

# CYB 546 – Human Computer Interaction

FALL 2016

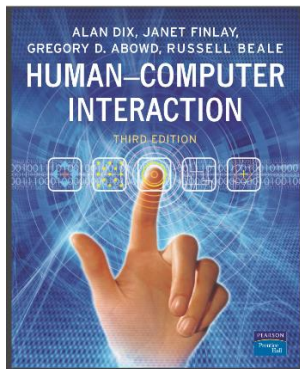
<b>Instructor</b>	Dr. Roman Tankelevich	<b>E-Mail</b>	rtankelevich@csudh.edu
<b>Classroom</b>	SCS 800	<b>Class Time</b>	Saturday at 12:30 – 3:15 pm
<b>Office</b>	<b>SAC 1115 Office 1 (North)</b>	<b>Office Hours</b>	11:30 – 12:20 pm, and by appointment
<b>Phone</b>	(303) 349-9395	<b>URL</b>	<a href="http://csc.csudh.edu">http://csc.csudh.edu</a>

## COURSE DESCRIPTION:

Human Computer Interaction and Interface Design (credit 3 semester hours). Research-oriented course; in-depth analyses of selected current topics with emphasis on problems related to computer systems, artificial intelligence, and human computer information interaction and interface design. Prerequisite: CSC 481

**PRE-REQUISITE:** Graduate Standing, CSC 481, Consent of Instructor.

## TEXTBOOKS [Required]:



HUMAN-COMPUTER INTERACTION, by Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale, PRENTICE HALL © 3rd edition, ISBN 978-0-13-04609-4

## RECOMMENDED:

(1) Human Computer Interaction InTech, Chapters published October 01, 2008, at [http://www.intechopen.com/books/human\\_computer\\_interaction](http://www.intechopen.com/books/human_computer_interaction)

(2) Interaction Design: Beyond Human-Computer Interaction 4th Edition Jenny Preece (Author), Helen Sharp (Author), Yvonne Rogers (Author)

[http://www.amazon.com/InteractionDesign-Beyond-](http://www.amazon.com/InteractionDesign-Beyond-HumanComputer/dp/1119020751/ref=pd_sim_14_3?ie=UTF8&dpID=51a5Wfy%2BtQL&dpSrc=sims&preST=_AC_UL320_SR246%2C320_&refRID=09Z9A3BB5S1GZ1KWACGR)

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(3) Also, Look-up sources, research papers, and conference proceedings

## COURSE GOALS:

- This course introduces effective ways of integrating the humans into the computing environment, which is the subject of a discipline called Human Computer Interaction.
- It exposes the fact that no computing technology and no software, however advanced they might be, cannot be used efficiently if they are not designed to meet the human operators' needs, abilities and expectations.
- The course concentrates on the fundamentals and evolving technologies of HCI.
- It is also targeting some practical aspects of HCI.

## **COURSE OUTCOMES**

**Upon completion of the course the students will be able to:**

- Apply the theory to the principals and techniques of Interface Design
- Organize the material on the GUI
- Define the methods of attracting end user's attention and increasing the user's productivity
- Understand how the communication channels between humans and computers (audio, visual, haptic, etc.) can be used in the most efficient way
- Design and implement some features of the most advanced HCI systems.

Attendance: Students are expected and encouraged to attend lectures and contribute to discussions. It is the student's responsibility to contact the instructor as early as possible if he/she cannot attend the class to write exams. With convinced reasons, the instructor might arrange make-up midterm exams, but not final exam.

## **AMERICANS WITH DISABILITIES ACT**

*CSUDH adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with temporary and permanent disabilities. If you have a disability that may adversely affect your work in this class, I encourage you to register with Disabled Student Services (DSS) and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: no accommodation can be made until you register with the DSS. For information call (310) 243-3660 or to use the Telecommunications Device for the Deaf, call (310) 243-2028 or go to: <http://www4.csudh.edu/dss/>*

## **COMPUTER INFORMATION LITERACY EXPECTATIONS**

*It is expected that students will:*

1. *Use Microsoft Word for word processing unless otherwise approved by the instructor,*
2. *Be familiar with using email as a communication tool and check your official campus email account at least every other day;*
3. *Be able to access websites and online course materials which may require Flash and other plug-ins;*
4. *Use the library databases to find articles, journals, books, databases and other materials;*
5. *Be able to create an effective PowerPoint presentation;*
6. *Be able to record audio (ideally video) to share with the instructor via the web; and*
7. *Have regular access to a computer and internet access for the term of this course.*

## ACADEMIC INTEGRITY

Academic integrity is of central importance in this and every other course at CSUDH. You are obliged to consult the appropriate sections of the University Catalog and obey all rules and regulations imposed by the University relevant to its lawful missions, processes, and functions. ***All work turned in by a student for a grade must be the students' own work.*** Plagiarism and cheating (e.g. stealing or copying the work of others and turning it in as your own) will not be tolerated, and will be dealt with according to University policy. The consequences for being caught plagiarizing or cheating range from a minimum of a zero grade for the work you plagiarized or cheated on, to being dropped from the course.

