



USC

University of Southern California
ISE 370 - Human Factors in Work Design
Spring 2022

Lectures: TTH 3:30-4:50 pm - CPA 256

Labs: Wednesday 5-7:20 pm - SAL 126

Instructor: Yalda Khashe

Office: <https://usc.zoom.us/my/yaldakhashe>

Office Hours: By appointment on Wednesdays 2-3 pm

Contact Info: khashe@usc.edu

Teaching Assistant: Mahima Varanasi

Office: Zoom

Office Hours: TBD

Contact Info: varanasi@usc.edu

Catalog Course Description:

Physiological systems and psychological characteristics; ergonomics; anthropometry; effects of the physical environment on humans; occupational safety and health; work methods.

Text:

Handouts for lecture and case studies will be posted on Blackboard.

A Guide to Human Factors and Ergonomics, Helander, M. (2005), CRC Press (2nd ed).

For work and time studies, chapters will be provided from:

Introduction to Work Study, Kanawaty, G. (1992), International Labour Office. (4th ed).

Course Expectations and Policies:

Course Expectations and Netiquette: To ensure a cooperative learning environment, each student is expected to read the text before each class meeting time, and prepare to actively participate during class discussions, team-related activities, presentations, and writings.

Netiquette is network etiquette; a set of rules that encourages appropriate and courteous online behavior. The list of “Netiquette Rules for Class” is included on page 7 of this syllabus. Students are expected to engage in behaviors that enhance the learning environment. Our goal is to optimize the learning experience for all the students; therefore, disruptive behaviors are prohibited and will not be tolerated.

COVID-19 Policy¹: We recognize that there are challenges associated with attending and participating in courses during the COVID-19 pandemic (or surges associated with the pandemic during face-to-face sessions). USC has provided information related to the COVID-19 and how USC is meeting the campus community’s needs. Continuously updated COVID-19 requirements can be found on the USC COVID-

¹ As the conditions of the current Covid-19 pandemic changes, we may have to alter details of this syllabus. Please keep updated with announcements on Blackboard and the USC website.

19 resource center website <https://coronavirus.usc.edu/>. All students, faculty, staff, and guests must comply with the USC COVID-19 safety guidelines or be subject to disciplinary action.

Importantly, if you become ill, become COVID-19 symptomatic, and/or test positive for COVID-19 during the semester, you will be required to attend classes remotely until you have a negative COVID-19 test result and are asymptomatic. Please rest and contact the USC Health Center for assistance. Stay home if you have come in close contact with someone who has been infected with Covid-19, and contact your healthcare provider for guidance. The course will be provided to you remotely via Zoom while your course peers are taking the class in the USC classroom until you are able to return to our face-to-face class.

In compliance with the LA County Department of Public Health order, **everyone** must wear a mask indoors, regardless of vaccination status. **Accordingly, you must wear masks at all times during class and no eating or drinking are allowed in class due to the COVID-19 protocols.** Refusal to comply with university masking policy is a disciplinary matter and will be referred to Student Judicial Affairs and Community Standards (SJACS): <https://sjacs.usc.edu/>. If you have any questions or require assistance please contact USC COVID-19 hotline: (213) 740-6291, covid19@usc.edu.

Participation and Attendance Policy: It is expected that students will attend class regularly and participate in the class discussion throughout the semester. participation involves actively listening and volunteering answers to questions and moving the discussion along toward a shared understanding. University policy regarding attendance in synchronous sessions requires that the students plan to attend every synchronous session for the classes in which they are enrolled, irrespective of when it occurs in their time zone. If the class falls outside the reasonable learning hours in your time zone, defined as 7:00 am to 10:00 pm, contact us so we can discuss your attendance and participation requirements. We will also create a discussion forum for each session of the class on Blackboard to potentially move some of the class discussions online, especially to accommodate students in different time zones.

We encourage all the students to participate live in their team presentation, however, if that is not possible due to time-zone differences or other issues, the students need to disclose that with the instructor in advance and they can participate by recording a video/voice and include it in their presentation. It is the teams' responsibility to manage virtual presentations and make sure that there is no technical difficulty with their presentation (laptop, slides, video, etc.).

