

Course Syllabus

PSY 3171 | HUMAN FACTORS & ERGONOMICS

SPRING 2021



Class meets on Tuesday and Thursday from 2:30 – 3:50 PM in room u404.

Course website on Canvas: <https://utah.instructure.com/>

This syllabus is not a binding legal contract. With reasonable notice to students, the instructor may modify the syllabus and course schedule at any time, to accommodate the needs of the class.

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*** Office hours subject to change: check schedule on my office door for most up-to-date hours**

COVID-19 NOTICE

Please always make sure to be a few minutes early to allow for delays at the entrance, ALWAYS scan your IGC ID at the entrance *even if the door is already open*, take the stairs as much as possible, and the elevator with at most 4 people at a time. For the safety of yourself and your classmates, please use hand sanitizer before class, and consider carrying disinfecting wipes to wipe down your desk before and after use.

In-person classes can be moved to IVC at any time if the situation in Korea demands it, and will be moved back to in-person if/when the situation permits this.

Teaching Philosophy

The most valuable thing you will learn in university is how to acquire new skills & knowledge, and how to apply that knowledge well. My goal for the courses that I teach is therefore not simply to teach you to reproduce the information in the book on multiple choice exams, but rather to help you understand the material covered in the course. The aim is to create the foundation of skills and knowledge that will allow you to critically evaluate new information in the field as well as re-evaluate what you know in the light of new findings.

In the end, however, you are responsible for your own learning and I can only facilitate the process. I would encourage you to ask questions whenever something is not clear, when you don't understand my feedback on a test or writing assignment, or when you are curious about something in general.

Catalog Course Description

PSY 3171 – Human Factors & Ergonomics

3 Credit(s)

Components: Lecture

An introduction to human factors, ergonomics, and engineering psychology. The course examines the history of ergonomics, human-machine relations, displays and controls, human-computer interaction, industrial and aviation systems, physiology of work and anthropometrics, cognitive ergonomics, human reliability, human as manual controller, and human-machine systems design and prototyping.

Required Materials

Lee, Wickens, Liu, and Ng Boyle (2017). “Designing for People: An Introduction to Human Factors Engineering” 3rd Edition. CreateSpace Independent Publishing Platform. ISBN-13: 978-1539808008

Important note: There will be material covered in the lectures that is not in the book. This may appear on the exams. Attending the lectures is therefore highly recommended!

Course Overview

In this course, we will take principles from cognitive psychology and apply them to real-world problems. For example, why was the Microsoft paperclip considered a “poor” design? How could cognitive psychology contribute to a redesign of the paperclip that would make it more user-friendly? We will review basic cognitive psychology research and then show how it can be applied to human-computer interface design, preventing human error or accident, aid in decision making systems, or used to change training procedures for the military or even practices in clinical psychology. We will explore how making human interaction with systems more efficient, safe, and satisfying is critical to many products, companies, and society as whole. At the end of this course, we will be able to:

- 1) Recognize that psychology research can be used to evaluate and help solve a myriad of real-world problems.
 - 2) Critique and design solutions to real-world problems that utilize psychological research methodologies and theories.
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Course Format

The course format consists of lectures, activities, individual assignments, and a group project to be presented at the end of the semester. I strongly encourage questions during the lectures and active participation in class. This will help you, and everyone else, get the most out of the course.

Course Outcomes

- Students will learn the major human factors theories and methodologies.
 - Students will understand the field, from its history and context to its major topics, disciplines, professional organizations, and research outlets.
 - Students will know the 3 tenants of human factors: identify breakdowns in human performance, ensure safety, and make systems satisfying to use.
 - Students will critique and design solutions to real-world problems by using psychological research, theories, and methodologies and by taking a proactive approach that considers end-user goals, cultural contexts, individual differences, health concerns, differing abilities, and languages.
 - Students will learn how to expose themselves to outside materials to deepen learning, will practice professional skills, and will identify how to develop professionally as an individual.
 - Students will identify the major problems of each area in the field using their own experiences with, and interest in, human factors.
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Evaluation Methods

Attendance & Participation, In-class Activities, Quizzes, Homework (10% of final grade)

Normal attendance (missing one or two lectures is no problem!) and non-disruptive classroom behavior are expected and will not affect your grade. Poor attendance (missing more than 20% of lectures) and/or disruptive classroom behavior can lead to a 0% participation score regardless of your performance on in-class activities and homework assignments.

Disruptive classroom behavior: structurally arriving late for class, coming to class unprepared (no book or writing implements), using your phone during class, taking long/ frequent bathroom breaks, sleeping in class, talking/whispering to a neighbor during movies/quizzes/presentations, etc.

