

### Course Description

This course is a broad introduction to Human-Computer Interaction (HCI), with an emphasis on techniques, models, theories, and applications for designing, prototyping, and evaluating current and future interactive systems for human use. HCI is an interesting and important area of study, providing the human perspective to computing. Besides technology and innovation, it also touches on issues like ethics and social responsibilities related to technologies in the real world. Selected topics include multimodal interaction design, usability evaluation, computer-supported cooperative work, assistive technologies, social computing, crowd computing, ubiquitous/mobile computing, virtual/augmented reality and gaming, agents and robots, and HCI applications in various domains such as education, health, urban sustainability, scientific discoveries, etc.

### List of Topics

1. Introduction to COMP4461 and to HCI
2. Fundamental: Human-Centric Design
3. Fundamental: Understanding Humans I
4. Fundamental: Understanding Humans II
5. Design: Empathize
6. Design: Ideate
7. Topic: Multimodal Interaction
8. Project: P1 Design Pitching
9. Topic: Human-Robot Interaction (HRI)
10. Design: Prototyping
11. Topic: Ubiquitous Computing
12. Evaluation: Preparation and Questionnaire
13. Topic: Extended Reality
14. Evaluation: Heuristic Testing
15. Topic: CSCW and Social Computing
16. Evaluation: Usability Testing
17. Project: P2 Demonstration
18. Evaluation: Result Analysis
19. Topic: Computing for Good
20. Mid-term Exercise
21. Final Video Paper Showcase I
22. Final Video Paper Showcase II
23. HCI: From Lab to the Real World
24. Project: P3 Presentation

### Textbooks

#### REQUIRED:

- Interaction Design: beyond human-computer interaction (Wiley, 4th Edition)  
Helen Sharp, Yvonne Rogers, and Jenny Preece
- The UX Book: Process and guidelines for ensuring a quality user experience  
(Morgan Kaufmann, Elsevier)  
Rex Hartson and Pardha S. Pyla

#### OPTIONAL:

- Research methods in human-computer interaction (Morgan Kaufmann, Elsevier, 2nd Edition)  
Jonathan Lazar, Jinjuan Heidi Feng, and Harry Hochheiser
- Human-Computer Interfaces (4th Edition)  
Alan Dix

### Reference books

N/A

### Grading Scheme

Three group projects	55% Project 1 : 15% Project 2 : 20% Project 3 : 20%
Midterm Exercises	20%
Video Paper	15%
Participation + Bonus	10%
Total	100%

### Course Intended Learning Outcomes

1. Understanding the basic concepts and methods in HCI research
2. Understanding the foundations and trends of HCI applications
3. Design an interactive system using various methods through different design activities
4. Prototype an interactive system with assorted digital and physical tools
5. Evaluate an interactive system through user studies

6. Communicate effectively with target users and different stakeholders in academia and industry

Assessment Rubrics

N/A