCI research & practice

- Understand people and their needs
 - Create “*positive*” experiences
 - Reduce frustration
 - Increase the positive impact of technology
- There is a dark side to user experience design

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RYANAIR CALLS ON NATS CEO MARTIN ROLFE TO RESIGN AFTER ANOTHER SYSTEM FAILURE, LESS THAN 2 WEEKS AFTER LA... [Read more](#)

1 of 1

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lisacon



anna_brenn

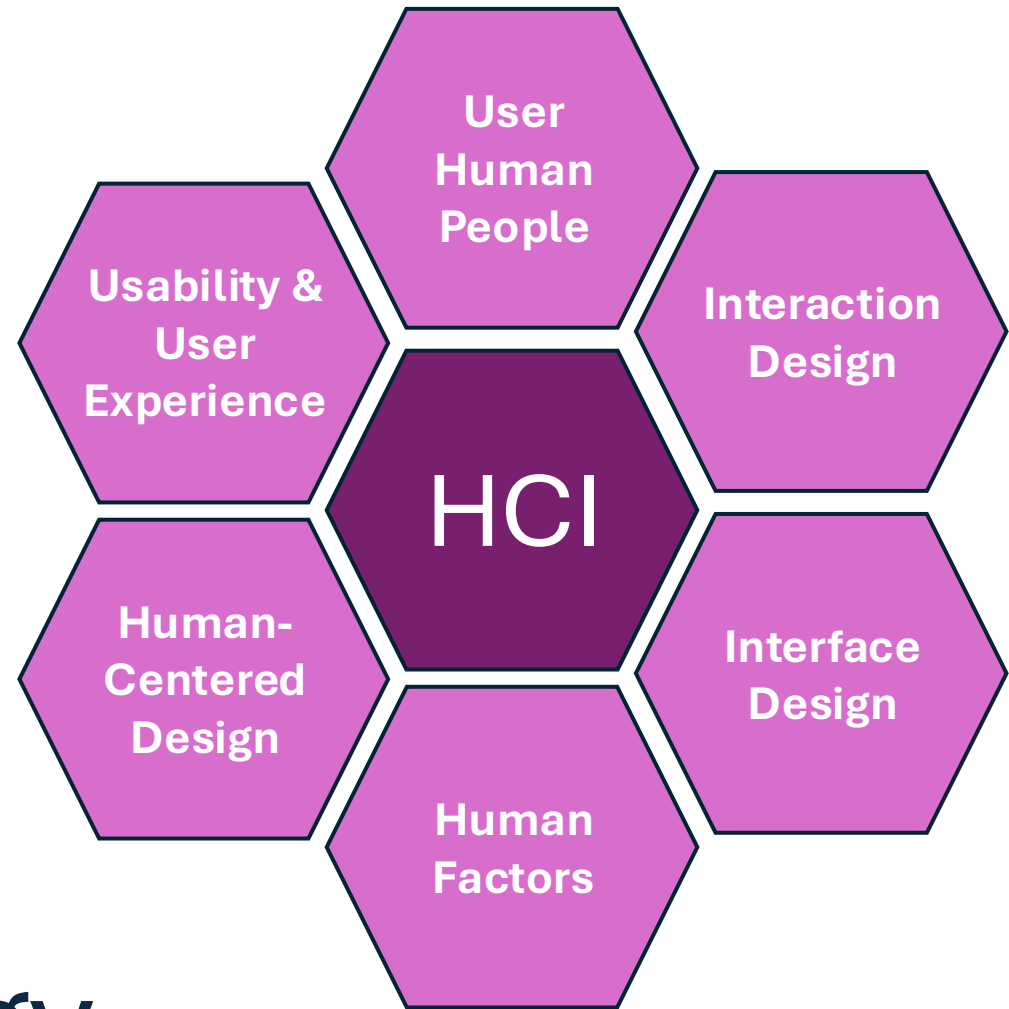
Bucktown, Chicago >

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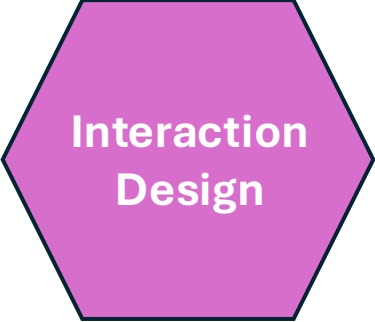
Not Now

OK



some key terminology

Interaction design



Interaction
Design

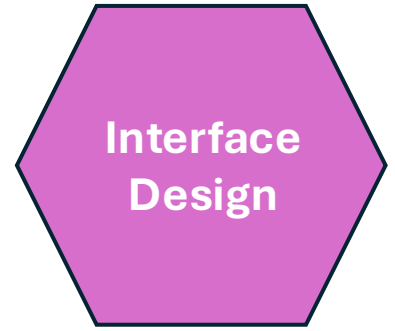
“Designing spaces for human communication and interaction.”