Camera Policy: To maintain class dynamics to the extent possible in the online/virtual environment, that students are expected to have their **cameras on** during synchronous online sessions. You can use virtual backgrounds for a more private setup and earphones or headsets to improve audio quality. Please contact me directly if you have any concerns or limitations regarding the camera-on policy and we will discuss expectations and accommodations needed.

Recording Online Classes: USC policy requires that all classes conducted online to be recorded for asynchronous viewing with transcriptions made available. Recordings ensure that all classes are ADA compliant, and can be freely accessed at all times by

students irrespective of the region or time zone they are studying from. Students are responsible for the appropriate use and handling of these recordings under existing SCampus policies regarding class notes (<https://policy.usc.edu/scampus-part-c/>). You are not permitted to create your own class recordings without the instructor's permission. Violations of these policies will be met with the appropriate disciplinary sanction.

Due Dates/Make-Up Work: Exams must be taken as scheduled. Assignments are due as scheduled. Make-ups will be allowed only if the student has contacted the professor before the due date, detailing a serious problem. Make-up exams should be scheduled before the next instruction session and cannot be taken before the scheduled exam.

Online Communication Policy: Students are encouraged to contact the instructor by USC email and schedule a meeting during office hours. In the subject line, indicate the course number and a very brief summary of the email. Simple questions will be answered by email, but for more complex discussions students may be instructed to schedule a zoom meeting. We will do our best to respond to your emails within 24 hours. We will be less responsive on the weekends or during holidays.

Academic Integrity: USC seeks to maintain an optimal learning environment. General Principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. *SCampus*, The Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: <http://usc.edu/dept/publications/SCAMPUS/gov/> Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review should there be any suspicion of academic dishonesty. The Review process can be found at <http://usc.edu/student-affairs/SJACS/> Information on intellectual property at USC is available at <http://usc.edu/academe/acsen/issues/ipr/index.html>.

Statement for Students with Disabilities: Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to your course instructor (or TA) as early in the semester as possible. DSP is located in STU 301 and is open from 8:30 am to 5:00 pm, Monday through Friday. Website and contact information for DSP

http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html (213)740-0776(Phone), (213)740-6948(TDD only), (213)740-8216(FAX), ability@usc.edu

USC Technology Support Links:

Zoom information for students (<https://itservices.usc.edu/zoom/>)

Blackboard Help for students (<https://studentblackboardhelp.usc.edu/>)

Software available to USC Campus (<https://software.usc.edu/>)

Grading:

I. Letter Grades Table:

96-100	A	75-79	C+
91-95	A-	70-74	C
87-90	B+	65-69	C-
84-86	B	60-65	D+
80-83	B-	56-60*	D

* Grades less than 56: F

The final grade will be based on the above table combined with the cluster analysis of all the students' grades. Which will be explained in detail in the first class session.

According to USC policy: "No student is allowed to retake a final examination or do extra work in a course after the semester has ended for purposes of improving his/her grade." https://arr.usc.edu/forms/ARR_Grade_%20Handbook.pdf

II. The final course grade will be determined based on the following weights:

Exam 1	15 %
Exam 2	15 %
Exam 3 (Final)	15 %
Lab reports	15 %
Design Project	15 %
Research Paper	15 %
Participation/in-class exercises	10 %
Peer Evaluation	*

*Peer Evaluation will be reflected in the final Term Project grade and the participation grade

Exams: Exams consist of true/false, multiple-choice, short answers and essay questions. If you cannot take an exam on the scheduled date and time, you must provide documents from a responsible party (doctor, court, police, etc.) and you must arrange to take the exam before the following class meeting. The final exam date/time is set USC and cannot be rescheduled.

Assignment Submission: Homework descriptions will be posted on blackboard and assignments are due at the beginning of the class and should be submitted online through Blackboard. Electronic submission must be in MS Office formats.

Lab Sessions: Labs will reinforce and augment course material and provide practical application of concepts and theories presented in class. Refer to the Lab Outline for assignments and grading. Lab attendance is mandatory.

