Examination
ENGR3220 Human Factors and Interface Design
Fall 2015

You may take this exam at a time and place of your convenience. However, you should treat this exam as a (self-administered) in-class examination rather than a take-home; it is intended to be completed in single sitting lasting approximately 2.5 hours, though you may want to leave yourself extra time in case I misjudged. You may give yourself additional time, within reason, to complete the work, but you should not take the exam over several sessions or use more than double the allotted time. Complete the exam by the end of Sunday 29 November, and email it to Lynn (or scan and email it, also dropping off the paper version at my office).

In taking this exam, you may, if you feel it is necessary, consult the texts and readings assigned in this class as well as any notes you made during the semester (but prior to beginning the examination). Other than these caveats, this exam is to be taken closed book. In particular, you may not use the internet except as explicitly indicated (to consult course readings). You should not consult any other books, notes, classmates, electronic or other resources in completing the exam. The exam is not designed to require any of these materials. Note also that time for consultation of materials is built into the 2.5 hour estimate. Other than the instructor, you should not discuss this exam with anyone until Tuesday December 1.

You may complete this exam electronically (e.g. as a word document or pdf) or by hand on paper. If you work on paper, please use a dark pen or some other method that will scan/copy legibly. Pencil has not copied well in the past.

Please put your name on every page [5 points total] of this exam and (if applicable) on any additional pages that you wish to turn in. Please also number any additional pages and indicate that you have done so in the appropriate place at the end of this exam.

If there is something unclear about the exam, you may try to contact me. I can often be reached between 8:30am weekdays/9:30 am weekends and 10:30pm by some means, including email, IM, or a phone call. If you cannot reach me, simply make a reasonable assumption and document that assumption in writing on your exam.

After you have completed the exam, please copy the following statement onto the final page, filling in the appropriate times and dates, and sign your name:

I began this exam at <fill in time and date> and completed it at <fill in time and date>. In taking this exam, I have behaved in accordance with the Olin honor code. In particular, I have neither given nor received unauthorized assistance during the completion of this work. I agree not to discuss this exam in any way until Tuesday December 1.

If you cannot write out this phrase and sign your name to it, please explain. ¹

Your exam should be turned by emailing it to las by the end of Sunday, November 29. If you complete the exam on paper, you should email it using the handy dandy scan-to-email features of the Olin copiers or similar means; in either case, please arrange to leave your original exam with (or mail it to) Lynn in MH358 by Monday, November 30 (or bring it to class). Because some of you will not have access to the appropriate (scanning) technologies, some slack will be given on these deadlines, but (a) please let me know in advance if at all possible and (b) please observe the deadline for taking the exam even if your turn-in is later.

DO NOT TURN THIS PAGE UNTIL YOU ARE READY TO BEGIN

¹ This text courtesy of Professor Sarah Spence Adams. It is merely meant to affirm our shared understanding of the context in which you are taking the exam. Thanks for obliging!
Instructions:

Concise, accurate answers are better than long semi-accurate answers. The amount of space provided is meant to act as a guideline for the length of your answer. Note that these boxes are intended for handwritten answers; typed answers should be shorter!

I recommend that you quickly look through all the questions first and then begin answering them. Some questions are worth more points than others, so budget your time accordingly. There are 8 questions plus a bonus (on the instruction page) worth 100 points total. Partial credit will be awarded.