Note that this attendance policy means that sometimes it can be preferred to skip one lecture over arriving late and sleeping in the classroom. However, coming to class is a strong predictor of doing well in the course, so attendance is expected even if not graded: Poor attendance will most likely lead to lower exam scores.

Homework: Periodically, we will have a class period dedicated to Real life Examples, Discussion & Q&A (see schedule). For these classes, homework is assigned: think of a good example that fits with the topic, an explanation for your example, and some discussion questions related to your example.

Assignments (20% of final grade)

There will be two papers/design projects, each accounting for 10% of your final grade

Assignment 1 – Designing MAPS – The purpose of this assignment is to encourage you to think about differences inherent in the design of maps or the giving of directions that use spatial vs. verbal information. For this assignment, you will need to submit a paper that includes two major designs: 1) a set of directions from the Campus town subway station to the UAC building 2) a set of directions from the Incheon bus terminal to the UAC building WITHOUT TEXT. Once you have presented the two designs, I would like you to write at least a page discussing the design issues that arose when

constructing the maps with the different media and which principles from our class guided your design decisions.

Assignment 2 – BANK/ergonomic workspace design – You have been hired by KB bank to help in constructing their new office building downtown. Specifically, they want you to design the executive offices to ensure the best workflow, while still considering the ergonomics of the office space. Give a brief description (or draw a layout) of what the office includes and then discuss the ergonomic principles that guided your design of the layout (i.e., positioning and height of the desk, location of the desk relative to the doors and windows, placement of cabinets and shelves, etc.).

Tests (12,5 % of final grade each, 50% total)

There will be three exams. The last of these exams will be a cumulative final exam. You must take all of the exams! In total, the exams will make up 45% of your final grade for the course. All exams will be of a short answer and very-short answer format. For example, fill in the blank, label the figure, or answer in a sentence or two are possible question formats. The weekly quizzes can give you an idea of what the exam questions will be like.

Group Project & Presentation (20% of final grade each)

The group project consists of a product analysis and redesign, which will be presented to the class at the end of the semester. Together these group assignments will make up 20% of your final grade. More detailed instructions and grading criteria will be provided later during the semester. The grade will consist of a group and an individual component.

Weighting:

Participation & Activities:	10%
Assignments:	20%
Exams:	50%
Project & Presentation:	20% +
Total:	100%
Weekly Quizzes:	+2 %

Grade Scale/Point Scale

The following list shows final average percentage grades (x) and their corresponding letter grades.

Letter	Percentage	Letter	Percentage
A	$93\% \leq x \leq 100\%$	C	$73\% \leq x < 77\%$
A-	$90\% \leq x < 93\%$	C-	$70\% \leq x < 73\%$
B+	$87\% \leq x < 90\%$	D+	$67\% \leq x < 70\%$
B	$83\% \leq x < 87\%$	D	$63\% \leq x < 67\%$
B-	$80\% \leq x < 83\%$	D-	$60\% \leq x < 63\%$
C+	$77\% \leq x < 80\%$	E	$x < 60\%$

As the greater than or equal signs suggest: these category boundaries are cut-off points.

That implies: e.g. a final grade of 89.99 % is a B+.

Grades will not be rounded up, please don't ask, I will make no exceptions.

(Preliminary) Schedule ^{*may be subject to change}

W	DAY	DATE	TOPIC	NOTE
1	Tue	Feb 23	Introduction	
1	Thu	Feb 25	What is Human Factors? + info mini-presentations	CH 1
2	Tue	Mar 2	Methods of Research, Design & Evaluation	CH 2,3
2	Thu	Mar 4	Methods of Research, Design & Evaluation	CH 2,3
3	Tue	Mar 9	TEST 1: Intro to Human Factors & Methods	CH 1,2,3
3	Thu	Mar 11	Mini presentations	
4	Tue	Mar 16	Understanding Vision & Human factors	CH 4
4	Thu	Mar 18	Hearing, speech understanding & Human Factors	CH 5
5	Tue	Mar 23	Perception & displays + info MAPS assignment	CH 8
5	Thu	Mar 25	Real life Examples, Discussion & Q&A	*homework!
6	Tue	Mar 30	TEST 2: Perception & Human Factors	CH 4,5,8
7	Tue	Apr 6	Understanding Cognition & Human Factors	CH 6
7	Thu	Apr 8	Decision Making & Human Factors	CH 7 *DL: MAPS
8	Tue	Apr 13	Cognition & Controls	CH 9
8	Thu	Apr 15	Make groups+ info Group project Analysis assignment	LAB: Fitt's law
9	Tue	Apr 20	Human Computer Interaction	CH 10
9	Thu	Apr 22	Cognition & HF - Examples, Discussion & Q&A	*homework!
10	Tue	Apr 27	TEST 3: Cognition & Human Factors	CH 6,7,9,10
10	Thu	Apr 29	Understanding Stress & Human Factors	CH 15
11	Thu	May 4	Workload & Automation	CH 11 *DL: Analysis
12	Tue	May 6	Safety & Accident prevention + info GP: Redesign	CH 16
12	Thu	May 11	Stress & Safety - Examples, Discussion & Q&A	*homework!
13	Tue	May 13	TEST 4: Stress, Automation & Safety	CH 11,15,16
13	Thu	May 20	Biomechanics (Ergonomics) + info BANK assignment	CH 13
14	Tue	May 25	LAB/Q&A – Redesign or BANK assignments	
14	Thu	May 27	Workspace design	CH 12 *DL: Redesign
15	Tue	Jun 1	Group Presentations	
15	Thu	Jun 3	Group Presentations	*DL: BANK
16			----- no final -----	

