Human-WWW Interaction
Course Syllabus

Psychology 710B
Section 003
North Carolina State University
Winter/Spring term, 2008

Instructor	***Class Meetings***	***Office Hours***
Michael S. Wogalter, Ph.D. Office: 730 Poe; Lab: 740 Poe Office: 515-1726; (fax) 515-1716 Lab: 515-8260; Home: 851-1884 Email: Wogalter@NCSU.edu, WogalterM@aol.com	Tuesdays 10:15 - 1:00 P.M. 214 Poe Hall	Tuesdays 1:10 - 2:10 AM or by appointment

Course Objectives

This course examines the relationships between people and the World Wide Web (Internet). Some of the topics discussed will be information display, format issues, input methods, interaction styles, evaluation and measurement usability, individual differences and applications of cognitive science to HCI. Virtually of the readings are primary-source empirical studies. The course will also serve as a vehicle to learn how research is carried out, data collected, results analyzed, implications drawn, and a paper constructed to report the study to others.

The instructor will be not be giving regular lectures. The class will run as a seminar in which the class participates in active discussion. Each student will be assigned three or four sets of readings (depending on the number of students in the course) and will lead the class in discussion of the assigned articles. Leaders will summarize each article for a period about than 5-7 minutes, and then lead discussion of classmates' questions.

Readings

Virtually all of the assigned readings are research articles published in the last 3 years. A complete copy of all articles will be made available with a week to 10 days after the first day of class. Students wishing to use this resource should do so within 2 weeks of the first class meeting.

Course Requirements

Class participation

Because of the nature of the course, i.e., a seminar, your participation in class is essential. You should be prepared to speak up and add to each meeting's discussion. Class participation will be worth 25% of the final course grade. Also, see "Attendance policy" below.

You are strongly encouraged to critically read the assigned readings <u>twice</u>: Once before making up questions (discussed below) and again before coming to class. It is recommended that you take handwritten notes (and comments) about the articles as you go through them. Review them before coming to class. Remember to bring the articles for that week to class.

Leader assignments

Students will be responsible for leading discussion of three or four sessions (depending on the number of students in the class). Leaders will briefly summarize the articles and lead discussion of questions and issues submitted by class members. Leaders might want to use visual aids (e.g., overheads and hand-outs) to assist in presentation or to look at other source materials to develop better, more informative discussions. The quality of the presentations and discussion leadership will account for 25% of the final course grade. Leaders are responsible in making sure that the discussion is fruitful and is well paced. There will be a 10-minute break near the midpoint of each class meeting. The first leader should make judgments when to move the discussion along so that the first session does not overlap with the break or usurp time from the second session. The second leader of the day should make sure that the class ends before 1:00 PM. The more important articles and questions should be given priority over the less important articles and questions.

Discussion questions

Each person is required to write out at least 1 to 2 discussion questions for each assigned reading to be submitted to the leader of the upcoming session. These questions should deal with aspects of the articles that you do not understand and need clarification, or to stimulate discussion, etc. Questions are due to the week's topic leaders by 1:00 P.M. on the Monday before the next session. Questions should be sent by email directly to the leaders of the two leaders (and a copy sent to the instructor's email address). If you do not send them to the leaders, at least bring them to class.

Written research project and oral presentation

Students are required to complete a written research project on a topic that has the instructor's approval. The project can be focused on any area of scientific merit with respect to people interacting with the Internet. Students are encouraged to do a project similar in style as some of the projects discussed in the context of the readings. Papers should be word processed in the format directed by the *Human Factors Author's Guide* or the *Publication Manual of the American Psychological Association*. The written report should contain a title page, abstract, review of relevant literature (related to the problem being addressed, purpose of the research (and the reasoning behind it), method (description of the materials and procedure), results (expected or found), discussion/implications of the research, and references. The report should be no longer than 12 double-spaced pages of text (excluding the title page, abstract, references, and

supporting figures and tables). Other kinds of projects may be acceptable and will require approval of the instructor. A written proposal (only a half page to a page is necessary) should be submitted by the due date listed on **February 17**. This written portion of the assignment will be worth 35% and is due the last day of class. One oral presentation of the project (at any stage) should be given in the class before the last day of class of about 10 minutes/student. The oral presentation will be worth 5% of the course grade.

Attendance Policy

Students will be expected to attend <u>every</u> class meeting. Missing a single class is like missing a week's worth of classes.   Student attendance is important because seminar discussions are only as good as the people who attend and participate. Therefore, students should note that 25% of the course grade is allocated to class participation. Obviously, it is difficult to participate when you are not present. Additionally, missing three meetings will result in an automatic penalty of 5% subtracted from the final grade. Each additional missed meeting will result in further reductions of 5% from your final grade. Take the necessary precautions to avoid being in the position to miss a class without a really good excuse.

