Department of Computer Science and Engineering
College of Engineering, University of Nevada, Reno

Fall 2007

CS 420 / CS 620 Human-Computer Interaction

Lectures: MW 5:30 – 6:45 pm, PE-205

Instructor:
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Office hours: General: MW 3:00 – 4:00 pm plus Graduates: MW 6:45 – 7:15 pm

Catalog description: Lecture + Lab: 3 + 0; Credit(s): 3
Usability goals, design principles, design processes, prototyping, interface metaphors, interaction styles, interaction devices, software tools, evaluation paradigms and techniques, user manuals, collaborative work, information visualization. **Prerequisite:** CS 302 Data Structures.

Course outline: This course examines topics related to developing and evaluating user interfaces for interactive computer systems. Topics covered include usability goals and principles, user interface design principles, managing design processes, prototyping and construction, interface metaphors, interaction styles, interaction devices, software tools, user interface builders, evaluation paradigms and techniques, usability testing, user manuals, tutorials, computer-supported collaborative work.

Texts:
- Required text: Jennifer Preece, Yvonne Rogers, and Helen Sharp, *Interaction Design: Beyond Human-Computer Interaction*, **2nd edition,** Wiley & Sons, 2007.
- Recommended textbook: Ben Shneiderman and Catherine Plaisant, *Designing the User Interface: Strategies for Effective Human-Computer Interaction*, 4th edition, Addison-Wesley, 2004.
- Additional material as indicated later by the instructor. In particular, the list of books for the assigned reading presentation (for CS620 students) will be made available early in the semester.

Initial www pointers:
- Required textbook's website (Preece et al's Interaction Design): http://www.id-book.com/
- Gary Perlman's HCI bibliography: http://hcibib.org/

Grading scheme CS420 (tentative):

• Assignments	(3)	15%
• Presentations	(2)	10%
• Tests (midterms)	(2)	32%
• Project	(2)	36%
• Class participation		7%

Grading scheme CS620 (tentative):

• Assignments	(2)	8%
• Extra book reading	(1)	7%
• Presentations	(3)	12%
• Tests (midterms)	(2)	30%
• Project	(2)	26%
• Paper	(1)	12%
• Class participation		5%

Notes on grading:

- Passing conditions (all must be met):

  50% overall &
  50% in test &
  50% in project and paper (grad students only) &
  50% in assignments, presentations, and class participation

- For grade A: at least 90% overall, at least 90% in class participation, and at least 60% in test

- Class participation will be assessed based on attendance, involvement in discussing material presented in class by the instructor and peers, and feedback provided on peers' presentations. Significant lack of class participation will significantly decrease the overall grade in this course.

- Plus/minus grading policy will be used in this course, as indicated below in section "Grading scale"

- There will be no make-up exams or homework in this course

Grading scale:

A	90 -100	[maximum 100]
A-	87 - 89	
B+	83 - 86	
B	78 - 82	
B-	75 - 77	
C+	71 - 74	
C	66 - 70	
C-	63 - 65	
D+	60 - 62	
D	55 - 59	
D-	50 - 54	
F	< 50	

Details on additional coursework requirements and opportunities for graduate students (CS620):

- The graduate students will achieve deeper understanding of the material presented to the combined group by working on more complex and challenging assignments and presentations, writing a (graduate only) project-based paper with a view of potentially publishing it at an international scientific conference, and by interacting more with the instructor outside lecture hours.
- Differences in terms of assignments as compared to undergraduate students' assignments: as shown in the two Grading Schemes (page 2 of this syllabus), graduate students will have additional coursework requirements, as follows:
  - A specialized extra book reading assignment (a 150-page or more book selected by the student and approved by the instructor). This additional book will focus on a specific HCI topic (recommended: related to the student's graduate research), e.g.,"HCI for Mobile Devices". The student will write a 1000 to 1500-word critical essay on this book;
  - An additional class presentation (of 20 minutes or more) in which the student will present the main ideas and specialized information acquired from his or her selected additional book reading;
  - A project-based paper, written using IEEE or ACM guidelines for scientific paper publications, that focuses on the project developed in this class and can be potentially submitted to an international conference;
  - For the same amount of work, the assignments of graduate students will have a lower weight in the course grade (as compared with those for undergraduate students): e.g., 4% each (graduate) versus 5% (undergraduate);
  - The midterm tests will contain each at least an additional question to be answered by graduate students only.
- Increased opportunities for independent study will be offered by extra work (required to graduate students only) on the additional book reading (book critique and presentation) and on the project-based paper that follows IEEE or ACM guidelines for scientific publications.
- Increased opportunities for interaction with the instructor will result from working on the specific graduate assignments described above and from allocating additional weekly office time for meetings with graduate students (for the purpose of advising graduate paper and project work). The latter is indicated in section "Office Hours" on the first page of the syllabus.
- There will be two specific synthesis experiences for graduate students in this course: work on the critical essay (additional book reading) focused on a specialized HCI book chosen by the student, and work on the project-based paper for the purpose of disseminating the results of the HCI project developed in this course;
- The CS 620 course will provide graduate students with the following opportunities to work at a higher academic:
  - Explore in more details HCI challenges and issues (extra book reading);
  - Perform research related to their graduate thesis or project topics (project, course paper);
  - Exercise more comprehensively their written and oral communication skills (additional presentation, essay on the extra book reading);
  - Prepare for scientific publication of their research and development work (course paper).
- The work of graduate students will be evaluated differently from that of undergraduates as indicated previously in the syllabus (top of the second page of the syllabus, sections "Grading scheme CS 420" and "Grading scheme CS 620").
- Through requirements for challenging and interesting study, research, and development on modern HCI topics at a higher academic level (including work on an critical essay focused on a specialized, recently published HCI book and on a project based-paper), at the end of the course the graduate students will acquire substantial academic value that will be greater than that obtained by the undergraduate students.

