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

Fall Semester, 2017

Course and Contact Information

Instructor:	Kevin Smith
Office Location:	DH 282
Email:	kevin.smith@sjsu.edu
Office Hours:	MW 1300-1400 or by appointment
Class Days/Time:	MW 1500-1615
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 learn the critical elements in the design and implementation of user interfaces for a wide variety of applications. The course will cover combine the modern theory and practice of human-computer interface design with lecture material, case studies, research topics presented in papers and practical experience with a term project. The field is rapidly evolving and there will be special emphasis placed on the design of both 2D and 3D interfaces and case studies will be presented in the fields of design, engineering, entertainment and virtual/augmented reality.

Course Learning Outcomes (CLO)

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

1: Understand the process of user interface design and how to use it to design high performance applications.

2: Gain an understanding current research in the field through selected readings and presentations.

3: Employ some of the current state-of-the art UI design tools and technologies.

4: Ability to complete a larger scale project leveraging the design process learned.

5: Understand the important elements of design for both 2D and 3D interfaces.

Required Texts/Readings

Textbook

There is no required textbook purchase for this class. Material in lectures will be presented in an interactive format and the presentation for the class will be available on Canvas after the class is held. In addition, required supplemental material (research papers, articles, videos etc.) will be placed on Canvas when they are assigned.

Even though no textbook is required, I do highly recommend the following books for supplemental reading (alphabetical order):

Recommended Books

Casey Fictum, *VR UX, 100 pages of VRUX, Design, Sound, Storytelling, Movement and Controls*
Donald Norman, *The Psychology of Everyday Things*
Jaime Levy, *UX Strategy*
Jennifer Tidwell, *Designing Interfaces*
LaViola, Kruijff, McMahan, Bowman, Poupyrev, *3D User Interfaces, Theory and Practice (2nd Edition)*

Software Tools

Students will be required to have access to a computer to use software development tools. Recommended software packages and tools will be freely available for the student to download and install. Details on installation will be discussed in class and posted on Canvas.

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.

1. Assignments (25%)
Assignments will be given in the form of (1) readings or research where student is required to provide a review or answer questions on a research paper or article. (2) short-term implementation projects or problems where the student will be required to solve a problem on the computer and hand-in the results (3) informal presentations reporting on results from (1) and (2). The assignments will be posted on Canvas when they are assigned.

2. Mid-Term Exam (15%)
The student will be required to take a closed book mid-term exam which will cover material presented in class and the reading material assigned. The mid-term may also include problems to be solved.

3. Term Project (45%)
The student will complete a term project of their own choice. A proposal for the project must be approved by the instructor prior to starting. The project will focus on requirements gathering, design, implementation usability testing/validation and presentation of the results. Students can decide if they want to do the project solo or form a team of maximum two (2) students. If the project is a team project, both students must

demonstrate equal contribution and both must present at the final presentation. The team configuration and division of responsibilities must be defined in the proposal. The format and details on the proposal will be given in class and a template will be provided on Canvas.

4. Final Exam (15%)
The student will be required to take a closed book final exam which will cover material presented in class and the reading material assigned. The exam will cover material covered in the entire course. The final may also include problems to be solved.

NOTE that University policy F69-24 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 will be given and ***no*** late homework (or other work) will be accepted.

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 at http://www.sjsu.edu/senate/docs/F13-1.pdf for more details.

Classroom Protocol

Class attendance is required to gain maximum benefit from the presented materials, presentations and discussion.

Laptop or tablet use is encouraged for taking notes during the class. Students should practice common courtesy and refrain from using laptops for email, messaging or social media during class.

Cellphones are generally not permitted to be used in class (including text messaging). For extenuating circumstances, please let the instructor know before class.

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 at http://www.sjsu.edu/gup/syllabusinfo/

CS235 User Interface Design, Spring 2017, Course Schedule

This schedule is tentative and is subject to change. Assignments and readings are listed on the day when they are assigned. Due dates for assignments will be posted in Canvas and are generally due the following week after are assigned.

Course Schedule

Week	Date	Topics, Readings, Assignments, Deadlines
1	Aug 23	Introduction Assignment 1 – Video and Introduction to Tools
2	Aug 28, 30	Historical Context Human factors – Perception, Cognition and Ergonomics Term Project Requirements - Reading Assignment - Assignment 1 – Project Proposal
3	Sep 4,6	**Monday Sep 4, No class – Labor Day** General Principles of HCI Design - I User Experience, Requirements. Strategy, Usability, Design Rules -Reading Assignment **-Project Proposals Due**
4	Sep 11,13	General Principles of HCI Design – II Manipulation, Feedback, Frameworks and Engineering Considerations -Assignment 2 – Exploring Manipulators
5	Sep 18,20	User Interface for the Web and Case Studies -Assignment 3 – Data Visualization I
6	Sep 25,27	User Interface for the Web and Case Studies -Assignment 4 – Data Visualization II
7	Oct 2,4	Mobile and Touch User Interface Students give short presentation/commentary on Assignment 3/4
8	Oct 9,11	Flexible Topic or Guest Speaker Review **Midterm Exam (Wednesday)**
9	Oct 16,18	Introduction to 3D User Interface Interface Design Considerations for 3D -Reading Assignment
10	Oct 23,25	3D Navigation and Direct Manipulation -Assignment 5 - 3D UI Programming Project
11	Oct 30, Nov 1	Virtual Reality User Interface I Navigation, Combining 2D/3D Interfaces, Human Factors -Reading Assignment

Week	Date	Topics, Readings, Assignments, Deadlines
12	Nov 6, 8	Virtual Reality User Interface II Sound, Augmented Reality, Advanced Topics -Assignment 6 – VR Interface
13	Nov 13,15	Advanced Topics – Intelligent User Interfaces, Agents -Reading Assignment
14	Nov 20,22	Advanced Topics – Haptic Feedback, Natural Language Recognition -Reading Assignment **Wednesday, November 22 - Non-Instructional Day (No Class)**
15	Nov 27,29	Flexible Topic or Guest Speaker **Term Project Due (Monday)** **Project Presentations Start (Wednesday)**
16	Dec 4,6	**Complete Presentations (Monday)** Course Review/Recap (Wednesday)
17	Dec 14	**Final Exam**