SJSU SAN JOSÉ STATE UNIVERSITY

College of Social Sciences · Psychology

Human Factors Section 01 PSYC 173

Spring 2023 3 Unit(s) 01/25/2023 to 05/15/2023 Modified 01/26/2023

Course Description and Requisites

Human psychology and physiological characteristics and methods for taking these into account in designs and development of human-machine systems. Current human factor engineering efforts in lab, design process and operational environment.

Prerequisite: PSYC 001.

Letter Graded

Classroom Protocols

Classroom Protocol

I intend to foster an inclusive learning environment in which people with diverse backgrounds and perspectives are recognized, respected, and seen as a source of strength. It is my intent to present materials and activities that are respectful of diversity with regard to gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions on how I can make this course more equitable and inclusive to all forms of diversity are encouraged and appreciated.

All students are expected to exhibit professionalism and respect for each other and the instructor. Specifically, this means arriving to class on time, being prepared for class, participating in discussions, being civil to your fellow classmates and instructor, and paying attention to in-class demonstrations and lectures. If you arrive late to class or need to leave early from class, please sit near the door so as not to disturb the rest of the class. Please silence and put away cell phones during class. If I see that you are using your cell phone during lecture, I will ask you to put it away. Repeated violations of the cell phone policy may result in further disciplinary action. You may record lectures only if you obtain my permission first, and such recordings are only to be used for personal study and may not be posted online.

Academic Integrity

I do not tolerate any forms of academic dishonesty in my courses. I take issues of academic dishonesty very seriously and pursue disciplinary action rigorously, so please take extra care to avoid this sort of unpleasant situation.

Any instances of cheating on exams results in an automatic 0 for the exam.

Plagiarized assignments automatically receive a score of 0.

Plagiarism refers to using materials that you did not create (i.e., published works, work of other students, material created by artificial intelligence tools such as ChatGPT) and submitting it as your own creation without proper citation/attribution. When in doubt, remember this rule: All assignments in this course must be your own work and you must properly cite any resources that were used. Written assignments will be checked by TurnItIn and may be submitted to AI detection tools, as well.

I reserve the right to fail a student in the course if the academic dishonesty transgression is particularly severe.

All instances of academic dishonesty are reported to the Office of Student Conduct and Ethical Development (SCED). Students may appeal any accusations of cheating or plagiarism to SCED.

Program Information

Program learning outcomes (PLOs) are skills and knowledge that students will have achieved upon completion of the Psychology BA degree. Each course in our curriculum contributes to one or more of these PLOs. The PLOs for the Psychology BA degree are:

1. Knowledge Base of Psychology. Students will be able to demonstrate familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.
2. Research Methods in Psychology. Students will be able to design, implement, and communicate basic research methods in psychology, including research design, data analysis, and interpretations.

3. Critical Thinking Skills. Students will be able to use critical and creative thinking, skeptical inquiry, and a scientific approach to address issues related to behavior and mental processes.
4. Applications of Psychology. Students will be able to apply psychological principles to individual, interpersonal, group, and societal issues. Values in Psychology. Students will value empirical evidence, tolerate ambiguity, act ethically, and recognize their role and responsibility as a member of society.

Course Learning Outcomes (CLOs)

Course Learning Outcomes

- CLO 1: Describe human factors, appropriately use its fundamental terminology, and describe its importance in the effectiveness of human-machine systems.
- CLO 2: Apply research, principles, and methods of human factors to human-machine system design, system evaluation, and training.
- CLO 3: Describe how human capabilities and limitations interact with design to affect human-machine system performance.

Course Materials

Textbook

Lee, J. D., Wickens, C. D., Liu, Y., & Boyle, L. N. (2017). *Designing for people: An introduction to human factors engineering*. CreateSpace. ISBN: 9781539808008

Course Requirements and Assignments

Bad/Good Design Scavenger Hunt: This assignment is due on **Monday, 02/13/23 by 11:59** PM and will be uploaded to Canvas. The goal of this assignment is to identify both bad and good HF design "in the wild". Find one product, interface, tool, or environment that you feel is well-designed and one that is poorly-designed. **Include pictures of the two items.** Write minimum 250 words describing the good item and 250 words describing the bad item (minimum 500 words total). How do the features and design of the items either support or hinder the user's goals? How clear or confusing are their functionality? What specifically about these items make them good or bad design, in your opinion? Your write-up will be graded based on the quality of the examples you identify and how well you explain their good/bad properties of the design using the HF concepts you've learned so far.

Task Analysis: This assignment is due on **Monday, 03/20/23 by 11:59 PM** and will be uploaded to Canvas. The goal of this assignment is to teach you to do a basic task analysis. During a class session, you will work with a classmate and take turns being the "researcher" and "user," doing one of several possible tasks (described in the assignment handout). You will analyze the physical and mental steps of the task, collect data while your partner performs the task, and then summarize the task in an outline, hierarchy, or operational sequence.

