

---

## **COSC368: Humans and Computers**

The course provides an introduction to Human-Computer Interaction (HCI). HCI is concerned with understanding, designing, implementing and evaluating user-interfaces so that they better support users in carrying out their tasks. On completing the course you will have knowledge of the theoretical foundations of designing for interaction between humans and computers. You will also have practical experience in implementing and evaluating graphical user interfaces.

Jordan Pyott

## Contents

<b>Humans and Computers</b>	<b>3</b>
Course Information . . . . .	3
Lecturers Details . . . . .	3
Schedule . . . . .	3
Assessment Structure . . . . .	4
Textbooks/Resources . . . . .	4
Lectures . . . . .	5
Lecture One - Introduction . . . . .	5
Lecture Two - Goals of HCI . . . . .	5

# Humans and Computers

## Course Information

### Lecturers Details

- Lecturer: Andy Cockburn
  - Email: andy.cockburn@canterbury.ac.nz
- Tutors:
  - Katia De Lu:
    - \* Email: katia.delu@canterbury.ac.nz
  - Stewart Dowding:
    - \* Email: stewart.dowding@canterbury.ac.nz
- Team alias: team368@cosc.canterbury.ac.nz

### Schedule

### Topics

- Introduction
- Models of interaction and interface technology
- The human
- Interface design
- Evaluation
- UI intellectual property

		LECTURES	LABS
Week	Beginning		
1	19-July	Introduction to HCI	Lab 1: Python/TkInter refresher
2	26-July	Models of interaction	Lab 2: Python/TkInter: Keyboard GUI
3	2-Aug	The Human – senses	Lab 3: Python/TkInter: Canvas & Fitts law GUI
4	9-Aug	The Human – performance and phenomena	Lab 4: Fitts' law experiment and analysis
5	16-Aug	Interface Design – Iteration	Lab 5: Sketching Designs
6	23-Aug	Interface Design – Task Centred System Design	Assignment help
	30-Aug		
	6-Sept		
7	13-Sept	Interface Design – Heuristics	Lab 6: Visual search, decision, skill development
8	20-Sept	Interface Design – Heuristics II	Lab 7: Performance prediction
9	27-Sept	Interface Design – Graphical design	Lab 8: Heuristic evaluation
10	4-Oct	Interface Evaluation & Empirical Methods	Lab 9: Experimental data analysis
11	11-Oct	Interface Evaluation & Empirical Methods 2	Assignment help
12	18-Oct	Overflow and UI Intellectual Property	

**Figure 1:** Course Schedule**Assessment Structure**

- Labs (9%)
  - 1% per lab
  - Binary marking scheme - go to the lab, get full marks
- Usability analysis and storyboard (25%)
  - Wed 22nd September 5:00 pm
  - Teams of ~six, forming own groups
- Design Specification and Rationale (15%)
  - Wed 20th October 5:00 pm
- Exam (51%)
  - TBA

**Textbooks/Resources**

- Designing with the Mind in Mind
  - Based on COSC368, Old lecturers thoughts

- Author: Jeff Johnson, Morgan-Kaufmann
- Papers on ACM Digital Library
- Other materials on Learn

## Lectures

### Lecture One - Introduction

#### Technologies in this course

- TKinter
  - Lab one - Refresher
  - Lab two - Keyboard GUI
  - Canvas & fitts law GUI
- Python

NOTE: Labs will be used as the basis for analysis in assessments, so we need to build them

#### What is HCI?

Human computer interaction (HCI) is a discipline concerned with the design evaluation and implementation of interactive computing systems for human use, and with the study of major phenomena surrounding them.

#### What is HCI Responsible for?

1. Learnability
2. Efficiency
3. Subjective satisfaction
4. *Memorability*
  - Mostly encapsulated in Learnability
5. *Errors*
  - Opposite of Efficiency

### Lecture Two - Goals of HCI

#### Knowing the user: Preliminary Factors

- safety considerations
- need for throughput
- Frequency of use
- Physical space, lighting, noise, pollution
- Social context
- Cognitive factors: age, fatigue, stress, focus

**Managing complexity**

- Poorly designed interfaces amplify complexity
- Well designed UI's make interfaces as simple as possible, but no simpler
- Sometimes it may be appropriate to over-simplify *cater to an audience*

**Models of Interaction**

- A model is a simplification of reality
- They are useful when they help us understand a complex artifact

**Don Norman's Model of Interaction**

- Helps understand the designer's role in creating a system that is used by a thinking person
- Generally designers have a design model that is incomplete
- Then we get a system image, that is working, but in high incite, we would have built it differently
- The user has a model, that is weak, we need to try to map the designers model with the user model to create a mapping of the system image.