Terry Winograd

“Designing interactive products to support the way people communicate and interact in their everyday and working lives.”

“It is about creating experiences that enhance and augment the way people work, communicate, and interact.”

Rogers et al.



(User) Interface design

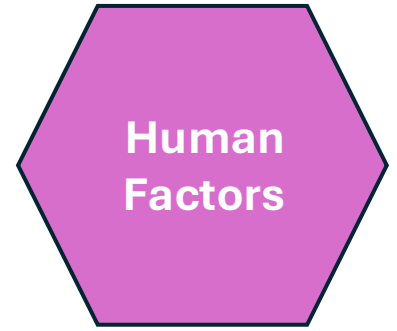
“User interface (UI) design is the process of building interfaces in software or computerized devices.”

Interaction Design Foundations (IxDF)

<https://ixdf.org/literature/topics/ui-design>

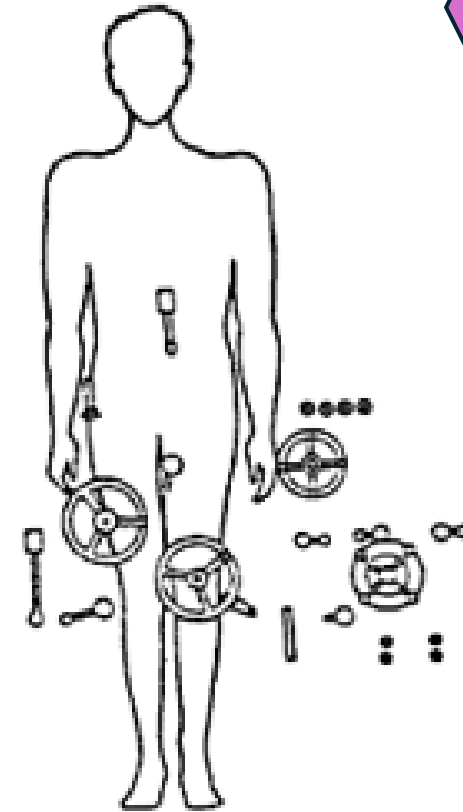
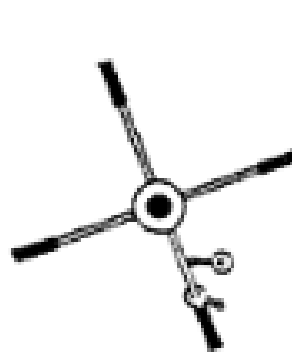
- Graphical user interfaces (GUIs)
 - Voice-controlled interfaces
 - Gesture based interfaces
- ➔ Requires an understanding of users' needs and design

Human Factors



- The factors that impact the way in which a person would interact with a piece of technology
- Anthropometric factors
 - Physical, anatomical and physiological aspects
- Behavioural factors
 - What can users see, perceive and act on?
- Cognitive factors
 - What cognitive processes are involved when someone uses a system?
- Social factors
 - What is the social context in which a system is used?

Human Factors



<http://en.wikipedia.org/wiki/Lathe>
http://www.lathe-machine.in/pics/lathe_05.jpg

Human Factors

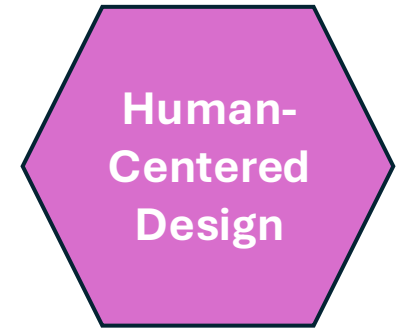


The controls of a lathe in are not within easy reach of the average man, but are so placed that the ideal operator should be 137 cm (4.5ft) tall, 61cm (2 ft) across the shoulders and have an arm span of 234cm (8ft). (Pheasant, 1986)

→ Human-centered design: start with people instead of technology

Principles of Human-Centred Design

(also known as *User-Centred Design*, *User Experience Design*, *Design Thinking*)



