Instructors

Dr. Jon Froehlich
Assistant Professor
Email: jonf@cs.umd.edu
Webpage: http://www.cs.umd.edu/~jonf
CS Office: 3173 AV
Williams
HCIL Office: 2117F
Hornbake
Office Hours: By appointment

Kotaro Hara
Teaching Assistant
Email: kotaro@cs.umd.edu
Webpage: http://kotarohara.com
CS Office: 3270 AV
Williams
Office Hours: Wednesdays from 4-5PM

Course Overview

This is the only course in the undergrad computer science catalog with the word human in its title. This is not insignificant. In this course we will reposition ourselves to think about computer science not just in terms of algorithmic performance and technical sophistication but in terms of how technology can be perceived, used, and adopted by people. By placing humans at the center of our design focus rather than technology, our concerns shift in interesting and, hopefully, illuminating ways. For example, there are many ways to design and build a user-facing application—how do we know which path is the right one? What methods and guidelines can we apply to maximize our chances that our design is the most useful, usable, and enjoyable? In this class, you will learn to ideate, critique, prototype, evaluate, design and refine interactions, interfaces and applications for people.

Lectures

The slides for each lecture are available below as PDFs. Note, however, that my lectures contain ample use of animation and video. If you would like the original PowerPoint files, please email me.

Lecture time: Mondays and Wednesdays from 2-3:15PM (75 minutes)
Class location: Computer Science Instructional Center (CSIC) 1121
Credit Hours: 3
Class website: http://cmsg434-s12.wikispaces.com/
Course syllabus: PDF

Primary Sources

This course is primarily based on two sources: (i) lectures/course curricula from "Intro to HCI" (and related) classes taught previously at UMD as well as at other universities and (ii) books.
Books

There are no required textbooks for this course. However, I've found the following books useful in helping shape my lectures and my own thoughts (this list will update throughout the semester). The books are arranged by course topic and, as such, some books may be listed multiple times (as they informed multiple topics).

The Design Process

- **Saul Greenberg, Sheelagh Carpendale, Nicolai Marquardt, Bill Buxton**, *Sketching User Experiences: The Workbook*, 2011 [Amazon]
- **Bill Moggridge**, *Designing Interactions*, 2007 [Amazon]

Data Gathering / Understanding Users

- **Yvonne Rogers, Helen Sharp, and Jenny Preece**, *Interaction Design: Beyond Human-Computer Interaction*, 2011 [Amazon]

Design

- **Don Norman**, *The Design of Everyday Things*, 2002 [Amazon]

Information Visualization

- **Colin Ware**, *Visual Thinking for Design*, 2008 [Amazon]

Evaluation

# Course Schedule

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Lecture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class1</td>
<td>Jan 25</td>
<td><strong>In Class Exercise and Course Overview</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[slides]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assignments Due Today</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assignments Assigned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Sign-up for Piazza [link] (due Jan 30 at 2PM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Take Background Survey [link] (due Jan 30 at 2PM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Read Bush, V. &quot;As We May Think&quot; The Atlantic, July, 1945. [link] (due Jan 30 at 2PM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Start thinking about project</td>
</tr>
<tr>
<td><strong>Week2</strong></td>
<td></td>
<td><strong>Design4Good Project Overview</strong></td>
</tr>
<tr>
<td>Class2</td>
<td>Jan 30</td>
<td>[slides]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assignments Due by 2PM Today</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Sign-up for Piazza [link]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Take Background Survey [link]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Be prepared to discuss Bush, V. &quot;As We May Think&quot; The Atlantic, July, 1945. [link]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assignments Assigned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Watch IDEO video [link]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Post reaction/response comment to Piazza [link]</td>
</tr>
</tbody>
</table>
Class3  Feb 1

**Ideation and Brainstorming**

[slides]

Assignments Due by 2PM Today

1. Watch IDEO video [link]
2. Post reaction/response comment to Piazza [link]

Assignments Assigned

1. Before you read anything else in this class, you should read Wobbrock's one page "True Confessions on How to Read" [link]
2. Then read: "The Perfect Brainstorm" from Chapter 4 of The Art of Innovation by Tom Kelley [link]
3. Post reaction/response to Tom Kelley's reading [link] (due Wednesday, Feb 8 at 2PM)
4. Individual Brainstorming / Project Proposal [link] (due Sunday, Feb 5 at 11:59PM)

**Week3**  Feb 5

**Individual Brainstorming / Project Proposal Due**

Assignments Due by 11:59PM Today:

1. Individual Brainstorming / Project Proposal [link]

Class4  Feb 6

**Sketching, Storyboarding, and Critique** [slides]

Assignments Due by 2PM Today:
Assignments Assigned

1. None

1. Fill out the Project Proposal Voting survey [link] (due Wednesday, Feb 8 at 10AM)

2. As a carry over from last Wednesday, read and post a Piazza reading response to: "The Perfect Brainstorm" from Chapter 4 of The Art of Innovation by Tom Kelley [link]

3. As a counterpoint to the Kelley article, you can (optionally) read: "Groupthink" by Jonah Lehrer, which was recently published in the New Yorker. [link]. You do not need to provide a reading response for this article.