Late submissions:

Late submissions of assigned work will be penalized with a deduction of 10% of the grade per late day, to a maximum of two late days for each submission. No material will be accepted after two days past the deadline. For example, an assignment that is worth 90/100 points will receive 90*0.9 = 81/100 points if it is one day late, 90*0.8 = 72/100 points if it is two days late, and will not be accepted if it is more than two days late. Note that late days are not divisible in subunits. Late days are not allowed for presentations and test.

On plagiarism and cheating:

Plagiarism and cheating will not be tolerated. It will be dealt with according to the policies of the University of Nevada, Reno regarding academic dishonesty. Please read these policies at www.unr.edu/stsv/acdispol.html

Disability Statement:

If you have a disability for which you will need to request accommodations, please contact me or someone at the Disability Resource Center (Thompson Student Services - 107), as soon as possible.

Tentative schedule

Week	Dates (Lectures)	Contents
1	Aug 27, 29	Lectures Students' introduction
2	- , Sep 05	Lecture
3	Sep 10, 12	Lectures, Presentations draw A#1 given, Selection additional text
4	Sep 17, 19	Presentations by students (round #1)
5	Sep 24, 26	Presentations by students (round #1) A#1 due, PP- I (Project Part I) given
6	Oct 01, 03	Lectures
7	Oct 08, 10	Lecture, Midterm I (October 10)
8	Oct 15, 17	PP-I due, PP-II given Presentations by students (round #2)
9	Oct 22, 24	Presentations by students (round #2), A#2 given
10	Oct 29, 31	Presentations by students (round #2)
11	Nov 05, 07	Lectures A#2 due, A#3/Essay given
12	- , Nov 14	Midterm II (November 14)
13	Nov 19, 21	Lectures A#3 due/Essay due
14	Nov 26, 28	Presentations by students (round #3 – grads only)
15	Dec 03, 05	Presentations by students (round #3 – grads only)
16	Dec 10	PP-II due (Dec 11), Paper due (grads only – Dec 15)

Course Assessment Matrix

CS 420 Human Computer Interaction

ABET Criterion 3 Outcomes	Course Outcomes	Assessment Methods/Metrics	CS Program Objectives Impacted	CIE Program Objectives Impacted
c	Students have the ability to specify, design and implement a prototype (software and/or hardware) that involves significant human-computer interaction (HCI).	Define project concept, specify requirements and scenarios of use, develop architectural and detailed design, create user-interface design, and implement the prototype.	2, 3	2, 3
g	Students are capable of describing their and others' HCI solutions in clear and fluent ways, both in writing and in oral presentations.	Write assignments and project parts using correct, fluent, clear and precise English. Present HCI material in classroom talks that are easily followed and understood by the peers and the instructor.	3, 4	3, 4
h	Students have a clear understanding of the impact of engineering solutions in a global and societal context.	Examine and evaluate new, leading-edge HCI approaches with respect to their significance for the society and the global community.	1, 4	4
i	Students understand the need to engage in continuous learning and keep abreast with the new technology developments.	Study, explain, and evaluate the newest developments in the HCI research and industry landscape.	4	4
k	Students demonstrate the ability to evaluate and apply techniques and tools for designing and developing HCI solutions.	Study, evaluate, and apply various techniques and tools for HCI specification, design and implementation.	2,3	2, 3

ABET Criterion 3 Outcomes:

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs
d. an ability to function on multi-disciplinary teams
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively
h. the broad education necessary to understand the impact of engineering solutions in a global and societal context
i. a recognition of the need for, and an ability to engage in life-long learning
j. a knowledge of contemporary issues
k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Computer Science Program Objectives:

Our graduates will have achieved:

1. a broad general education assuring an adequate foundation in science and mathematics relevant to computing.
2. a solid understanding of concepts fundamental to the discipline of computer science.
3. good analytic, design, and implementation skills required to formulate and solve computing problems.
4. the ability to function, communicate, and continue to learn effectively as ethically and socially responsible computer science professionals.

Computer and Information Engineering Program Objectives:

Within 3 to 5 years of graduation our graduates will:

1. be employed as computer engineering professionals beyond entry level positions or be making satisfactory progress in graduate programs.
2. have peer-recognized expertise together with the ability to articulate that expertise as computer engineering professionals.
3. apply good analytic, design, and implementation skills required to formulate and solve computer engineering problems.
4. demonstrate that they can function, communicate, collaborate and continue to learn effectively as ethically and socially responsible computer engineering professionals.