

San José State University
Department of Computer Science
CS235, USER INTERFACE DESIGN, Section 1

Spring Semester, 2017

Course and Contact Information

Instructor:	DONG LIANG
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Office Hours:	TR 2045-2115 or by appointment
Class Days/Time:	TR 1930-2045
Classroom:	SCI 311
Prerequisites:	CS 130 or CS 116A, or instructor consent

Catalogue Description

Human-computer interaction principles. Direct manipulation, focus plus context, interaction history; interfaces for websites and website collections; usability testing; role of metaphors; case studies; advanced topics include information visualization, interfaces for collaboration, intelligent interfaces, and software agents. Prerequisite: CS 130 or CS 116A, or instructor consent.

Course Description

In this course, you will gain a critical perspective on what is human computer interface and its critical impact on our culture and society. We will begin by introducing the key theories, concepts, and frameworks that underlie the design of most interfaces you use today (so you don't have to reinvent the wheel). Through a series of case studies on commercial systems—many of which you likely use on a regular basis—we will talk about HCI principles/philosophies, methods/processes, and industry standard practices. This course will give you a high-level understanding of the many issues involved in UI/UX design. But you also gain practical experience by working as a group for a project that mobilizes all your knowledge learnt from the class.

The course is divided into three parts:

Part One lays the foundation of the course by examining the underlying belief system of user interface design. It questions the concept of interface and surveys the history of interface to see how we get to where we are now in terms of interface design. This part aims at a deeply theoretical and historical understanding of what interface and interaction mean which will support our exploration for the rest the course.

Part Two examines the common methods and procedures that are involved in interface design. We study these techniques by paying close attention to a series of case studies.

In Part Three you will be expected to work within a group of four or five with a team project of your choice. The goal here is to get a hands-on experience with the research, design, implementation and test cycle. Your

project topic will be proposed collectively by your group and approved by instructor halfway through the course. The final result will be displayed with open online access and become part of your e-portfolio.

Course Learning Outcomes (CLO)

Upon successful completion of this course, students will be able to:

- 1: Acquire first-hand knowledge of the industrial process of user-centered interface design including ideation, need assessment, prototyping, usability testing and evaluation;
- 2: Articulate the history and theories underlying current interface design paradigms;
- 3: Conceptualize the interface design process and explain the underlying rationale for its components;
- 4: Demonstrate knowledge of different UI styles and discuss contemporary issues of interactive design;
- 5: Conduct research in HCI models/frameworks and give presentation to peer groups.

Required Texts/Readings

Textbook

There is no required textbook purchase for this class, although weekly readings will be posted to Canvas. In addition, the following books are recommended (my comments in brackets):

Recommended Readings

Donald Norman, *The Psychology of Everyday Things* (THE classic of the field)

Jenny Preece and Helen Sharp, *Interaction Design: beyond HCI* (this book is frequently updated and written in accessible language)

Ben Shneiderman and Catherine Plaisant: *Designing the User Interface: strategies for effective HCI* (another popular textbook)

Jenifer Tidwell, *Designing Interface: patterns for effective interaction* (an interesting categorization of ways to accomplish common HCI tasks; could be a handy toolbox)

Alan Cooper, Robert Reimann, David Cronin, *About Face: The essentials of interaction design* (a particular but influential approach)

Steve Krug, *Don't Make Me Think: a common sense approach to web usability* (really easy to read)

Lukas Mathis, *Design for Use: create usable interfaces for applications and the web* (easy to read and practical)

Steven Johnson, *Interface Culture: how new technology transforms the way we create and communicate* (an insightful theoretical treatise)

Brenda Laurel, *The Art of Human Computer Interface Design* (a classic collection that features many heavyweight contributions; primarily on Mac)

Jef Raskin, *The Humane Interface* (written by designer of Macintosh, accessible yet not too facile, somewhat dated)

Bill Buxton, *Sketching User Experience* (interface designer from Microsoft)

Stuart Card, *The Psychology of Human-Computer Interaction* (first book that deals with the subject)

Jeff Johnson, *Designing with the Mind in Mind* (updated psychology of HCI)

Daniel Wigdor and Dennis Wixon, *Brave NUI World* (comprehensive coverage of NUI)

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing

assignments, and so on. More details about student workload can be found in [University Policy S12-3](http://www.sjsu.edu/senate/docs/S12-3.pdf) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

1. Nanoquiz (20%)

Every lecture will begin with a nanoquiz, which covers the content of the previous lecture or two. There will be approximately 24 nanoquizzes, each of which counts for 1% of your grade. If you miss class, no makeup quiz is offered. However, I will automatically drop your lowest 4 quiz grades, so that you can afford to miss class when necessary. This also serves as attendance grade as when you miss the class you would also miss the quiz.

2. Designer's Diary (20%)

Each week you will write a short reflection paper (half to one page) on the topic discussed in class. There will be approximately 12 such assignments. Again, two of your lowest grades are automatically dropped.

3. Research Presentation (20%)

A research presentation involves 1) conduct in-depth research on a specific topic; 2) articulate your findings and arguments by presenting them in a persuasive fashion to your peers. A successful presentation deals with an issue by raising (but not necessarily answering) important and unique questions. Presentations will be held throughout the course. You need to sign up for a topic (topics will be available in a first come first serve basis) and start researching it asap.

