

INF 385P – Usability

Syllabus

- Unique Number:** 28755
- Semester:** Spring, 2014
- Professor:** Randolph G. Bias
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- Office:** UTA 5.424
- Office Hours:** Thursdays, 11:00 a.m. to noon
And by appointment. (Mostly by appointment!)
- Class Time:** Mondays, 12:00 to 3:00 p.m.
- Classroom:** UTA 1.502
- TA:** Jane Gruning
jane.gru@gmail.com
- Course site:**
- Textbooks:** Norman, Donald A. (1990). *The design of everyday things*. New York: Doubleday.
- Krug, Steve. (2006). *Don't make me think: A common sense approach to web usability*. Berkeley, CA: New Riders Publishing.
- Plus one other book for you to decide on.
- Other readings:**
- Bias, R. G., Marty, P. F., & Douglas, I. (2012). Usability/User-centered design in the iSchools: Justifying a teaching philosophy. *Journal of Education for Library and Information Science*, 53, 4—(Fall) October.
- Carroll, J. M. (1997). Human-computer interaction: Psychology as a science of design. *Annual Review of Psychology*, 48, 61-83.
- Cooke, L. (2010). Assessing concurrent think-aloud protocol as a usability test method: A technical communication approach. *IEEE Transactions on Professional Communications*, 53, 3, 202-215.

Habuchi, Y., Kitajima, M, & Takeuchi, H. (2008). Comparison of eye movements in searching for easy-to-find and hard-to-find information in a hierarchically organized information structure. ETRA, Savannah, Georgia, March.

Markman, A. B., & Gentner, D. (2001). Thinking. *Annual Review of Psychology*, 52, 223-247.

Olson, G. M., & Olson, J. S. (2003). Human-computer interaction: Psychological aspects of the human use of computing. *Annual Review of Psychology*, 54, 491-516.

Pretorius, M. C., Calitz, A. P., & van Greunen, D. (2005). The added value of eye tracking in the usability evaluation of a network. *Proceedings of SAICSIT*, pp. 1 –10.

Other readings may be added along the way.

Synopsis:

The rapid expansion of the Internet and e-commerce has brought software usability engineering into prominence. As more and more information exists in electronic form (and sometimes ONLY in electronic form), the storage and retrieval of information is increasingly a human-computer interface (HCI) design problem. As computing oozes into every nook of citizenry, it's increasingly important for software developers, and indeed any web site developers, NOT to depend on their own intuitions as to what designs are likely to be seen as usable. The way web and other user interface designers and developers address this intentionally is by pursuing a course of “user-centered design” (UCD). UCD involves employing a collection of usability engineering methods across the life-cycle of a software product.

The class will cover three major areas:

- 1 – the perceptual psychological, cognitive psychological, and other scientific underpinnings of usability (i.e., the emerging “usability science”),
- 2 – the usability engineering methods used in the pursuit of UCD, and
- 3 – the justification for the application of usability engineering in a software development project.

The course will entail four major instructional techniques:

- 1 – lecture on the scientific underpinnings and the methods of usability engineering,
- 2 – exercises, to demonstrate the use of such methods,
- 3 – site visits to and from local companies that have usability labs, to see and hear demonstrations of methods as applied to real-world software design problems, and
- 4 – individual usability engineering projects, to be carried out by each student, with the results to be shared with the class.

Objectives:

The student successfully completing this class will:

- understand and be able to explain the rudimentary aspects of how human beings take in and process information,
- know what the methods of usability engineering are and have experience with some of them,
- understand and be able to explain why software developers should NOT depend on their own intuitions for what is a usable design,
- be able to make the arguments for cost-justifying a user-centered design approach,
- have had exposure to a variety of usability labs,
- know how to carry out a usability evaluation and write a usability test plan and report.

Grades:

Your grade will be based on four things:

1. your general contribution in class (25%),
2. a book review (20%)
3. a “white paper” on some topic in the area of science applied to the design of human-computer interfaces (20%), and
4. a final project (working in pairs) entailing the usability engineering of a web site or traditional software user interface (35%).

Late Assignments:

Your grade will be docked one grade per day late, for your written assignments.

Etc.:

- If you have a question, please ask. I will be very receptive to emails at any time, and phone calls before 10:00 p.m. (Aw heck, phone calls any time, too.)
- Attendance matters. When you aren't here, you deprive your classmates of your shared wisdom.
- Any student with a documented disability (physical or cognitive) who requires academic accommodations should contact the Services for Students with Disabilities area of the Office of the Dean of Students at 471-6259 (voice) or 471-4641 (TTY for users who are deaf or hard of hearing) as soon as possible to request an official letter outlining authorized accommodations.
- Policy on Scholastic Dishonesty: Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University.

