# Computer Science (COMP) 648

**Human Computer Interaction, Collaborative Systems, Multimedia, and Ubiquitous Computing** (Revision 3)

| | |
|---|---|
| **Status:** | Replaced with new revision, see the **course listing** for the current revision |
| **Delivery mode:** | **Grouped study** |
| **Credits:** | 3 |
| **Area of study:** | Information Systems |
| **Prerequisites:** | **COMP 504** and **COMP 601**; or an undergraduate course in Human-Computer Interaction (e.g., **COMP 482**) and COMP 504; or professor approval. Permission to register for this course without the prerequisite requires special permission of the course coordinator. Completion of this course does not exempt students from completing the IS foundation prerequisite. |
| **Precluded:** | None |
| **Faculty:** | **Faculty of Science and Technology** |
| | This is a graduate level course and students |

| | |
|---|---|
| **Notes:** | need to apply and be approved to one of the graduate programs or as a non-program **School of Computing and Information Systems** graduate student in order to take this course. Minimum admission requirements must be met. Undergraduate students who do not meet admission requirements will not normally be permitted to take this course. |
| **Instructor:** | **Dr. Xiaokun Zhang** |

## Overview

COMP 648 is a study of several emerging issues in the discipline of Human-Computer Interaction (HCI), including advanced HCI theories, collaborative software, multimedia, and ubiquitous computing. With the advent of computing systems, human factors in HCI have gone from simple sensory and motor concerns to include most aspects of the users' affective, cognitive, and social persona. All these concerns are viewed as constraints and capabilities within the context of developing applications with constantly evolving information technology.

Software systems developers should understand the preferences, capabilities, and constraints of their users. User requirements and technology both impact and shape the design of any system. Social software, such as that used for computer conferencing and collaborative workspaces, brings new challenges as the needs of multiple, synchronous users must now be considered. For these applications, practice tends to run ahead of HCI theory, and recent empirical findings may only be loosely tied to theory. This course will cover the aforementioned issues, and will introduce students to the various aspects of the disciplines related to HCI.

## Outline

- Unit 1 - Using Your *Study Guide*

- Unit 2 - An overview of Human Computer Interaction
- Unit 3 - Collaborative, Social and Ubiquitous Computing
- Unit 4 - Research Methods in Human Computer Interaction
- Unit 5 - Design Technology
- Unit 6 - User Interface and Interaction Methods

## Learning outcomes

Upon successful completion of this course, you should be able to

- interpret the contributions of human factors and technical constraints on human-computer interaction.
- perform a comparative analysis of current HCI theories in software design.
- apply HCI techniques and methods to software design.
- compare the usability of different software tools in terms of their HCI components.
- categorize and differentiate various aspects of multimedia interfaces.
- develop a holistic view of the characteristics of ubiquitous computing technology, including the use of multimedia and collaborative systems.
- effectively communicate course work verbally and in writing.

## Objectives

Learners are exposed to:

- analyses of HCI theories, as they relate to collaborative or social software;
- applications of multimedia on HCI;
- the concepts of ubiquitous computing, and how they affect HCI.

## Evaluation

- Assignment 1 will allow students to develop their presentation skills by asking them to select a research paper on Human-Computer Interaction, and present it to the colleagues in their group.

- Assignment 2 asks students to select a research topic in Human-Computer Interaction, conduct a comprehensive literature review, write a literature review paper, and review the papers of the peers in their group.
- Assignment 3 assesses the theoretical part of the course through the use of blogs.
- Assignment 4 is a research project based on the literature review in Assignment 2. It includes the presentation of the project to the group, and is an extension of the literature review paper.
- Student participation is evaluated through their contributions to the discussions surrounding the presentations in Assignments 1 and 4, as well as their comments on the blogs from Assignment 3.

In order to **receive credit** for COMP 648, you must achieve a cumulative course grade of **"B-" (70 percent)** or better.

| Activity | Weight |
|---|---|
| Assignment 1 - Presentation of a Research Topic | 15% |
| Assignment 2 - Peer-Reviewed Literature Review Paper | 25% |
| Assignment 3 - Blog Postings related to Journal Readings | 10% |
| Assignment 4 - Project | 35% |
| Participation | 15% |
| **Total** | **100%** |

## Materials

All materials for *Computer Science 648* will be made available through a link guide on the course Web site. These materials include relevant peer-reviewed human-computer interaction papers from the most important publication venues. The most important venues for consideration are introduced in the course *Study Guide*.

### Other

The remaining learning materials for *Computer Science 648* are also distributed in electronic format. At this time, those materials include

1. *Computer Science 648 Study Guide;*
2. detailed descriptions of the requirements for the individual assignments;
3. a course evaluation form;

Additional supporting materials of interest to students of *Computer Science 648* will be made available through a link guide on the course Web site.

### Special Course Features

COMP 648 will be offered in paced electronic mode. Electronic paced study is facilitated through a variety of computer-mediated communication options, and can be completed at the student's workplace or home.

### Special Note

Students registered in this course will NOT be allowed to take an extension due to the nature of the course activities.

## Important links

- **Future Course Offerings**
- **Important Dates and Deadlines**
- **MScIS Contact Information**



*Opened in Revision 3, April 15, 2011*

*Updated October 10, 2024*