4. Team Project (40%)

For the final assignment, you will work with a team to do a UI project of your choice. The logistics of team forming and topic proposing will be detailed in the class. But it is YOUR responsibility to form a group, take on different roles and participate all group activities. Before you turn in your final project you will present your work, twice, in class: the first time showing your prototype and gathering feedback from other teams; the second time, the final product incorporating feedback and testing.

NOTE that [University policy F69-24](http://www.sjsu.edu/senate/docs/F69-24.pdf) at <http://www.sjsu.edu/senate/docs/F69-24.pdf> states that "Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading."

Grading Policy

No make-up tests or quizzes will be given and *no* late homework (or other work) will be accepted. Also, in-class work must be completed in the section that you are enrolled in.

The following grading scale will be used:

Range	Grade
90-100	A
88-89	A-
86-87	B+
80-85	B
75-79	B-
70-74	C+
65-69	C
60-64	C-
Below 60	F

Note that "All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades." See [University Policy F13-1](http://www.sjsu.edu/senate/docs/F13-1.pdf) at <http://www.sjsu.edu/senate/docs/F13-1.pdf> for more details.

Classroom Protocol

Class attendance is essential. Each absence will affect your academic engagement/performance.

Laptop use is restricted to note-taking only and one shall never use class time to conduct extracurricular activities. Doing so will result in loss of laptop privilege for the remainder of the semester. Students using laptops should only sit in the first two rows. No exception.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

CS235 User Interface Design, Spring 2017, Course Schedule

N.B. This schedule is tentative and subject to change. For readings included in any given week, you must read it BEFORE coming to class. Weekly writing assignment will be given in-class as well as through Canvas.

Course Schedule

Week	Date	Topics, Readings, Assignments, Deadlines
1	Jan 26	Introduction (no reading required)
2	Jan 31, Feb 2	Designing interface/interaction: Conceptualizations and Evaluations Read: Bret Victor, <i>A brief rant on the future of interaction design</i> Read: Terry Winograd, <i>From Computing Machinery to Interaction Design</i> Recommended reading: Noessel & Shedroff, <i>Make it So: Interaction design lessons from Science Fiction</i>
3	Feb 7, 9	Everyday Interface: from the head to the world and back Read: Donald Norman, <i>The Design of everyday things</i> , selections TBA
4	Feb 14, 16	Cyberpsychology and Cognetics: how do we interact with computers Read: Jeff Johnson, <i>Designing with the mind in mind</i> , selections TBA Recommended reading: Kent Norman, <i>Cyberpsychology</i>
5	Feb 21, 23	The rise of GUI: a history Read: Alan Kay, <i>Interface, a Personal View</i> Read: Alan Kay, <i>Personal Dynamic Media</i> Recommended reading: Jeff Johnson, <i>The Xerox Star: a retrospective</i> Deadline for team registration (name, logo, roles, etc.): Feb 20th
6	Feb 28, Mar 2	Interface study: e-reading; research presentation I Read: Craig Tashman and Keith Edwards, <i>LiquidText: a flexible, multitouch environment to support active reading</i> Read: Bill Hill, <i>The Magic of Reading</i>
7	Mar 7, 9	Technique: the iterative design cycle; user-centeredness; prototyping Read: Lukas Mathis, <i>Designed for Use</i> (selections)

Week	Date	Topics, Readings, Assignments, Deadlines
		Read: Tidwell, <i>Designing Interfaces</i> (selections)
8	Mar 21, 23	Interface study: writing software; research presentation II Read: Vannevar Bush, <i>As We May Think</i> Read: Doug Engelbart, <i>Augmenting Human Intellect: a conceptual framework</i> , Selections TBA Recommended reading: Licklider, <i>Man-computer Symbiosis</i> Recommended reading: Nelson, <i>Literary Machines</i> , Selections TBA
9	Apr 4 th , 6 th	Technique: usability testing; experience research methodologies Read: Steve Krug, <i>Don't Make Me Think: a common sense approach to web usability</i> Chapter 9, "Usability testing on 10 cents a day" Chapter 10, "Usability as common courtesy" Recommend reading: Preece, Rogers & Sharp, <i>Interaction Design</i> Chapter 10, "introducing evaluation" Chapter 11, "an evaluation framework" Chapter 14, "testing and modeling users"
10	Apr 11 th , 13 th	Interface study: learnable programming; research presentation III Read: Bret Victor, <i>Learnable programming: designing a programming system for understanding programs</i> —, <i>The future of programming: a history lesson</i>
11	Apr 18 th , 20 th	Team project prototype roundtable and feedback (no required reading) Recommended Reading: TBA
12	Apr 25 th , 27 th	Interface study: data visualization; research presentation IV Read: TBA
13	May 2 nd , 4 th	Interface study: brave NUI world; research presentation V Read: Wigdor & Wixon, <i>Brave NUI world</i> , selections TBA
14	May 9 th , 11 th	Final project showcase and presentation (no reading required)
15	May 16 th	Course review (no reading)
16	May 18 th	Final project due (there is no final exam for this class)