- **Human-centred:** focused on people, activities and context from the project start
- **Participative:** involving target users as members of the design team
- **Empirical:** evaluating usability and user experience in trial studies with end users
- **Iterative:** designing, evaluating, and redesigning as a regular cycle until results satisfy the user experience needs

Usability & User Experience

Usability

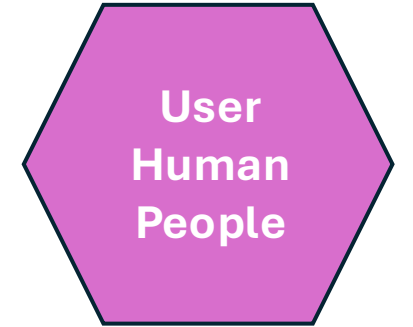
- Effective to use
- Efficient to use
- Safe to use
- Have good utility
- Easy to learn
- Easy to remember how to use



User Experience

- The way people feel about technology
- Their satisfaction when using, holding it, etc...
- Satisfying
- Enjoyable
- Helpful
- ...

User – human - people



- User-centered design? Human-centered design? People-centered design?
- **User**
 - Highly abstract, undefined, context agnostic
 - Also used in contexts with negative connotations (e.g., drug user)
- **Human**
 - Highlights the focus on “human beings”
 - Highly general and therefore abstract
- **People**
 - A bit more real, maybe easier to envision
 - Still highly general

User – human - people

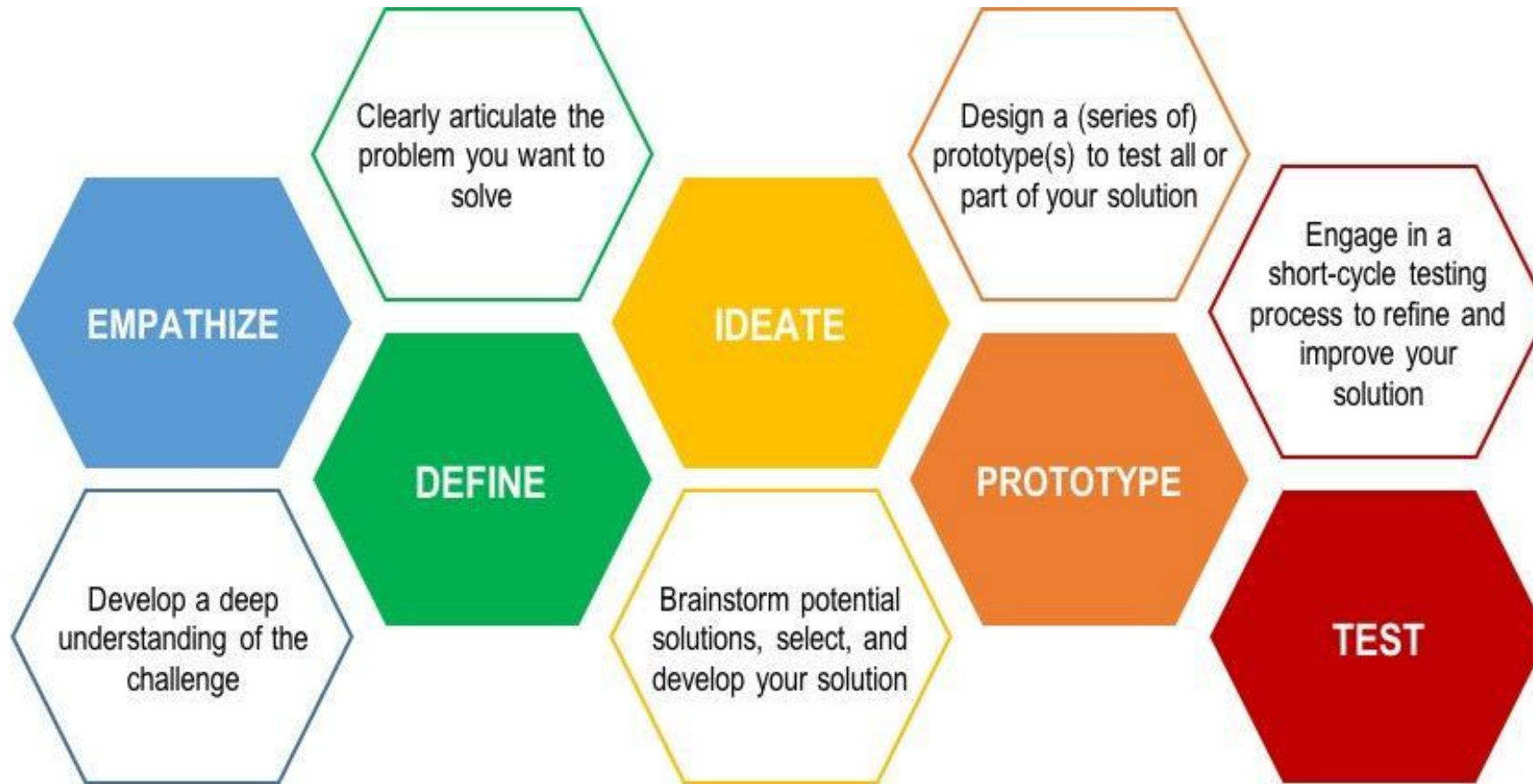
- Other related terms: participant, person, designer, and researcher
- The terms we use influence our thinking
- Try to be specific in your wording, it influences how you think about the people you observe and you try to design for
 - E.g., instead of “user” or “participant”, depending on the study context you could say student, data analyst, museum visitor, child, parent, yoga teacher...