Grading

All students are expected to do and turn in their own work. Academic integrity is expected. Dishonorable behavior will not be tolerated and when necessary will be pursued through the University's judicial channels.

The grading scale is shown below:

A   At least 90%   B   At least 80%   C   At least 70%   F Less than 70%

Plus and minus grades will not be given in this course. A summary of the percentage worth of each of the course components follows:

Class participation:	25%
Leadership of discussion	25%
Weekly questions	10%
Oral presentation of project	5%
<u>Written research project</u>	<u>35%</u>
TOTAL	**100%**

Calendar for
Human-WWW Interaction

(1) Jan 13: Course Introduction

(2) Jan 20: Formatting aspects on the web
1st half

Saikh, & Chaparro (2005). The effects of line length on reading performance of online news articles. *Proceedings of the Human Factors and Ergonomics Society*, *49*.

Shrestha, Owens, & Chaparro (2008). Eye movements on a single-column and double-column text web page. *Proceedings of the Human Factors and Ergonomics Society*, *52*.

Fox, Shaikh, & Chaparro (2007). The effect of type face on the perception of onscreen documents. *Proceedings of the Human Factors and Ergonomics Society*, *51*.

Riley, & Chaparro (2007). The use of bullets in textual web content. *Proceedings of the Human Factors and Ergonomics Society*, *51*.

2nd half

Fox, Chaparro, & Merkle (2008). Examining the onscreen legibility of the number '0' and number '1.' *Proceedings of the Human Factors and Ergonomics Society*, *52*.

Hall & Hanna (2004). The impact of web page text-background color combinations on readability, retention, aesthetics and behavioural intention. *Behaviour & Information Technology*, 23.

Parush, Swarts, Shtub, & Chandra (2005). The impact of visual layout factors on performance in web pages: A cross-language study. *Human Factors, 47*.

(3) Jan 27: Input devices
1st half

Rempel (2008). The split keyboard: An ergonomics success story. *Human Factors, 50*.

Kravitz (2007). Of mice and pen: Effects of input device on different age groups performing goal oriented tasks. *Proceedings of the Human Factors and Ergonomics Society*, *51*.

Hah and Ahlsotrom (2005). Comparison of speech with keyboard and mouse as the text entry method. *Proceedings of the Human Factors and Ergonomics Society*, *49*.

2nd half

Baker & Redfern (2007). The association between computer typing style and typing speed. *Proceedings of the Human Factors and Ergonomics Society*, *51*.

Allen, McFarlin, & Green (2008). An in-depth look into text entry user experience on the iPhone. *Proceedings of the Human Factors and Ergonomics Society*, *52*.

Rogers, Fisk, McLaughlin & Pak (2005). Touch a screen or turn a knob: Choosing the best device for the job. *Human Factors, 47*.

(4) Feb 3: Navigation

1st half

Shrestha, Lenz, Owens, & Chaparro (2007). "F" pattern scanning of text and images in web pages. *Proceedings of the Human Factors and Ergonomics Society*, *51*.

Owens, Shrestha, & Chaparro (2008). Eye-tracking patterns of web portal browsing. *Proceedings of the Human Factors and Ergonomics Society*, *52*.

Devine & Andre (2005). Effect of scroll bar and navigation menu co-location on web performance. *Proceedings of the Human Factors and Ergonomics Society*, *49*.

St. John (2008). Design a better shared whiteboard: Interruption recovery, message prioritization, and decluttering. *Proceedings of the Human Factors and Ergonomics Society*, *52*.

2nd half

Norman (2008). Better design of menu selection systems through cognitive psychology and human factors. *Human Factors*, *50*.

Miller, Fuchs, Anantharaman, & Kulkarni (2007). Comparing two methods for predicting navigation problems in information hierarchies. *Proceedings of the Human Factors and Ergonomics Society*, *51*.

Jones, Farris, & Johnson (2005). Can experience overcome prior knowledge's impact on web navigation? *Proceedings of the Human Factors and Ergonomics Society*, *49*.

(5) Feb 10: Older adults and individual differences I

1st half

Laberg & Scialfa (2005). Predictors of web navigation performance in a life span sample of adults. *Human Factors*, *47*.

Czaja, Lee, Nair, & Sharit (2008). Older adults and technology adoption. *Proceedings of the Human Factors and Ergonomics Society*, *52*.

Nair, Lee, & Czaja (2005). Older adults and attitudes towards computers: Have they changed with recent advances in technology? *Proceedings of the Human Factors and Ergonomics Society*, *49*.

Czaja, Lee, Nair, & Sharit (2008). Older adults and technology adoption. *Proceedings of the Human Factors and Ergonomics Society*, *52*.

