Introduction to Human-Computer Interaction
CMSC 434 | Fall 2019 | Huaishu Peng

Overview

Hello and welcome!

This is an introductory-level course to the field of Human-Computer Interaction. From this course, you will gain a basic understanding of how people use technology, and how technology should be designed to support people. By the end of this class, you should understand the basic principles of the user-centered design (UCD) process, how UCD is integrated into software engineering, and how to design, prototype and evaluate software and systems from the user's point of view.

Dr. Huaishu Peng
huaishu@cs.umd.edu

Class Meets
Tuesdays & Thursdays
9:30am – 10:45am
IRB #1116

Office Hours
IRB #4206
Thursday 2:00-3:00pm
and by appointment

TA:
Snehesh Shrestha
snehesh@umd.edu
Peihan Tu
peihan.tu@gmail.com
Rashmi Sankepally
rashmi@umd.edu

Course Communication
Course related material will be posted on ELMS website before or right after the class. You are welcome to directly email TA and me to discuss questions, absences, or accommodations.

Campus Policies

It is our shared responsibility to know and abide by the University of Maryland's policies that relate to all courses, which include topics like:

- Academic integrity
- Student and instructor conduct
- Accessibility and accommodations
- Attendance and excused absences
- Grades and appeals
- Copyright and intellectual property

Please visit https://president.umd.edu/administration/policies/section-iii-academic-affairs/iii-120a and follow up with me if you have questions.

Required Materials
There are two required materials for this course:

- A UI sketchbook (at least 7" x 10"). Amazon has tons of selections!
- A Mac or Windows laptop capable of running and using Android Studio and Android emulators.

Books
There are *no required* textbooks for this course. As necessary, I will supply scans of relevant chapters/texts. However, if you find some of the topics that you'd like to dig deeper, here are some of the recommendations:

The Design Process:

- Bill Buxton, Sketching User Experiences: Getting the Design Right and the Right Design, 2007
- Saul Greenberg, Sheelagh Carpendale, Nicolai Marquardt, Bill Buxton, Sketching User Experiences: The Workbook, 2011
- Tom Kelley and Jonathan Littman, The Art of Innovation: Lessons in Creativity from IDEO, America's Leading Design Firm, 2001
- Bill Moggridge, Designing Interactions, 2007

Data Gathering / Understanding Users:

- Yvonne Rogers, Helen Sharp, and Jenny Preece, Interaction Design: Beyond Human-Computer Interaction, 2011
- Hugh Beyer and Karen Holtzblatt, Contextual Design: Defining Customer-Centered Systems, 1997

Design:

- Don Norman, The Design of Everyday Things, 2002
- William Lidwell, Kritina Holden, Jill Butler, Universal Principles of Design, 2010

Information Visualization:

- Colin Ware, Visual Thinking for Design, 2008
- Edward Tufte, The Visual Display of Quantitative Information, 2001
- William Lidwell, Kritina Holden, Jill Butler, Universal Principles of Design, 2010

Evaluation

- Yvonne Rogers, Helen Sharp, and Jenny Preece, Interaction Design: Beyond Human-Computer Interaction, 2011. In particular, Chapters 12 - 15.
- Tom Tullis and Bill Albert, Measuring the User Experience: Collecting, Analyzing and Presenting Usability Metrics, 2008

Activities, Learning Assessments, and Expectations for Students
Attendance: Your attendance will be part of your participation in this class. I expect you to come to all classes unless there is a university-accepted reason (e.g., illness). Much of the learning for the course and a significant amount of project work occurs in class.

- Class starts on time: Being late for class affects our learning experience. Come to class on time.
- Absences: If you have to miss a class due to an illness or similar reason, contact me before the class begins.

During Class: We will have lectures, discussions, and hands-on practice during class. Please bring a laptop (and course material, if apply) with you. You are encouraged to participate in class discussions. Your participation grade will reflect the amount of participation you contribute to course discussions and in-class activities.

Team Project: You will work in teams of 3-4 students on a semester-long hands-on project.
Your team will present the work-in-progress as 4 milestones across the semester, submit demo videos and final reports.

- Collaboration: You are expected to work collaboratively as teams throughout the course of the project, which spans the semester. Each assignment should be collaboratively envisioned, planned, implemented, and written up with every member contributing equally to each part. Each team member will **individually** submit a confidential Team Member Evaluation Form to report the relative effort/contribution of each person including yourself for each major project deliverable. Evaluations will be factored into your grade.
- Milestone Reports: Your team will submit progress report multiple times through the semester. The presentations should highlight your projects' goals, processes, procedures and results. You are to include your reflection on the successes and challenges throughout the building of your project.