In-class Work, Class Discussions, and Final Participation Grade: We encourage students' participation in class discussion. The participation grade will be assigned at the end of the semester, and 50% of the final participation grade is based on the in-class exercises and case studies. The rest of the grade is based on objective (contribution to class discussions, interaction with TA/Instructor inside and outside the classroom) and subjective (contributing meaningful questions/answers, illustrating

comprehension of course material) assessment by the instructor. The participation rubric is included at the end of this syllabus.

Students will complete work assigned during class time, such as small group assignments, open-notes quizzes, and polls that count towards their in-class work grade. Case studies will be presented at the end of each topic (given the time availability) as an in-class group exercise. Each team will read a case and present it briefly. The questions associated with each case will be discussed in the class by all the students. There is no late submission for in-class exercises. Most activities are designed as group exercises; however, no credit will be given to team members who miss the exercises. Credit will be given for thoughtful completion. The lowest two scores on in-class work will be dropped.

Design Project: Integrated throughout the class will be the application of the approaches towards the design of a project related to Human Factors Engineering. You will work in small groups (2-3) students per group and during the last class period will present the results of your design project. Details on the design project will be covered during class.

NOTE:

Course materials and grades will be posted on the Blackboard page. Please make sure that you have access to the blackboard and your **USC account** is up and running.

Due to administrative processes, **this syllabus is subject to change**. It is the **student's responsibility** to verify with the instructor regarding any updates.

Tentative Course Outline²:

Week of		Topics	Assignment Due	Book Chapter
01	Jan 10	Introduction and Logistics of the course Introduction to Human Factors and Ergonomics	<i>Team formation</i>	<i>Ch1</i>
02	Jan 17	Cost-Benefit Analysis of Improvements in Human Factors Design		<i>Ch2</i>
03	Jan 24	Anthropometry in Workstation Design Work Posture		<i>Ch 8&9</i>
04	Jan 31	Manual Materials Handling Repetitive Motion Injury and Design of Hand Tools		<i>Ch 10 & 11</i>
05	Feb 7	<u>February 8 - Research Topic 2-minute Oral Presentation</u> <u>February 10 – Exam 1</u>	<i>Research Paper Proposal Due (2/8)</i>	
06	Feb 14	Introduction to Work Measurement and Time Study		<i>ILO Ch 18</i>
07	Feb 21	Time Study: Rating and Standard Time		<i>ILO Ch 18 & 20</i>
08	Feb 28	Predetermined Time Study		<i>ILO Ch 20 & 25</i>
09	March 7	Examples of Time Study		<i>ILO Ch 26</i>
10	March 14	<i>Spring Recess - University Holiday</i>		
11	March 21	<u>March 22 - Exam 2</u> <u>March 24 - Research progress 2-minute Oral Presentation</u>	<i>Research Paper Progress Report Due (3/24)</i>	<i>Ch 4 & 5</i>
12	March 28	Human Information Processing and sensory systems		<i>Ch 7 Handout</i>
13	April 4	Understanding and Conceptualizing Human-Computer Interaction		<i>Handout</i>
14	April 11	User experience & usability heuristics Case Study: heuristic evaluations of the user interface in telehealth		<i>Ch 17 Handout</i>
15	April 18	Accidents, Human Error, and Safety Culture High Reliability Organization		<i>Handout</i>
16	April 25	New technology integration and Human and organizational factors of complex technological systems	<i>Due: Peer evaluations (4/27)</i> <i>Due: Course evaluation (4/27)</i> <i>Due: Research Paper (4/27)</i>	
<i>Tuesday, May 10</i>		Final Exam (2-4 pm ³) - Mandated by USC Schedule		

² Schedule may be revised to accommodate the content and pace of the class learning process. Due dates and case studies are subject to change.

³ **Confirm the time and date of the exam on the USC website.**

Research Term Paper

Each student will write a research paper related to the topics covered in the class. Alternative and/or sample topics will be discussed during the class sessions. In this paper, the students will investigate and research a topic of their interest based on the materials covered in the class.

Term Paper Proposal: The students will submit a one-page proposal for the term paper that includes the topics of the research and the problems statement. The students will give a 2-minute presentation about their project in the class where they will receive feedback from the instructors and their peers.

