Course Description
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, cognitive, and other scientific underpinnings of usability,
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. individual usability engineering projects, with the results to be shared with the class.

Objectives:
The student successfully completing this class will:
- understand 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 why software developers are NOT the end-user
- 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 (20%)
2. Website and Software Bad Design exercises (15%)
3. a “white paper” on some topic applied to the design of human-computer interfaces (30%)
4. a final project entailing the usability 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.

Misc:
-- If you have a question, please ask. I will be very receptive to emails at any time.
-- 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.
**Textbooks:**


**Other Readings:**


Other readings may be added along the way.
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 and/or training
- Usability and internationalization.
- Accessibility.
- Organizational challenges for usability.
- Gaming interfaces.
- Cost-justifying usability: Measuring return-on-investment
- 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

As a group, you will 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 6, 2015). 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.
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<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Topics</th>
<th>Due at the beginning of class</th>
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<tbody>
<tr>
<td>1</td>
<td>1/19</td>
<td>Introduction: What is usability engineering?</td>
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<td>- Course logistics, and syllabus review.</td>
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<td>- Proctor Ch.1 (Historical Foundations)</td>
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<td>2</td>
<td>1/26</td>
<td>- Proctor Ch. 4 – Human Information Processing</td>
<td>- Read Markman and Gentner article.</td>
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<td>- Proctor Ch. 6 – Object Perception</td>
<td>- Read Johnson 1 - 4</td>
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<td>- Gestalt</td>
<td>- Assignment - Good/Bad Websites</td>
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<td>3</td>
<td>2/2</td>
<td>- Proctor Ch. 9 – Attention and the Assessment of Mental Workload</td>
<td>- Read Carroll (1997).</td>
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<td>- Proctor Ch. 11 – Solving Problems and Making Decisions</td>
<td>- Read Johnson 5 - 8</td>
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<td>4</td>
<td>2/9</td>
<td>- Tullis Ch. 2 - Background</td>
<td>- Read Tullis Ch. 1, 2, 3</td>
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<td>- Tullis Ch. 3 - Planning</td>
<td>- Read Deininger Pushbutton Telephone Sets</td>
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<td>- Discuss Final Project</td>
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<td>Guest Speaker - Chris Sader (blackbaud.com)</td>
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<td>5</td>
<td>2/16</td>
<td>- Proctor Ch. 12 – Expert and Expert Systems</td>
<td>- Read Johnson 9 - 11</td>
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<td>- Proctor Ch. 19 – Practice of Human Factors</td>
<td>- Read Cooke (2010).</td>
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<td>- Dr. Kahneman video</td>
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<td>6</td>
<td>2/23</td>
<td>- Tullis Ch. 4 - Performance Metrics</td>
<td>- Read Tullis Ch. 4, 5, 6</td>
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<td>- Tullis Ch. 5 - Issues-Based Metrics</td>
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<td>- Tullis Ch. 6 - Self-Reported Metrics</td>
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<td>Guest Speaker - Rebecca Loar (rackspace.com)</td>
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<td>7</td>
<td>3/1</td>
<td>- Proctor Ch. 8 – Display of Visual, Auditory, etc</td>
<td>- Read Johnson 12 – 14</td>
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<td>- Proctor Ch. 15 - Controls and Controlling Actions</td>
<td>- Read Shape Coding article</td>
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<td>8</td>
<td>3/8</td>
<td>- 4min white paper presentation</td>
<td>- White paper due</td>
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<td>- Start Norman Book</td>
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<td>9</td>
<td>3/22</td>
<td>- Norman Ch. 1, 2, 3</td>
<td>- Continue Norman Book</td>
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<td>10</td>
<td>3/29</td>
<td>Test plan presentations</td>
<td>- Test plans due</td>
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<td>11</td>
<td>4/5</td>
<td>No class - work on Final Projects (i.e. help each other with our usability evaluations. Run as test subjects. Review test plans. Review test reports. Whatever.)</td>
<td>- Continue Norman Book</td>
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<tr>
<td>12</td>
<td>4/12</td>
<td>- Norman Ch. 4, 5, 6</td>
<td>- Finish Norman Book</td>
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<td>- Assignment - Good/Bad Software</td>
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<td>13</td>
<td>4/19</td>
<td>- Tullis Ch. 7 - Behavioral and Physiological Metrics</td>
<td>- Read Tullis 7, 8, 10</td>
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<td>- Tullis Ch. 8 - Combined and Comparative Metrics</td>
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<td>- Tullis Ch. 10 - Case Studies</td>
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<td>14</td>
<td>4/26</td>
<td>Oral presentations of projects</td>
<td>Written projects</td>
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<td>15</td>
<td>5/3</td>
<td>Oral presentations of projects</td>
<td>Written projects</td>
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