## BEHAVIORAL STANDARDS

Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. The instructor may require a student responsible for disruptive behavior to leave class pending discussion and resolution of the problem and may also report a disruptive student to the Student Affairs Office (WH A-410, 310-243-3784) for disciplinary action.

## COURSE POLICIES:

- Deliverables (Class Assignments, Projects) submitted late are not accepted.
- Deliverables (Class Assignment, Projects) not submitted before the end of the final class will earn 0%.
- Any exceptional, non-academic circumstances need to be discussed with the instructor as soon as they arise, prior to the due date of the deliverable. At the time of the discussion, NO make-up work will be assigned.

The instructor reserves the right not to award credit for deliverables that are incomplete. Partial credit is awarded at the instructor's discretion, and only for work that merits such an award. Assignments that are incomplete or incongruous with the specifications may be returned to the student.

## MIDTERM & FINAL PROJECT PRESENTATION:

Midterm exam is during the 8th week of the class. All projects are due no later than the last week of the semester.

**No makeup or early exams will be administered.**

## GRADES:

Students' evaluation will be based on the following distribution:

- Five assignments: 25%
- Three in class quizzes: 15%
- One midterm exam: 20%

➤ **Final project: 40%**

Schedule of the exam and final presentations will be determined later in the semester.

The score will be mapped to your final grade as follows:

Score	Grade	Score	Grade
94-100	A	91-93	A-
88-90	B+	84-87	B
81-83	B-	78-80	C+
74-77	C	71-73	C-
68-70	D+	64-67	D
0-63	F		

WEEK #	DATE	TOPIC	<i>Reading Assignment/ Computer Lab Topic/In Class Assignments</i>
<b>Week 1</b>	TBD	Course Introduction & Requirements/ Overview of References, Blackboard / Principles of HCI	Chapter 1
<b>Week 2</b>	TBD	Computers as part of human-machine symbiotic system	Chapter 2,14 Paper of week: <i>The Evolution of Human- Computer Interaction</i>
<b>Week 3</b>	TBD	Interaction, ergonomics, dialog with user; Fitts' law	Chapter 3, 12 Paper of week: <i>Visual design principles for usable interfaces</i>
<b>Week 4</b>	TBD	Paradigms: effective strategies for building interactive systems	Chapter 4 Paper of week: <i>Healthy metaphor</i>
<b>Week 5</b>	TBD	Basics of interaction design process	Chapter 5, 6 Paper of week: <i>Science and the Usability Specialist: Recent Research Findings You Might Have Missed</i>
<b>Week 6</b>	TBD	Design rules, implementation, evaluation, user support,	Chapter 7 Paper of week: <i>Prototyping cross UI</i>

<b>Week 7</b>	TBD	Evaluation technique	Chapter 7 Paper of week: <i>Planning Usability Test</i>
<b>Week 8</b>	TBD	<b>Mid-term Exam</b>	Covers Chapters 1-7
<b>Week 9</b>	TBD	Implementation support	Chapter 8 Paper of week: <i>A Study in User Centered Design and Evaluation of Mental Tasks for BCI</i>
<b>Week 10</b>	TBD	Universal and Scenario Based Design	Chapter 10 Paper of week: <i>Scenario-Based Design</i>
<b>Week 11</b>	TBD	Task models	Chapter 15 Paper of week: <i>Interactive concept in Image search</i>
<b>Week 12</b>	TBD	Dialogue notations and design	Chapter 16
<b>Week 13</b>	TBD	Models of the system	Chapter 17
<b>Week 14</b>	TBD	Statistical Analysis	Chapter 9
<b>Week 15</b>	TBD	<b>Final Week of Project Presentations</b>	Group Project Presentations; Final report

This is a research oriented course. The study will include review and discussion of recently published research papers and use of different analytical tools for assessing the HCI features. The class provides in-depth analyses of selected current topics with emphasis on problems related to computer systems, artificial intelligence, and human computer interaction and interface design.

The centerpiece of the course is the work on challenging R&D projects such as Brain-Computer interface, Gesture recognition, Classroom Interaction, Game development and the analysis of its usability. The work is performed in groups with the software development technologies to be used.