CS 4317/5317: Human-Computer Interaction

Syllabus
Fall 2015

Tuesday & Thursday, 4:30-5:50 p.m., CCS 1.0202
Instructor: David Novick
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Office Hours: 3:00-4:20 p.m. Tuesdays & Thursdays
Course Web site: http://www.cs.utep.edu/novick/courses/CS4317

Course Objective
Acquire the knowledge and skills needed to create highly usable software systems.

Learning Outcomes

Level 1: Knowledge and Comprehension
(Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. The material has been presented only at a superficial level.) Upon successful completion of this course, students will be able to
- Explain the role of well-designed, usable interfaces in market success, reliability, and accessibility
- Explain the use of guidelines, design principles, and theoretical models in designing user interfaces
- Explain the roles of HCI professionals and practitioners of related disciplines in the workplace
- Explain the role of systems software in achieving acceptable system response times
- Explain how interface design is ultimately dependent on human perception and cognition
- Explain the advantages and disadvantages of graphical user interfaces, command-language interfaces, and spoken dialog interfaces

Level 2: Application and Analysis
(Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details.) Upon successful completion of this course, students will be able to
- Explain and apply various approaches to evaluating a user interface, such as heuristic evaluation, cognitive walkthrough, GOMS analysis, usability testing, survey, and controlled experimentation
- Use software tools such as specification methods, interface-building tools, and evaluation tools
- Apply basic principles of human perception and ergonomics to the design of user interfaces, such as response-time models and Fitts' Law
- Select an appropriate hardware interface device (from among various keyboards, keypads, pointing and drawing devices, screen types and sizes, etc.) for a given interface task and user population
- Select appropriate interaction styles and interfaces (distant and co-located, synchronous and asynchronous) to support a given human collaboration need

Level 3: Synthesis and Evaluation
(Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery.) Upon successful completion of this course, students will be able to

- Explain and apply various approaches to designing user interfaces, such as guidelines, user observation, task analysis, user-participatory design, scenario development, and prototyping
- Design and evaluate graphical user interfaces in Web and stand-alone applications, including appropriate choice of interaction styles and widgets, information presentation, error prevention, error message design, display design, and use of color

Format
Primarily lectures, but also in-class design exercises, lab time, project presentations and discussions.

Text
Designing the User Interface, 5thEdition, by Ben Shneiderman and Catherine Plaisant. Addison Wesley, 2010. We will be skipping back and forth in the book as we follow the topics listed above. This will be supplemented by readings handed out in class. You will also need a book with coverage of Swing (Java's GUI toolkit) to refer to. Some other good books to own are listed at the course Web site.

Assignments
Reading and homework assignments will be handed out or announced in class. If you miss a class, it is your responsibility to find out what you missed. You should expect to spend at least seven hours per week outside of class on reading and homework.

There will be a number of structured assignments, designed to give experience with various usability-engineering activities. Most assignments will be done in teams. Assignments due at the start of class will be collected after a one-minute grace period; late assignments will receive at most two-thirds credit. Assignments are to be handed in as hardcopy unless otherwise specified. Writing quality is important, and rework may be required if it is not up to standard. Cooperation among students and among teams is encouraged, but not to the extent that it interferes with each individual's understanding or with learning-by-doing. Help given and received from other students and sources should be noted in the assignment write-up.

Standards of Conduct
You are expected to conduct yourself in a professional and courteous manner, as prescribed by the UTEP Standards of Conduct. Graded work, such as homework and tests, is to be completed independently and should be unmistakably your own work, although you may discuss your project with other students in a general way. You may not represent as your own work material that is transcribed or copied from another person, book, or any other source, e.g., a Web page. The instructor is required to—and will— report academic dishonesty and any other violation of the Standards of Conduct to the Dean of Students.

Disabilities
If you feel that you may have a disability that requires accommodation, contact the Disabled Student Services Office at 747-5184, go to Room 106E Union, or email dss@utep.edu.

Grading
For undergraduate students, the semester grade will be based on a combination of daily quizzes,

homework assignments, two midterm examinations, and a final examination. The percentages are as follows:

Quizzes: 15%
Homeworks: 30%
Midterms: 30%
Final: 25%

For graduate students, the semester grade will be based on a combination of daily quizzes, homework assignments, two midterm examinations, a team-based teaching session, and a team-based class presentation. The percentages are as follows:

Quizzes: 10%
Homeworks: 25%
Midterms: 25%
Final: 20%
Team teaching: 10%
Team presentation: 10%

Important Dates
Midterm 1: Thursday, October 13, 2015
Midterm 2: Thursday, November 24, 2015
Final Exam: 4:00-6:45 p.m., Tuesday, December 8, 2015