Software Interface Heuristic Evaluation: This assignment is due on **Monday, 05/01/23 by 11:59 PM** and will be uploaded to Canvas. The goal of this assignment is to teach you to do a basic heuristic evaluation of a software interface. You will pick a software interface to evaluate (e.g., website, app, program), preferably one that has frustrated you in the past. You will conduct a heuristic evaluation of the display interface and identify at least 10 issues related to Lee's or Nielsen's principles of display design, and make at least 10 suggestions for improving the interface. **Include pictures of the interface and draw red boxes or use red arrows to highlight the features that violate good design principles.** More details will be described in the assignment handout.

Exams: Exam 1 will be given on **Thursday, 02/23/23 i**n class, and will consist of multiple choice and short answer questions covering **chapters 1-4. Exam 2** will be given on **Tuesday, 04/06/23** in class, and will consist of multiple choice and short answer questions covering **chapters 5-8. Exam 3** will be given on **Fri, 05/19/23** in class, and will consist of multiple choice and short answer questions covering **chapters 9-11 and 15-16.** All exams will require a skinny green scantron sheet (882-E).

Make-Up Exams: Exams may be made-up but only if 1) I am contacted ahead of time, and/or 2) there are extraordinary circumstances (e.g., family death, accident, severe illness) that cause you to miss the regularly scheduled exam. **Extraordinary circumstances require documentation.**

Late Assignment Policy: All assignments will be **penalized 1% for every hour they are late.** If something comes up and you know that you will be late submitting an assignment, contact me before the assignment is due, and I will be able to give you an extension. If I am not contacted before the assignment is due, the normal late penalty will apply.

Grading Information

Grade Breakdown:

10%	Bad/Good Design Scavenger Hunt

10%	Task Analysis
10%	Software Interface Heuristic Evaluation
20%	Exam 1
20%	Exam 2
30%	Exam 3

Grading Scale:

96.50 – 100%	A+
92.50 – 96.49%	A
89.50 – 92.49%	A-
86.50 – 89.49%	B+
82.50 – 86.59%	B
79.50 – 82.49%	B-
76.50 – 79.49%	C+
72.50 – 76.49%	C
69.50 – 72.49%	C-
66.50 – 69.49%	D+
62.50 – 66.49%	D
59.50 – 62.49%	D-
≤ 59.49%	F

University Policies

Per University Policy S16-9 (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on Syllabus Information web page (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (https://www.sjsu.edu/curriculum/courses/syllabus-info.php). Make sure to visit this page to review and be aware of these university policies and resources.

Course Schedule

PSYC 173, SECTION 1 – HUMAN FACTORS

Spring, 2023

Course Schedule v1

(Schedule is subject to change with fair notice. Changes will be announced via e-mail and/or in class.)

Date	Topic	Readings
Thurs, 1/26	Course Overview and Introductions	
Tues, 1/31	Introduction to Human Factors	Ch. 1
Thurs, 2/2	Design and Evaluation Methods	Chs. 2 & 3
Tues, 2/7	Design and Evaluation Methods	Chs. 2 & 3
Thurs, 2/9	Design and Evaluation Methods	Chs. 2 & 3
Mon, 2/13 by 11:59 PM	Bad/Good Design Scavenger Hunt Due	Submit to Canvas
Tues, 2/14	Visual Sensory Systems	Ch. 4
Thurs, 2/16	Visual Sensory Systems / Signal Detection Theory	Ch. 4
Tues, 2/21	Visual Sensory Systems	Ch. 4
Thurs, 2/23	Exam 1 (Chs 1-4)	
Tues, 2/28	Auditory, Tactile, and Vestibular System	Ch. 5
Thurs, 3/2	Auditory, Tactile, and Vestibular System	Ch. 5
Thurs, 3/7	Cognition / Task Analysis Activity	Ch. 6
Tues, 3/9	Cognition	Ch. 6
Tues, 3/14	Cognition	Ch. 6
Thurs, 3/16	Decision Making and Metacognition	Ch. 7
Mon, 3/20 by 11:59 PM	Task Analysis Due	Submit to Canvas
Tues, 3/21	Decision Making and Metacognition	Ch. 7
Thurs, 3/23	Displays	Ch. 8
Tues, 3/28	SPRING BREAK – NO CLASS	
Thurs, 3/30	SPRING BREAK – NO CLASS	

Date	Topic	Readings
Tues, 4/4	Displays	Ch. 8
Thurs, 4/6	Exam 2 (Chs 5-8)	
Tues, 4/11	Controls	Ch. 9
Thurs, 4/13	Controls	Ch. 9
Tues, 4/18	Human-Computer Interaction	Ch. 10
Tues, 4/20	Human-Computer Interaction	Ch. 10
Thurs, 4/25	Human-Automation Interaction	Ch. 11
Thurs, 4/27	Human-Automation Interaction	Ch. 11
Mon, 5/1 by 11:59 PM	Software Heuristic Analysis Due	Submit to Canvas
Tues, 5/2	Stress and Workload	Ch. 15
Thurs, 5/4	Stress and Workload	Ch. 15
Tues, 5/9	Safety and Accident Prevention	Ch. 16
Thurs, 5/11	Safety and Accident Prevention	Ch. 16
Fri, 5/19 2:45 – 5:00 PM	Exam 3 (Chs 9-11, 15-16)	