*DL = deadline, each deadline listed is before or at the start of class that day. You can either submit the assignments by email, or hand in a physical version at the start of the class period.

COVID-19 Policies

Covid-related Absences

If you have COVID-19 symptoms, including fever or respiratory symptoms such as cough, phlegm, sore throat, and nasal congestion, you should notify your instructor immediately, call the KCDC for testing guidance, and stay home based on the KCDC's directive. You can return to class if you are clear from COVID-19 symptoms. In order to be excused from your courses, you will need an official medical certification.

Self Quarantine

The University of Utah Asia Campus expects regular attendance at all class meetings. Given the current situation with COVID-19, we have created the following guidelines.

1. If a student has completed less than 50% of the course and is required to self-quarantine, we suggest that the student withdraw from the course. In this situation, all tuition will be refunded with appropriate medical documentation
2. If a student has completed 50-75% of the course and is required to self-quarantine, the Assistant Dean of Students Office will work with the faculty and student to determine the best scenario. If the decision is to withdraw from a course, all tuition will be refunded with appropriate medical documentation.
3. If a student has completed over 75% of the course and is required to self-quarantine, the student and faculty will work together to ensure that the student is able to complete the course. If the student is unable to finish all coursework during the course, a student may receive the mark "I" (incomplete) and work to complete all remaining coursework in consultation with the instructor.

Social Distancing Level 3

If Incheon, the greater Seoul metropolitan area, or all of Korea move to social distancing level 3, this course will move to interactive video conference (IVC) instruction (synchronous lectures on ZOOM, online assignments and exams). The course may return to in-person instruction when the social distancing level is lowered again.

ZOOM Sessions

If this course must host Zoom sessions, the University of Utah Asia Campus requires that all students turn on their cameras during the entire course and post their full name in English. We ask that students try to locate a quiet space which will allow for ample social distancing and that students not wear a mask if possible. If a student has financial difficulty obtaining the appropriate equipment for online courses, the UAC can help provide resources.

It is recommended that Zoom sessions be conducted synchronously. Faculty are not required to record their zoom sessions, this is an individual faculty decision.

UAC Policies and Resources

Academic Calendar

<https://registrar.utah.edu/academic-calendars/asia20-21.php>

Last Day to Drop/Add Classes/Elect CR/NC: Friday March 5

Last Day to Withdraw from Classes (with W on Transcript): Friday April 16

Language policy

The University of Utah Asia campus is committed to providing and fostering an environment that is safe and free from prohibited discrimination. The following language policy applies to all academic and administrative units of the University and to all members of the University community, including faculty, staff, and students. English is recognized as the official language of instruction, assessment, and curriculum. In addition, English is the official language for all administrative and business-related matters of the University.

University Attendance Requirements

The University expects regular attendance at all class meetings. Instructors must communicate any particular attendance requirements of the course to students in writing on or before the first class meeting. Students are responsible for acquainting themselves with and satisfying the entire range of academic objectives and requirements as defined by the instructor.

Make-up Exams and Excused Absences

There will be no make-up exams, except in rare pre-approved situations and last-minute emergencies, both of which require documentation and an excused absence. If you will be absent from an exam, you must email the Assistant Dean of Students at kevin.darco@utah.edu **prior to the exam**.

Not feeling well on the day of the exam, including having a headache, stomach ache, or a cold is not sufficient to be allowed a make-up exam. In order to be excused from an exam due to medical condition, a student's illness must be severe and require hospitalization. In addition, *a scheduled or unscheduled doctor appointment is not an excused absence*. A note from the IGC medical clinic does not qualify a student for an excused absence.