1st Progress Report: The students will submit a two-page progress report that includes the research question, brief description of their findings and the list of references on the topic of their research.

Final Term Paper: The term paper should include all the steps that the students have taken to define the problem, literature review, analysis and discussion of the results and suggest recommendation (if applicable). For each term paper the following standard for contents are expected.

<i>Section</i>	<i>Grade</i>
Abstract	10
Introduction	15
Literature review	25
Analysis / discussion	25
Conclusion	15
References	10

Netiquette Rules for Class

Netiquette is network etiquette; a set of rules that encourages appropriate and courteous online behavior.

- Above all, show respect to your peers and the instructor.
- Respect the opinions of others, regardless of how much you disagree.
- If you are writing an email or discussion post in anger, the content of your text will probably come off as disrespectful. Give yourself time to calm down and show respect.
- Reflect kindness and concern for your colleagues, you never know when someone else is having the worst day of their life.
- Allow others to save face. When possible, allow others the option of coming to the same conclusion, rather than pushing an opinion or answer on them. Instead of saying, "That's not right, it should be purple," consider saying this instead, "Would purple be a better color in this situation?"
- Address your instructor with their full title (e.g. Professor or Dr.) unless they explicitly tell you otherwise.
- Let others know how you would like to be addressed and address others as they would like to be addressed.
- Limit your use of the exclamation point.
- Avoid using all caps. IT IS COMMONLY INTERPRETED AS YELLING.
- Humor is difficult to interpret in text-based communication. Consider avoiding it in professional and academic communication.
- Check your spelling and grammar before hitting send or submit. This is an academic community and part of being professional is checking and double-checking your work.
- Use professional language and avoid using social media language and characters (i.e. don't use slang, text shortcuts, such as "u" instead of "you," emojis, emoticons).
- Use appropriate fonts.
- Use appropriate font-size: 12 font for papers (you can use 10 for tables); 11 or 12 in emails or discussion board posts.
- In emails, be brief. After greetings, put the most important point in the first sentence. Do not make the reader get halfway (or all the way) through the email before you present the reason for the email.
- In the discussion board, expand on your thoughts. Explain why you agree with them or why you think it's a great post.
- Give details to your discussion post. What was your source and what pages were you looking at?

A more comprehensive list of communication norms is posted on the course page on Blackboard.

Participation Ruberic

Excellent Performance	Fair / Average Performance	Unacceptable Performance
<ul style="list-style-type: none"> • Initiates information relative to topics discussed • Accurately exhibits knowledge of assignment content • Clarifies points that others may not understand • Shares personal experiences or opinions related to the topic • Offers relevant/succinct input to class • Actively participates in labs and class exercises • Demonstrates ability to apply, analyze, evaluate & synthesize course material. • Demonstrates willingness to attempt to answer unpopular questions • Builds on other students' contributions 	<ul style="list-style-type: none"> • Participates in group discussions when asked • Demonstrates knowledge of course material • Offers clear, concise, "good" information on class assignments • Offers input, but tends to reiterate the intuitive • Attends class regularly 	<ul style="list-style-type: none"> • Fails to participate even when specifically asked • Gives no input to discussions • Does not demonstrate knowledge of the readings • Shows up to class: does nothing • Distracts group/class • Irrelevant discussion

Statement on Academic Conduct and Support Systems:

Academic Conduct: Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. studenthealth.usc.edu/counseling

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. studenthealth.usc.edu/sexual-assault

Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. equity.usc.edu, titleix.usc.edu

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, and response. usc-advocate.symplicity.com/care_report

The Office of Disability Services and Programs - (213) 740-0776
Support and accommodations for students with disabilities. Services include assistance in providing readers/note takers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs. dsp.usc.edu

USC Campus Support and Intervention - (213) 821-4710
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student. campussupport.usc.edu

Diversity at USC - (213) 740-2101
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. dps.usc.edu, emergency.usc.edu

USC Department of Public Safety - UPC: (213)740-6000, HSC: (323)442-120 – 24/7 on call
Non-emergency assistance or information. dps.usc.edu