In Class Group Brainstorming [slides; pictures]

Assignments Due by 10AM Today:

1. Fill out the Project Proposal Voting survey [link] (due Today at 10AM)

Assignments Due by 2PM Today:

1. Post reaction/response to Tom Kelley's reading [link]

2. As a counterpoint to the Kelley article, you can
(optionally) read: "Groupthink" by Jonah Lehrer, which was recently published in the New Yorker. [link]. You do not need to provide a reading response for this article.

Assignments Assigned:

1. Team Project Proposal [link] (due Sunday, Feb 19 at 11:59PM)

### Week 4

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Assignments Due Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 6</td>
<td>Feb 13</td>
<td>Data Gathering and User Research [slides]</td>
</tr>
</tbody>
</table>

Assignments Due Today:

1. None

Assignments Assigned:

1. Read "An Ethnographic Approach to Design" by Blomberg and Burrell [link] and post a reading response to Piazza (due Monday, Feb 20 at 12PM (noon))

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Assignments Due Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 7</td>
<td>Feb 15</td>
<td>User Research 2 &amp; In Class Project Proposal Refinement [slides]</td>
</tr>
</tbody>
</table>

Assignments Due Today:

1. None

Assignments Assigned:
1. Download and read the IDEO Method Cards [link]. Think about how some of these methods might be used to inform both the design of your team project as well as how you might evaluate it.

Week5  

Team Project Proposal Due  
Assignments Due by 11:59PM  
Today:

1. Team Project Proposal [link] (due Today at 11:59PM)

Class8  

Prototyping [slides]  
Assignments Due by 12PM (noon)  
Today:

1. Post reading response to "An Ethnographic Approach to Design" by Blomberg and Burrell [link]

Assignments Assigned:

1. Fill out peer review of team member contribution on the Team Project Proposal assignment [link] (due Thursday, February 23rd at 11:59PM)

2. Prepare for in-class Team Project Proposal presentation [grading rubric] (PowerPoint slides posted to Team Wiki page by 12PM on February 22nd at
12PM (noon)

Class9
Feb 22

In Class Project Proposal Presentations [peer review link, slides, pictures]
Assignments Due Today:

1. In-class Team Project Proposal presentation [grading rubric]
(PowerPoint slides posted to Team Wiki page by 12PM Today))

Feb 23
Assignments Due Today:

1. Fill out peer review of team member contribution on the Team Project Proposal assignment [link] (due Today at 11:59PM)

Week6
Class10
Feb 27

Conceptual Models I [slides]
Assignments Due Today

1. None

Assignments Assigned:

1. Look at project schedule and vote on midterm date [project schedule, Piazza poll] (due Wednesday, February 29 by 12PM (noon))
2. Read Chapter 3 "Principles of Contextual Inquiry" in the book Contextual Design by Beyer and Holtzblatt [link]. No Piazza reading response
necessary but this text should be useful to you for the "User Research" team project assignment.

3. Team project assignment: "User Research, Task Analysis, and Sketching" [link] (due Monday, Mar 12 at 12PM (noon))

### Proposal Feedback and a Bit About Task Analysis [slides]

Assignments Due Today:

1. Look at project schedule and vote on midterm date [project schedule, Piazza poll] (due today by 12PM (noon))

Assignments Assigned:

1. Read and post a Piazza response to the SafePath project proposal. The response can simply be a bulleted list pointing out three positive aspects to the write-up and one or two areas for improvement. (due Monday, March 5th at 12PM (noon))

2. Read and post a Piazza response to the pages 9 - 28 in Norman's "The Design of Everyday Things" covering affordances, visibility, mappings, and feedback [link] (due Monday, March 5th at 12PM (noon))

Week7
Class12  Mar 5  

Conceptual Models II [slides]
Assignments Due Today:

1. Read and post a Piazza response to the SafePath project proposal. The response can simply be a bulleted list pointing out three positive aspects to the write-up and one or two areas for improvement. (due Today at 12PM (noon))

2. Read and post a Piazza response to the pages 9 - 28 in Norman's "The Design of Everyday Things" covering affordances, visibility, mappings, and feedback [link] (due Today at 12PM (noon))

Assignments Assigned:

1. None

Class13  Mar 7  

Representation and Interface Metaphors [slides]
Assignments Due Today:

1. None; however, I hope you're working on your team project assignment.

Assignments Assigned:

