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 design problem. As computing oozes into every nook of citizenry, it’s increasingly important for software developers NOT to depend on their own intuitions as to what product 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 three major instructional techniques:
1 – lecture on the scientific underpinnings and the methods of usability engineering,
2 – site visits to local companies that have usability labs, to see and hear demonstrations of methods as applied to real-world software design problems, and
3 – 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 three things:
1. your general contribution in class (25%),
2. a “white paper” on some topic in the area of science applied to the design of human-computer interfaces (25%), and
3. a final project entailing the usability engineering of a web site or traditional software user interface (50%).

Schedule:

<table>
<thead>
<tr>
<th>Week</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>1/16</td>
<td>- Introduction: What is usability engineering?</td>
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<td>- The context of usability.</td>
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<td>- Course logistics, and syllabus review.</td>
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<td>2</td>
<td>1/23</td>
<td>- Norman book</td>
<td>- Read Design of everyday</td>
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<td>- Mental models</td>
<td>things.</td>
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| 3 | 1/30 | - The science and practice of usability  
- Perception and cognition | - One example each of good and bad design.  
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<td>4</td>
<td>2/6</td>
<td>- How to make a presentation.  Guest lecture by Kate McLagan, professional presentation “coach.”</td>
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| 5 | 2/13 | - Lab visit: BMC Software  
- Host: Scott Isensee, Eugenie Bertus  
- Method: “Bridge” methodology  
NOTE: We will meet at BMC at 6:30 p.m. The address is 10415 Morado Circle, Bldg 5. | - Read Carroll, J. M.  
| 6 | 2/20 | Class presentations on your white paper topics.  
- White paper on a topic in the science of usability. |  |
| 7 | 2/27 | - Lab visit: SBC  
- Host: Phil Kortum, Bob Bushy  
- Method: Needs analysis  
NOTE: Our guests will come to us, and make their presentations in SZB 464, at the usual time. |  |
| 8 | 3/6 | - Lab visit: IBM Corp. and Vignette  
- Hosts: Jack Alford, IBM, and Tanya Payne, Vignette  
- Methods:  
- Remote usability testing  
- IBM’s version of UCD  
NOTE: Our guests will come to us, and make their presentations in SZB 464, at the usual time. | - Have project approved by Dr. Bias.  (What is your topic? With whom are you teaming?) |
| 9 | 3/20 | - Lab visit: USAA  
- Host: Julie Jensen  
- Method: Heuristic evaluation and other inspection methods  
NOTE: Our guests will come to us, and make their presentations in SZB 464, at the usual time. | - Test plan for project. |
| 10 | 3/27 | - Lab visit: ITAL  
- Host: John Slatin  
- Method: Accessibility testing  
We will meet at 6:00 (or so) in a room to be named later in the Flawn Academic Center. |  |
### 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.
- PDA 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.
- What’s new on the usability horizon?

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