2nd half

Pack & Price (2008). Designing an information search interface for younger and older adults. *Human Factors*, *50*.

Pautz, Price & Pak (2007). Accommodating Age-related differences in computer-based information retrieval tasks. *Proceedings of the Human Factors and Ergonomics Society*, *51*.

Turner, Turner and deWalle (2007). How older people account for their experience with interactive technology. *Behaviour & Information Technology*, *26*.

(6) Feb 17: Older adults and individual differences II

1st half

Kuhn, Czaja, Nair, Sharit, El-attar, Hernandez, & Lee (2007). What type of difficulties do senor encounter when using the internet to make health care decisions? *Proceedings of the Human Factors and Ergonomics Society, 51.*

El-Attar, Gray, Nair, Ownby, & Czaja (2005). Older adults and internet health information seeking. *Proceedings of the Human Factors and Ergonomics Society, 49.*

Turner, Turner and deWalle (2007). How older people account for their experience with interactive technology. *Behaviour & Information Technology, 26.*

2nd half

Artis & Kleiner (2006). The effects of age and the design of web-based training on computer task performance. *Proceedings of the Human Factors and Ergonomics Society, 50.*

Mitzner, Fausset, Boron, Adams, Dijkstra, Lee, Rogers & Fisk (2008). Older adults' training preferences for learning to use technology. *Proceedings of the Human Factors and Ergonomics Society, 52.*

Hart, Chaparro and Halcomb (2008). Evaluating websites for older adults: adherence to 'senior-friendly' guidelines and end-user performance. *Behavior & Information Technology, 27.*

(7) Feb 24: Timing and Interruptions

1st half

Jacko, Sears, & Borella (2000). The effect of network delay and media on user perceptions of web resources. *Behaviour & Information Technology, 19.*

Nah (2004). A study on tolerable waiting time: How long are web users willing to wait? *Behaviour & Information Technology, 23.*

2nd half

Lindgaard, Fernandes, Dudek, & Brown (2006). Attention web designer: You have 50 milliseconds to make a first impression! *Behaviour & Information Technology, 25.*

Quionones, Vora, Steinfeld, Smailagic, Hansen, Siewiorek, Phadhana-Anake, & Shah (2008). The effects of highlighting and pop-up interruptions on task performance. *Proceedings of the Human Factors and Ergonomics Society, 52.*

Rodriguez, Jantzi, & Smith (2005). Change blindness: Detecting icon position change in military information displays. *Proceedings of the Human Factors and Ergonomics Society, 49.*

Mark, Gudith, & Klocke (2008). The cost of interrupted work: More speed and stress. *Chi 2008 Proceedings.*

Mar 3: Spring Break (no class)

(8) Mar 10: Web Search

1st half

Aurelio, & Mourant (2005). Ranking versus categorization: The effects of sorting the results for web search engine multiterm queries. *Proceedings of the Human Factors and Ergonomics Society, 49.*

Ma, & Salvendy (2003). Graphical web directory for web search. *Behavior & Information Technology, 22.*

Rele, & Tuchowski (2005). Using eye tracking to evaluate alternative search results interfaces. *Proceedings of the Human Factors and Ergonomics Society, 49.*

Ahlstorm (2005). A comparison of subject-based classification strategies for enhance usability. *Proceedings of the Human Factors and Ergonomics Society, 49.*

2nd half

Duggan & Pane (2008). Knowledge in the head and on the web: Using topic expertise to aid search. *Chi 2008 Proceedings.*

Gugerty, Billman, Pirolli, & Elliott (2007). An exploratory study of the effect of domain knowledge on internet search behavior: The case of diabetes. *Proceedings of the Human Factors and Ergonomics Society, 51.*

Kortum & Scharff (2007). The effect of small changes in web page navigation links on the performance of users who revisit sites. Proceedings of the Human Factors and Ergonomics Society, 51.

232. Wogalter, M. S., & Mayhorn, C. B. (2008). Trusting the Internet: Cues affecting perceived credibility. *International Journal of Technology and Human Interaction, 4,* 76-94

(9) Mar 17: Privacy and Security

1st half

Hardee, Mayhorn, & West (2006). I downloaded what? An examination of computer security decisions. *Proceedings of the Human Factors and Ergonomics Society, 50.*

Johnson, & Werner (2008). Graphical user authentication: A comparative evaluation of composite scene authentication vs. three competing graphical passcode systems. *Proceedings of the Human Factors and Ergonomics Society, 52.*

Kindberg, O'Neill, Bevan, Kostokos, Fraser, & Jay (2008). Measuring trust in Wi-Fi Hotspots. *Chi 2008 Proceedings.* Wogalter, M. S., & Mayhorn, C. B. (2008). Trusting the Internet: Cues affecting perceived credibility. *International Journal of Technology and Human Interaction, 4,* 76-94.