Learners of English as an Additional/Second Language

Sign-up for an appointment with the writing center online at <https://utahasia.mywconline.com>

You are encouraged to visit the Writing Center to discuss your writing assignments. You can go to the Writing Center during any stage in the writing process. Typically, the earlier in the process you come, the better. You should bring any materials you have with you to the Writing Center, such as an outline, an initial draft, a complete draft, the assignment handout, and/or even just preliminary notes. The Writing Center is not an "Editing Center," which means that it is not there to "correct" or "fix" your papers; rather, the Writing Center can help you develop your ideas for your paper, identify

strategies and resources to help you with your grammar, identify strategies for organizing your papers, among other writing-related support.

LGBT Resource Center

If you are a member of the **LGBTQ community**, I want you to know that my classroom is a safe zone*. Additionally, please know that the U of Utah has an LGBT Resource Center on the main campus. They are located in Room 409 in the Oplin Union Building. Hours: M-F 8-5pm. You can also visit their website to find more information about the support they can offer, a list of events through the center and links to additional resources: <http://lgbt.utah.edu/>. Please also let me know if there is any additional support you need in this class.

Americans with Disabilities Act.

The University of Utah Asia Campus seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the UAC Office of the Dean of Students – randy.mccrillis@utah.edu. The UAC Office of the Dean of Students will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the UAC Office of the Dean of Students.

Addressing Sexual Misconduct

Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the UAC Office of the Dean of Students – randy.mccrillis@utah.edu. For support and confidential consultation, contact the UAC Mental Health Counseling, 3052 Multi-complex Building, 032-626-6142.

Wellness Statement

Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah Asia Campus. For helpful resources, contact the UAC Mental Health Counseling Center; asiacampus.utah.edu/mental-health-counseling-center/; 0326266142. You can make an appointment using this link: <https://appointmentwithjan.as.me/schedule.php>.

Student Code of Conduct

All students are expected to maintain professional behavior in the classroom setting as outlined in the Code of Student Rights and Responsibilities, Policy 6-400 of the University Regulations Library (<http://www.regulations.utah.edu/academics/6-400.html>).

Department of Psychology Undergraduate Academic Misconduct Policy

The Department of Psychology has a **zero tolerance policy** for academic misconduct. Academic misconduct includes cheating, plagiarizing, recycling one's own work, research misconduct, misrepresenting one's work, and inappropriately collaborating. Even if these happen on accident, it is your responsibility as a student to understand and prevent academic misconduct. This applies to any work students turn in for evaluation or course credit. Definitions can be found in the Student Code at <http://www.regulations.utah.edu/academics/6-400.html>

If you're not sure if something is plagiarism – **ask me before submitting**.

Assignments turned in on Canvas will be screened using Turnitin, and the above policy will be followed when misconduct is found. If you are suspected of academic misconduct, the process proceeds according to the rules found in the Student Code, University Policy 6-400(V). **If you are found responsible for misconduct, consequences range from failure on the assignment to dismissal from the program**, consistent with both University and Psychology Department Policy. Minor offenses include failure to use citations correctly, because of lack of understanding of proper procedures for crediting ideas, rather than intention to cheat with no evidence of lifted/stolen text.

Major Offenses include:

1. Cheating on a test, quiz, problem set, or other independent work
2. Plagiarism in written work: Copying any quantity of text from another source or another student without quoting and citing the copied text.
3. Plagiarism in written work: Flagrant misuse of citations, such that a student clearly attempted to represent ideas that were not his/hers as if they were, even if the ideas were presented in the student's own words.
4. Recycling one's work: You may not "re-use" your own writing or paper from another class without expression permission from both instructors

Both minor and major offenses will have consequences, as outlined in the full Psychology Department Policy (failing the assignment with a "0" – first offense, failing the course with an "E" grade – second offense in ANY class, expulsion from the Psychology Department or University – third offense in ANY class).

Cheating during an exam will result in a score of 0 on that exam. A score of zero will be assigned if a student has displayed a test for others to see, looked at another student's exam, or attempted to communicate in any manner with another student during the exam. You are not allowed to leave the testing room and return once the exam has been distributed (no bathroom breaks). No bags, notebooks, cell phone, computers, or other electronic devices may be out or on during an exam. For exams, keep your eyes on your own paper, come prepared with writing materials so you don't have to ask your neighbor for a pen. Students may not wear hats, headphones, hoods, etc.

****Gross dishonesty** on any graded portion of the course, including exams and assignments, will result in a grade of F for the entire course even if it is a first offense. Gross dishonesty includes behaviors such as, but not limited to, using previous tests, notes, or answer sheets during an exam, having someone else take an exam for you, or submitting written assignments which are not your own work. Please note that the University has a strict policy on academic integrity and I cannot make any special exceptions for students.