Schedule (note, the guest speaker visits are tentative as of now – 1/6/2014):

Week	Date	Topics	Due at the beginning of class
1	1/15	Introduction: What is usability engineering? - The context of usability. - Course logistics, and syllabus review.	
2	1/22	The scientific underpinnings of usability - Perception and cognition - Norman book - Mental models	- Read Norman book. - Read Markman and Gentner article. - One example each of good and bad design (NOT a web site)
3	1/29	Guests: Christine Holcombe and Valle Hansen, Design for Use. Card sorting.	- Read Norman book. - Read Bias, Marty, & Douglas (2012). - One example each of good and bad web site design
4	2/5	Introduction to end-user testing - Introduction to the IX Lab	- Read Cooke (2010). - Read Habuchi, Y., Kitajima, M, & Takeuchi, H. (2008). - Read Pretorius, M. C., Calitz, A. P., & van Greunen, D. (2005)
5	2/12	Kijana Knight, Rachel Gibbs, projekt202 – User requirements gathering	
6	2/19	Book reviews	- Book review due
7	2/26	Discount Usability Engineering - Heuristic Evaluation - Pluralistic Usability Walkthrough - Plus – a NEW usability evaluation method! - In-class evaluation of a web site	- Read Krug book. - Read Carroll (1997). - Read Olson and Olson (2003).
8	3/5	Guest: Eugenie Bertus -- Bridge Methodology	- White paper due
9	3/19	Guest: Jon-Eric Steinbomer End-user testing revisited - Moderated - Unmoderated - Remote - Crowd-sourced	
10	3/26	Test plan presentations.	- Test plans due
11	4/2	Test plan presentations.	
12	4/9	UCD for mobile – OR – More new method!	

13	4/16	Workshop – We’ll help each other with our usability evaluations. Run as test subjects. Review test plans. Review test reports. Whatever.	
14	4/23	Panel discussion	
15	4/30	Oral presentations of projects	Written projects

Book Review

Please write a review of a book that you borrowed from me or bought. Examples will be on shared in class.

White Papers – Some thoughts

Here are some definitions I found:

From <http://www.investorwords.com/cgi-bin/getword.cgi?5856> (I think this link is now broken): “white paper: An educational report made available to the public that expounds on a particular industry issue.”

Here’s a thorough one from:

http://searchwebservices.techtarget.com/sDefinition/0,,sid26_gci213361,00.html

“A white paper is an article that states an organization's position or philosophy about a social, political, or other subject, or a not-too-detailed technical explanation of an architecture, framework, or product technology. Typically, a white paper explains the results, conclusions, or construction resulting from some organized committee or research collaboration or design and development effort.

Several versions of Webster's indicate that the term arose within the past few decades in England to distinguish short government reports from longer, more detailed ones that were bound in blue covers and referred to as "blue books" (not to be confused with the blue books used when taking college exams). A shorter government publication providing a report or position about something was bound in the same white paper as the text - hence, "a white paper."

In information technology, a white paper is often a paper written by a lead product designer to explain the philosophy and operation of a product in a marketplace or technology context. Many if not most Web sites for software products include a white paper in addition to a frequently-asked questions ([FAQ](#)) page and more detailed product specifications.

In government, a white paper is often a policy or position paper. The U.S. Government's June, 1998 policy statement on the *Management of Internet Names and Addresses* (known generally as "The White Paper") is an example of great interest to many Internet users.“

Here are some examples I found:

<http://www.w3.org/TR/NOTE-WAP> -- an example

<http://java.sun.com/docs/white/> -- offers some examples

<http://www.javaworld.com/white-paper/index.shtml> -- more examples

<http://www.whitepapercompany.com/> -- Note, this is a commercial group, trying to sell a service. (Do not BUY your white paper!)

Possible Topics for White Paper:

- Is the web special, for UI design? Web vs. GUI design.
- Usability engineering of user documentation.
- Usability and training.
- Usability and internationalization.
- Accessibility.
- Organizational challenges for usability.
- Wireless usability.
- Mobile usability.
- Usability and kids.
- Special concerns for e-commerce.
- Gaming interfaces.
- Cost-justifying usability: Measuring return-on-investment for your usability engineering dollar and hour.
- Color and culture.
- Motion perception.
- Remote usability testing.
- Automated usability evaluation tools.
- Web UI standards.
- Scientific comparisons of the effectiveness of various usability engineering methods.
- Usability vs. learnability vs. discoverability.
- I REALLY want someone to take this: The usability of pen interfaces.
- ALSO: Usability and video interfaces.
- What's new on the usability horizon?

Many, many other topics would be good. Get verification of paper topic from class professor.

Final Project

Please partner with one other person and conduct a usability evaluation of SOME web site or other piece of software. As we get a couple of weeks into the semester I will provide a list of web sites of nonprofit agencies for you to evaluate IF you do not already have some site or other piece of software you wish to evaluate.

A heuristic evaluation, or some other inspection method, can be PART of your evaluation, but not all of it – I will want you to test SOME test participants. (Perhaps four to six.)

You will be asked to:

- write a test plan
- write a test report
- deliver your findings in a presentation to the class.

If you wish you may, on your own, deliver your findings to the site/software stakeholders.

IMPORTANT NOTE: This will not necessarily be an “industrial strength” piece of work. I will ask you to write the test plan AS THOUGH you were going to do a full-blown, excellent evaluation. However, when it comes time to test users, I will welcome you to test a convenience sample (e.g., each other).

Final note: In semesters past there has been a “Showcase” at the end of the academic year, basically a giant poster session (“giant” modifies “session”) where students showcased their individual studies work and their class projects. There will probably be one next semester, too (likely on the last class day of the semester – May 3, 2013). You will be welcomed to consider generating and standing in front of and speaking about a poster highlighting your final project in this course. But I will not require you to do so, nor will your decision or subsequent performance have any influence on your course grade.