Bradely et al. **Gendered or neutral?: considering the language of HCI.**
Graphics Interface 2015.

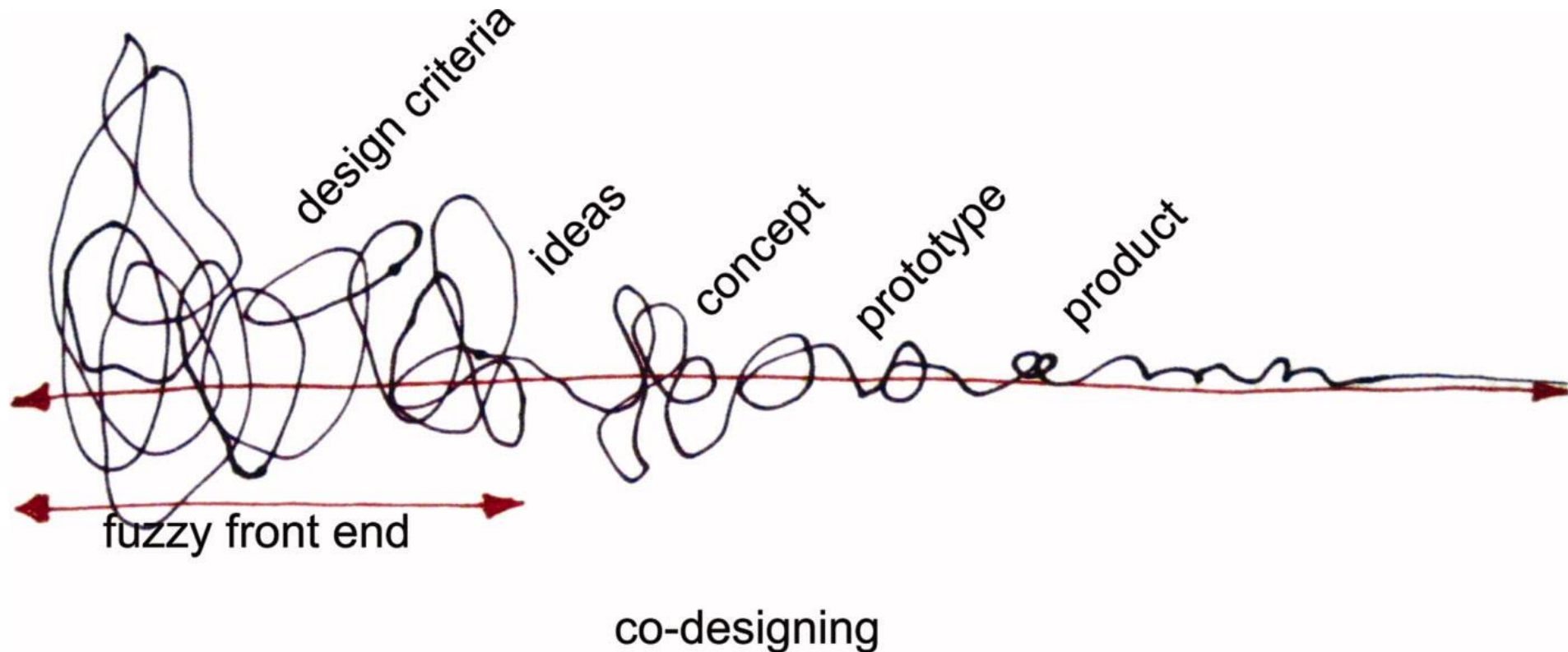
<https://dl.acm.org/doi/10.5555/2788890.2788919>