Jakobsson, Stolterman, Wetzel, & Yang (2008). *Love and authentication. Chi 2008 Proceedings.*

2nd half

Wogalter & Mayhorn (2008). Trusting the Internet: Cues affecting perceived credibility. *International Journal of Technology and Human Interaction, 4.* Trusting the Internet: Cues affecting perceived credibility. *International Journal of Technology and Human Interaction, 4,* 76-94, C. B. (2008). Trusting the Internet: Cues affecting perceived credibility. *International Journal of Technology and Human Interaction, 4,* 76-94. Wogalter, M. S., & Mayhorn, C. B. (2008). Trusting the Internet: Cues affecting perceived credibility. *International Journal of Technology and Human Interaction, 4,* 76-94.

233.
234.
235.
Sharek, Swofford, & Wogalter (2008). Failures to recognize fake Internet popup warning messages. *Proceedings of the Human Factors and Ergonomics Society*, *52*.

Caine, Burnham, Fisk, & Rogers (2008). Privacy concerns and disclosure behavior in a health setting. *Proceedings of the Human Factors and Ergonomics Society*, *52*.

Lee, Larose, & Rifon (2008). Keeping our network safe: A model of online protection behaviour. *Behaviour & Information Technology*, *27*.

(10) Mar 24: Usability Considered

1st half

Hanson & Richards (2005). Achieving a more usable World Wide Web. *Behavior & Information Technology*, *24*.

Savage-Knepshield (2007). Usability testing for rapid fielding with small Ns: Lessons learned during an army operational field experiment. *Proceedings of the Human Factors and Ergonomics Society*, *51*.

Shrestha, Abinnour-Helm & Chaparro (2008). Using the analytic hierarchical process to create a single usability score for website interfaces. Proceedings of the Human Factors and Ergonomics Society, 52.

2nd half

Greenberg & Buxton (2008). Usability evaluation considered harmful (some of the time). *Chi 2008 Proceedings*.

(11) Mar 31: Selling products on the Web & Collaboration

1st half

Kwon, Kim, & Lee (2002). Impact of website information design factors on consumer rating of web-base auction sites. *Behaviour & Information Technology*, *21*.

Agarwal & Hedge (2008). The impact of web page usability guideline implementation on aesthetics and perceptions of the e-retailer. *Proceedings of the Human Factors and Ergonomics Society*, *52*.

Schmidt, & Liu (2005). Design of consumer product webpages: Experimental investigations of aesthetic and performance factors. *Proceedings of the Human Factors and Ergonomics Society*, *49*.

2nd half

Noel & Robert (2003). How the web is used to support collaborative writing. *Behaviour & Information Technology*, *22*.

Munteanu, Baecker, & Penn (2008). Collaborative editing for improved usefulness and usability of transcript-enhanced webcasts. *Chi 2008 Proceedings*.

(12) Apr 7: Web Content

1st half

Jones, Balew, & Probst (2008). Does content affect whether users remember that web pages were hyperlinked? *Human Factors, 50.*

Isherwood, McDougall, & Curry (2007). Icon identification in context: The changing role of icon characteristics with user experience. *Human Factors, 49.*

2nd half

Ozok & Salvendy (2003). The effect of language inconsistency on performance and satisfaction in using the web: Results from three experiments. *Behaviour & Information Technology, 22.*

Harper, Raban, Rafaeli, & Konstan (2008). Predictors of answer quality in online Q&A sites. *Chi 2008 Proceedings.*

(13) Apr 14: Other Usability & Cybersickness

1st half

Capra (2007). Comparing usability problem identification and description by practitioners and students. *Proceedings of the Human Factors and Ergonomics, 51.*

Bangor & Miller (2005). The design and presentation order of web page buttons. *Proceedings of the Human Factors and Ergonomics Society, 49.*

Resnick & Jansen (2005). An empirical study of paid listings in product search and purchase. *Proceedings of the Human Factors and Ergonomics Society, 49.*

2nd half

Roberts & Gallimore (2005). A physiological model of cybersickness during virtual environment interaction. *Proceedings of the Human Factors and Ergonomics Society, 49.*

Jerome, Darnell, Oakley, & Pepe (2005). The effects of presence and time of exposure on simulator sickness. *Proceedings of the Human Factors and Ergonomics Society, 49.*

Moss, Scisco, & Muth (2008). Simulator sickness during head mounted display (HMD) of real world video capture scenes. *Proceedings of the Human Factors and Ergonomics Society, 52.*

(14) Apr 21: TBA