

CS 235

User Interface Design

GREEN SHEET

Spring Semester 2015

Department of Computer Science
San Jose State University
Instructor: Ron Mak

Section 1: TuTh 1:30 – 2:45 PM, MH 422

Office hours: TuTh: 7:30 – 8:30 PM

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Description

We will study the principles of designing, developing, and evaluating a compelling and effective user interface (UI) and user experience (UX) for desktop, web, and mobile applications. Topics will include:

- User requirements and use cases
- UI and UX design patterns
- Usability testing

The growing field of Big Data highlights the importance of data visualization, and we'll practice the tools and techniques to present complex and voluminous data in insightful information displays.

Students will work in small teams to evaluate existing user interfaces and to work on UX design projects. The instructor will present case studies, and there may be guest lectures by UX professionals.

Course learning outcomes

- Be able to gather requirements for and to design, implement, and evaluate effective user interfaces.
- Be able to translate a client's desires into a satisfactory design.
- Be able to interpret and display numerical data in insightful ways.
- Understand what makes a user experience compelling.

Prerequisites

Experience developing desktop, web, or mobile applications, or instructor consent.

Required texts

There are no required books for this class.

Recommended texts for self-study

User Interface Design and Evaluation Debbie Stone, Caroline Jarrett, Mark Woodroffe, Shailey Minocha Morgan Kaufmann, 2005 ISBN: 978-0120884360
Mobile User Experience: Patterns to Make Sense of it All Adrian Mendoza Morgan Kaufmann, 2013 ISBN: 978-0124095144
Mobile Design Pattern Gallery: UI Patterns for Smartphone Apps, (2nd edition) Theresa Neil O'Reilly Media, 2014 ISBN: 978-1449363635
Microinteractions: Designing with Details Dan Saffer O'Reilly Media, 2013 ISBN: 978-1491945926
Designing Interfaces, (2nd edition) Jenifer Tidwell O'Reilly Media, 2011 ISBN: 978-1449379704
Books by Steve Krug New Riders <ul style="list-style-type: none">▪ Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability (3rd edition), 2014 ISBN: 978-0321965516▪ Rocket Surgery Made Easy: The Do-It-Yourself Guide to Finding and Fixing Usability Problems, 2009 ISBN: 978-0321657299

Books by Stephen Few
Analytics Press

- **Now You See It:**
Simple Visualization Techniques for Quantitative Analysis, 2009
ISBN: 978-0970601988
- **Show Me the Numbers:**
Designing Tables and Graphs to Enlighten, 2012
ISBN: 978-0970601971
- **Information Dashboard Design:**
Displaying Data for At-a-Glance Monitoring (2nd edition), 2013
ISBN: 978-1938377006

Books by Edward Tufte
Graphics Press

- **Visual Explanations:**
Images and Quantities, Evidence and Narrative, 1997
ISBN: 978-0961392123
- **The Visual Display of Quantitative Information**, 2001
ISBN: 978-0961392147
- **Envisioning Information**, 1990
ISBN: 978-0961392116
- **Beautiful Evidence**, 2006
ISBN: 978-0961392178

Procedure

Students will work in small teams on UI and UX projects. It will be important for you to participate in your team and in class discussions.

Choose your team members wisely! Once teams are formed, you cannot move to a different team. Each student must be on a team.

Programming skills are not strictly required, although you should be comfortable using prototyping tools. Most assignments require prototypes that are sufficient to demonstrate your UI and UX design. The final project will be a significant data visualization application.

We will use the scheduled final examination time for final project presentations.

Schedule

Subject to change with fair notice.

Week	Dates	Topics and activities
1	Jan 22	Introduction <i>Create design teams</i>
2	Jan 27, 29	User-centered design Requirements and use cases Functional and nonfunctional specifications Storyboards and prototypes Desktop/laptop design projects
3	Feb 3, 5	UI design patterns
4	Feb 10, 12	Guest lecture , Tuesday, February 10 UI design patterns
5	Feb 17, 19	Web design patterns
6	Feb 24, 26	Web design patterns Usability testing
7	Mar 3, 5	Usability testing Cognitive science
8	Mar 10, 12	Cognitive science Web design presentations
9	Mar 17, 19	Web design presentations Midterm: Thursday, March 19
	Mar 23-27	Spring recess
10	March 31 Apr 2	Android and iPhone development tools Mobile design patterns
11	Apr 7, 9	Mobile design patterns
12	Apr 14, 16	Mobile design presentations
13	Apr 21, 23	Data visualization projects Data visualization design patterns
14	Apr 28, 30	Data visualization design patterns Visual perception
15	May 5, 7	Graphics for information display Bullet graphs and sparklines
16	May 12	Final project presentations
	May 21	Final project presentations Thursday, May 21, 12:15 – 2:30 PM in MH 422

Design teams

You will form design teams of 4 students each. The teams will last throughout the semester. Once the teams are formed, you will not be allowed to move from one team to another, so form your teams wisely! Each student must be on a team. Be sure that at least one member of your team is comfortable working with prototyping tools.

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 at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

Note that University policy F69-24, "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."

Assessments

At the end of the semester, each of you will turn in an assessment of your own performance on your team, and an assessment of each of the other members of your team.

Class grade

Your individual class grade will be weighted as follows:

50%	Assignments*
30%	Final project*
20%	Midterm**

* *team scores*

** *individual scores*

Each assignment, project, and exam will be scored (given points) but not assigned a letter grade. The mean score and standard deviation will be announced after each assignment and exam.

Final individual class letter grades will be assigned based on the class curve. Your final class grade can be adjusted up or down depending on your level and quality of participation on your project team as determined by the project tracking tools and your team members' assessments of your performance.

Classroom protocol

As mentioned above, it is very important for each student to attend classes and to participate. Arrive to class on time. Cell phones in silent mode, please.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's Catalog Policies section at <http://info.sjsu.edu/static/catalog/policies.html>. Add/drop deadlines can be found on the current academic year calendars document on the Academic Calendars webpage at http://www.sjsu.edu/provost/services/academic_calendars/. The Late Drop Policy is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the Advising Hub at <http://www.sjsu.edu/advising/>.

Consent for Recording of Class and Public Sharing of Instructor Material

University Policy S12-7, <http://www.sjsu.edu/senate/docs/S12-7.pdf>, requires students to obtain instructor's permission to record the course.

“Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.”

“Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.”

Academic integrity

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The University Academic Integrity Policy S07-2 at <http://www.sjsu.edu/senate/docs/S07-2.pdf> requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The Student Conduct and Ethical Development website is available at <http://www.sjsu.edu/studentconduct/>.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Integrity Policy S07-2 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the Accessible Education Center (AEC) at <http://www.sjsu.edu/aec> to establish a record of their disability.

In 2013, the Disability Resource Center changed its name to be known as the Accessible Education Center, to incorporate a philosophy of accessible education for students with disabilities. The new name change reflects the broad scope of attention and support to SJSU students with disabilities and the University's continued advocacy and commitment to increasing accessibility and inclusivity on campus.