PLEASE INDICATE THE TIME AND DATE AT WHICH YOU BEGIN THIS EXAM:

Part A:

Question 1. [5 points] Visual Design

Name two benefits you get from rendering (the early version of) your visual design in black and white or grey-scale, i.e., without color?
Part B:

Question 2. [15 points] Targeting User Groups

Imagine that you have been hired to design a new car with significant assistive technology for aging baby boomers. Describe **two distinct populations of potential users** that you would want to bring in for user research and/or usability testing; **in each case give at least one concrete screening criterion** that identifies a person as a member of that population. (These might be questions you would give to a participant recruiting firm to use in ruling a person in or out of the test group.) In addition, **describe one population that you would not include in your test groups, along with a screening question** that could be used identify members of this population. For each one, **explain briefly (but compellingly) why** you selected this population for inclusion or exclusion.

a. users you want:
b. more users you want:

c. users you don’t want:
Part C:

**Question 3. [20 points] Accessibility and Inaccessibility**

Describe two examples of design that are not accessible:

Give example of a design that inadvertently excludes some users. That is, describe or draw an interface that seems reasonable. Indicate a group of users for whom this design is not accessible. Explain what about the users and/or the design makes it inaccessible. Describe or show a fix that would render the interface more accessible.

(The box is large to allow for sketching; your answer might only be a couple of sentences.)
Now give an example of a design that is deliberately inaccessible to at least some users. Describe or draw an interface that is reasonable. Indicate a group of users for whom this design is not accessible (or less accessible than it could be). Explain what about the users and/or the design makes it inaccessible. Describe or show an alternate design that would render the interface more accessible. Explain why the more accessible interface is NOT more desirable in this particular case. That is explain why INaccessibility is desirable in this case.

(The box is large to allow for sketching; your answer might only be a couple of sentences.)
Part D:

**Question 4. [15 points] Brainstorm vs. Design Critique**

In the boxes below, list three contrasting features or aspects that distinguish the group activity of brainstorming from the group activity of a design critique.

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<th>BRAINSTORMING</th>
<th>ASPECT/FEATURE</th>
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Question 5. [6 points] Brainstorming and Your Project

In the box below, describe (or draw) one aspect or feature of your project that came about because of something your team brainstormed. If the feature itself is not the brainstormed idea, indicate both the idea and the way it eventually manifested in your project. In either case, also indicate something else that was a part of the same brainstorm but that you did not use.

(The box is large to allow for sketching; your answer might only be a couple of sentences.)
Question 6. [9 points] Design Critique and Your Project

In the box below, describe (or draw) one aspect or feature of your project that changed because of a design critique. Indicate both before-and-after states as well as the content of the critique/observation that led to the change.

(The box is large to allow for sketching; your answer might only be a couple of sentences.)
Part E: Question 7 [20 points] Mobile vs. Web

Designing mobile applications – or web sites intended for mobile devices – is not the same as designing web sites or applications intended for desktop or laptop computer use. Read through this question carefully, considering similarities and differences, before answering the following questions; your answer to part a will be used in parts b-d.

a. List three ways in which mobile differs from computer-top web. A strong answer will list three ways that are substantially different from one another, not merely three names for the same difference.

For each of the three differences you listed above, give an example of a design feature or approach that works well for mobile but not for computer or vice versa. Your answers should include either a sketch or a description of the design, an explanation of why it works in its intended context, and an explanation of why it does not work (as well) in the other context. Your answer should be freestanding and not rely on reader’s knowledge of a particular app/site/interface.

b. Difference 1:
c. Difference 2:

d. Difference 3:
**Part F:**

**Question 8. [5 points] Heuristics**

Describe or illustrate an example of a system (for English speakers, using English) that fails to “speak the user’s language” in the sense of Nielsen. You may use an example from your project or a system that you have encountered. You should not use an example directly from the reading (as this is not intended to be a test of how well you can look things up).

(The box is large to allow for sketching; your answer might only be a couple of sentences.)
This is the end of the exam. Any pages following this one may be removed from the exam if you find them useful to have separately; they need not be turned in with your exam. They are simply copies of images from the body of the exam for ease of use in a printed copy.

If you have added pages to this examination to show extra work, etc., please number them consecutively following this page and indicate here the final page number:

PLEASE INDICATE THE TIME AND DATE AT WHICH YOU FINISH THIS EXAM:

Please copy the honor code declaration (from the front page of the exam) below and sign your name.