Human-centred design process (design thinking)

Stanford Model



Human-centred design process (real world)



Sanders EB, Stappers PJ. Co-creation and the new landscapes of design. Co-design.
2008 Mar 1;4(1):5-18

<https://doi-org.ezp01.library.qut.edu.au/10.1080/15710880701875068>

Any questions?

introduction to coursework 1

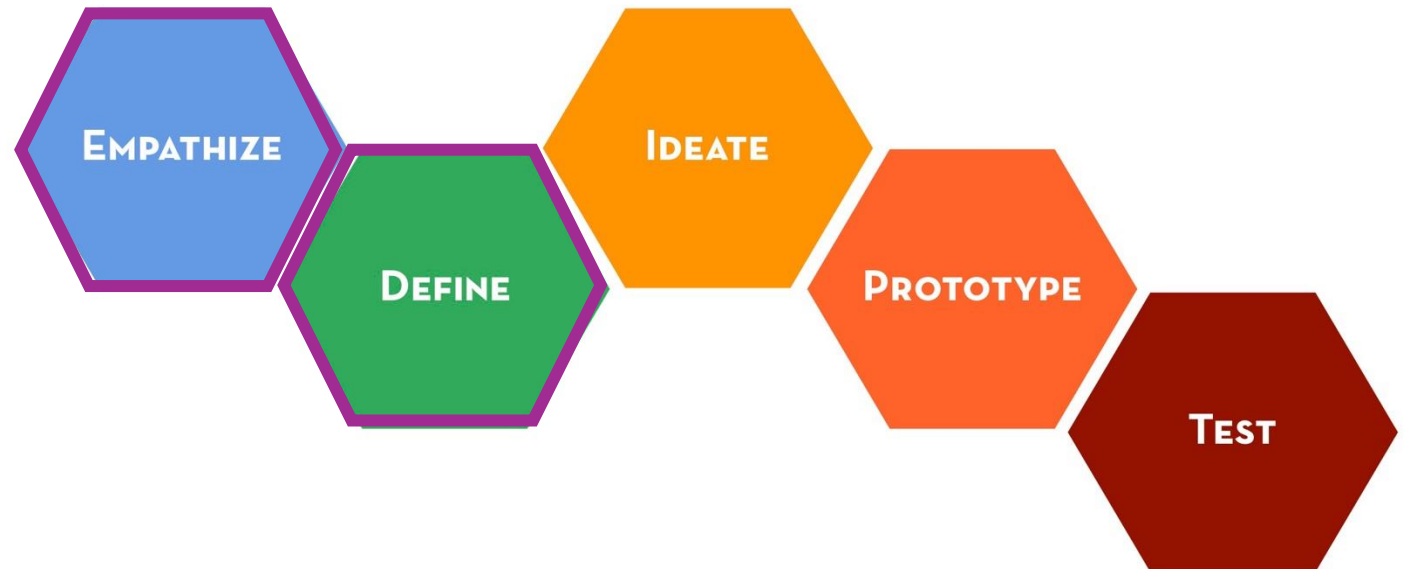
CW1

Human-centered research in a real world context

- Goal
 - Conduct a human-centered study of an interactive technology of your choice
 - The study should include one “do”, one “say” and one “make” method
 - Based on your findings, derive suggestions for a new or re-design.

→ Empathize

→ Define



Coursework steps – suggested timeline

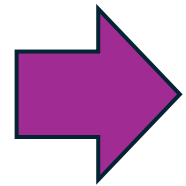
- **Weeks 1/2** Team formation
- **Week 2** Ethics & Data protection training
- **Weeks 2/3** Choose topic, technology & research methods
- **Week 4** Obtain ethics & prepare study material
- **Weeks 4/5** Recruit participants
- **Weeks 5/6** Conduct study: collect data
- **Weeks 5/6** Analyse data, derive design recommendations
- **Weeks 6 – 8** Write up your findings in form of a group report

Timeline may vary slightly across groups!

Team formation (weeks 1 & 2)

coursework steps

- Form a group of 3 and register your group on Learn by Oct.2.
- This will be the group you will work with on CW1.