1. None; however, I hope you're working on preparing for the midterm next week.
### Week 8

#### Class 14  Mar 12

**Perception, Visualization, and Visual Design** [slides]

Assignments Due Today:

1. None

Assignments Assigned:

1. Fill out peer review of team member contribution on the "User Research, Task Analysis, and Sketching" assignment [link] (due Thursday, March 15th at 11:59PM)
2. Team project assignment #4: "Task Refinement, Storyboarding, and Video Prototyping" [link] (due Monday, April 2nd at 12PM (noon))

#### Class 15  Mar 14

Midterm [new midterm review sheet, old one]

### Week 9

**Spring Break**

### Week 10

#### Class 16  Mar 26

**Team Assignment #3 Workshopping** [slides]

#### Class 17  Mar 28

**Aesthetics and Visual Design #1** [slides]

Example video prototypes videos:

1. BuddyMap [task1, task2, task3]
2. Don't Forget [link]
3. Graffiti [link]
4. Cluster [link]
5. ParkSmart [link]

Week11

Class18 Apr 2 Aesthetics and Visual Design #2 [slides]

Class19 Apr 4 Video Prototyping In-Class Presentations [slides]
Assignments Due Today:

1. Team project assignment: "Task Refinement, Storyboarding, and Video Prototyping" [link] (due Today at 12PM (noon))

Assignments Assigned:

1. In-Class Peer Grading of Video Prototypes [link] (due Friday by 12PM (noon))
2. Fill out peer review of team member contributions on the "Task Refinement, Storyboarding, and Video Prototyping" [link] (due Friday by 12PM (noon))

Apr 6 Good Friday
Apr 7 Passover
Apr 8 Passover

Week12

Class20 Apr 9 Visual Design #3 and Evaluation #1 [slides]
Assignments Due Today:
1. Team project assignment: "Task Refinement, Storyboarding, and Video Prototyping" [link] (due Today at 12PM (noon))

Assignments Assigned:

1. Read and post a Piazza response to the pages 505-518 in Chapter 15 of Roger's et al. "Interaction Design" book [link] (due Monday, April 16th at 12PM (noon))
2. Team project assignment #4: "Lo-to-Mid Fidelity Prototype Testing and Refinement" [link] (due Monday, April 23rd at 12PM (noon))

**Class21**  Apr 11  Evaluation #2 [slides]

**Week13**
**Class22**  Apr 16  Evaluation #3 [slides]
Assignments Due Today:


**Class23**  Apr 18  Evaluation #4 [slides]

**Week14**
**Class24**  Apr 23  In-Class Final Project Prep
Assignments Due Today:

1. Team project assignment #4: "Lo-to-Mid Fidelity Prototype Testing and Refinement" [link] (due Today at 12PM (noon))

Assignments Assigned:

1. Fill out peer review of team member contributions on Team Assignment #4: "Lo-to-Mid Fidelity Prototype Testing and Refinement" [link] (due Wednesday by classtime)

2. Read and post a Piazza response [link] to either "A Tour through the Visualization Zoo" [link] or "Interactive Dynamics for Visual Analysis" [link] both by Heer et al. (due Monday, April 30th at 12PM (noon))

3. Team project assignment #5: "Final Write-up: Interactive Prototype and User Testing" [link] (due Monday, May 14th at 2:00PM; due Thursday, May 17th at 11:59PM)

4. Team project assignment #6: "Final Presentations" [link] (due Wednesday, May 16th at 12:30PM and presented during finals slot)

5. Team project assignment #7: "Final Video" [link] (due Wednesday, May 16th at 1:30PM)
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Class/Activity</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class25</strong></td>
<td>Apr 25</td>
<td>Input and Interaction Techniques</td>
<td></td>
</tr>
<tr>
<td><strong>Week15</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class26</td>
<td>Apr 30</td>
<td>Information Visualization</td>
<td></td>
</tr>
<tr>
<td>Class27</td>
<td>May 2</td>
<td>Course Wrap-Up and How To Give a Talk</td>
<td></td>
</tr>
<tr>
<td><strong>Week16</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class28</td>
<td>May 7</td>
<td>CHI Conference (May 5-10)</td>
<td>Jon @ CHI Conference in Austin, TX</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project groups meet to finalize project video, write-up and presentation</td>
<td></td>
</tr>
<tr>
<td>Class29</td>
<td>May 9</td>
<td>Jon @ CHI Conference in Austin, TX</td>
<td></td>
</tr>
<tr>
<td>May 10</td>
<td>Last Day of Classes for Spring2012 Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 11</td>
<td>Reading Day</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Week17</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td>May 16</td>
<td>Final Presentations</td>
<td>Group presentations from 1:30-3:30PM</td>
</tr>
</tbody>
</table>