Individual Homework Assignments: There will be homework assignments, including reading reports and building practice that help with your learning in this course.

Mid-term Exam: A mid-exam will be administered to test your understanding of the concepts and skills introduced throughout the course in class and readings.

Assignment
This is largely a design class. Unlike most other CS classes there is not always a single "correct" design solution. Usually there are many possible designs with different advantages and disadvantages. In this class, you will learn to both design new interfaces and evaluate the pros and cons of the interfaces you (and others in the class) design. Design is typically evaluated in a qualitative manner (e.g., via design critiques) although there is movement towards larger-scale quantitative methods as well (e.g., A/B testing). A significant portion of the grading in this class will be qualitative, including assessments of the end user experience of the system and the quality of your designs, evaluations, and prototypes.

The class will be a more rewarding experience if everyone actively participates. I expect you to come to class prepared to contribute constructively to discussions, ask challenging questions, and participate in in-class activities. Outside of class, you can participate by posting useful or interesting information on the course discussion website or visiting the instructor during office hours to ask questions or give feedback. At the end of the term, you are welcome to submit a 1-2 paragraph personal statement on how you contributed to the class. This statement is entirely optional and is due by the beginning of class on the day of the final project presentations.

Late Assignments: The general policy in this class is that late assignments (both individual and team assignments) will be deducted *15%* of its points after 11:59pm, and an additional *10%* of its points each day they are late. Late assignments will be accepted according to this policy up to three days after the assignment due date. Assignments more than three days late will not be accepted. It is at the instructor's discretion to accept late work and assign late point deduction. Because the assignments of this course accumulate for the final project, it is crucial to follow the assignment schedule.

Grades
Your grade is determined by your performance on the learning assessments in the course and is assigned individually (not curved). If earning a particular grade is important to you, please speak with me at the beginning of the semester so that I can offer some helpful suggestions for achieving your goal.

All assessment scores will be posted on the course webpage. If you would like to review any of your grades (including the exams), or have questions about how something was scored, please email me to schedule a time for us to meet in my office.

Gradings	Weight
Individual Assignments	30%
Midterm	10%
Team Assignments and Presentations	45%
Participation & Quizzes	5%
Final Exam	10%
Overall	100%

Tentative Course Schedule

Class Date			Topic and Skills
Week1	Tuesday	8/27/2019	**1 – Course Overview**
	Thursday	8/29/2019	**2 – What is HCI**
Week2	Tuesday	9/3/2019	**3 – Project Pitch Critiques & HCI Design Processes**
	Thursday	9/5/2019	**4 – Interaction Design Principles I**
Week3	Tuesday	9/10/2019	**5 – Interaction Design Principles II**
	Thursday	9/12/2019	**6 – Formative Research I**
Week4	Tuesday	9/17/2019	**7 – Formative Research II**
	Thursday	9/19/2019	**8 – In-Class Brainstorming**
Week5	Tuesday	9/24/2019	**9 – Formative Research III**
	Thursday	9/26/2019	**10 – Formative Research IV**
Week6	Tuesday	10/1/2019	**11 – Design Methods I**
	Thursday	10/3/2019	**12 – Design Methods II**
Week7	Tuesday	10/8/2019	**13 – Design Methods III**
	Thursday	10/10/2019	**14 – UI Graphic Design I: Visual Hierarchy and Layout**
Week8	Tuesday	10/15/2019	**15 – Prototyping I**
	Thursday	10/17/2019	**16 – Prototyping II**
Week9	Tuesday	10/22/2019	**17 – Review Session**
	Thursday	10/24/2019	**18 – Midterm**
Week10	Tuesday	10/29/2019	**19 – Design Critiques**
	Thursday	10/31/2019	**20 – Engineering Interfaces**
Week11	Tuesday	11/5/2019	**21 – UI Graphic Design II: Color**
	Thursday	11/7/2019	**22 – UI Graphic Design III: Typography and Text**
Week12	Tuesday	11/12/2019	**23 – UI Graphic Design IV: Iconography**
	Thursday	11/14/2019	**24 – Design Critiques**
Week13	Tuesday	11/19/2019	**25 – User Evaluation I**
	Thursday	11/21/2019	**26 – User Evaluation II**
Week14	Tuesday	Thanksgiving	**N/A**
	Thursday	Thanksgiving	**N/A**

Week15	Tuesday	12/3/2019	**- Presentation**
	Thursday	12/5/2019	**- Presentation**

Note: This is tentative schedule, and subject to change as necessary – monitor the course webpage for current deadlines. In the unlikely event of a prolonged university closing, or an extended absence from the university, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific dates missed.