Course navigation bar: Courses ▾ | INFR112992026-7SV1SEM1 • Human-Computer Interaction (2026-2027)[SEM1]

Navigation tabs: Content | Calendar | Announcements 1 | Discussions | Gradebook | Messages | Analytics | **Groups**

Manage Groups

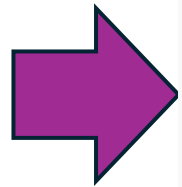
Group set ⇅

	Group set 21/09/2026 50 Groups
	Visible to students ⓘ
	TT: Tutorial - Human-Computer Interaction 10 Groups
	Visible to students ▾

Team formation (weeks 1 & 2)

coursework steps

- Form a group of 3 and register your group on Learn by Oct.2.
- This will be the group you will work with on CW1.



Groups (50)

Group 1
0 members

 Add members



Group 10
0 members

 Add members



Group 11
0 members





Team formation (weeks 1 & 2)

coursework steps

- Form a group of 3 and register your group on Learn by Oct.2.
- This will be the group you will work with on CW1.
- All group members should attend the same tutorial group!!!
 - Shift tutorial groups if necessary!
- Don't know who you want to work with? Don't panic!
 - Attend the Week 2 tutorial – you can meet people there OR
 - Let us know if you want us to put you in a group (email your tutor)

Ethics (week 2)

coursework steps

- All team members individually read the course ethics
 - This outlines what types of study you can do, and what types of data collection are allowed.
 - More about this in the Week 2 lecture
- All team members individually complete the ***Data Collection Training*** (find it on Learn)
 - **By Friday Oct. 2**, email your tutor confirming that you have completed the course
- All group members have to complete the course before the team can run any studies.

Topic & technology (weeks 2 & 3)

coursework steps

- As a group – **pick a topic** to focus on
- Based on your topic – **pick an interactive technology** to study

Example topics

- Sustainability
- Health and Wellbeing
- Education
- Creativity

Topic & technology (weeks 2 & 3)

coursework steps

- As a group – **pick a topic** to focus on
- Based on your topic – **pick an interactive technology** to study
- As a group – **decide on your research methods**
 - One “say” method (e.g., interview)
 - One “do” method (e.g., observation)
 - One “make” method (e.g., card sorting)
 - More about this in the **Week 2 lecture**

We will use Miro for
formative feedback!

Group 01

Topic area

What problem/questions do you aim at addressing?

What methods will you apply as part of your project?

SAY Methods

DO Methods

MAKE Methods

Technology in Focus

What questions/challenges have you encountered so far? Comments & Questions

Main contact tutor:

Obtain ethics & prepare study materials (week 4)

coursework steps

- You **must** receive ethics approval from your tutor before beginning participant recruitment or data collection!
 - Prepare participant information sheets and consent forms
 - By **Friday, Oct. 16**, submit these forms to your tutor for approval
- Prepare your study materials and instructions, for example:
 - Interview questions (“say” method)
 - Tasks you would like participants to engage in (“do” method)
 - Cards for participants to explore and sort (“make” method)
- Start recruiting participants (min 3; max 5; no minors!)

Collect & analyse data (weeks 5 & 6)

coursework steps

- **Collect data**
 - Use the instruments created over the past weeks to study the experiences and needs of 3 to 5 participants.
- **Transcribe recordings**
 - Transcribe your recordings (MS Teams preferred).
 - Anonymise data (transcripts by changing names to pseudonyms; photos or images by covering or blurring faces).
- **Analyse data**
 - Analyse the data thematically to give an overview of key findings. Present data from all methods and participants. Present each theme together with concrete evidence (e.g., interview response, image).
- **Derive recommendations for re-designing the technology** based on your combined study findings.

Collect & analyse data (weeks 5 & 6)

coursework steps

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Write up your findings (weeks 6 – 8)

coursework steps

- Create an outline of your group report
 1. Introduction
 2. Methods
 3. Findings
 4. Design suggestions
 5. References
 6. Appendix
- Write up report
- By **Nov. 13; 12pm** – submit report

Any questions?

Next steps

- **Pick a topic:** consider a topic you might be interested in from the examples provided or propose your own.
- **Pick a technology:** consider some technologies that fit that topic.
- Week 2 tutorials
 - Team formation
 - Picking a topic & technology
- Week 2 lecture
 - “say”, “do”, “make” methods
 - Ethics