Engineering Psychology

Course prefix: PSYC

Course number: 2270

Section: A

CRN (you may add up to five):
93783

Instructor First Name: Hanna

Instructor Last Name: Neroj

Semester: Fall

Academic year: 2025

Course description:

Engineering psychology uses scientific knowledge about the perceptual, cognitive, and behavioral capabilities of humans to specify the design and use of human-machine systems for productive, safe, comfortable, and effective human use. In this course, you'll learn about the capabilities and limitations of humans and how this knowledge informs engineering design principles of displays, controls, physical environments, human error, and automation. You'll also get the opportunity to use what you're learning through an applied project.

Course learning outcomes:

1. Describe humans as an information processor in areas including sensation and perception, attention, memory, decision-making, and workload.
2. Describe humans as a physical engine in areas including motor control, anthropometry, and biomechanics.
3. Apply your knowledge of basic human capabilities & limitations to specific applied areas including display and control design, workstation design, situation awareness, human error, and automation.
4. Gather and assess end-user requirements using analysis and design methodologies.
5. Evaluate the design of human-machine systems using performance and safety criteria and provide recommendations for improvements based on your knowledge of human capabilities and limitations.

Required course materials:

Wickens, C. D., Helton, W. S., Hollands, J. G., & Banbury, S. (2023). *Engineering psychology and human performance* (5th ed.). Routledge.

Grading policy:

Description of graded components:

- Attendance: 10%
- Bi-weekly Quizzes: 10%
- Final Exam: 40%
- Group Project & Presentation: 40%

The final grade will be assigned as a letter grade according to the following scale:

A: 90-100%

Superior performance—rhetorically, aesthetically, and technically—demonstrating advanced understanding and use of the media in particular contexts. An inventive spark and exceptional execution.

B: 80-89%

Above-average, high-quality performance—rhetorically, aesthetically, and technically.

C: 70-79%

Average (not inferior) performance. Competent and acceptable—rhetorically, aesthetically, and technically.

D: 60-69%

Below-average performance. Needs substantive work — rhetorically, aesthetically, and/or technically.

F: 0-59%

Unacceptable performance. Failure to meet minimum criteria rhetorically, aesthetically, and/or technically.

Attendance policy:

Attendance in the lectures is mandatory, as it is essential to succeed in this course (unless valid excuse is presented). There will be random checks of attendance throughout the semester and it will count towards the final grade.

Academic honesty/integrity statement:

Students are expected to maintain the highest standards of academic integrity. All work submitted must be original and properly cited. Plagiarism, cheating, or any form of academic dishonesty will result in immediate consequences as outlined in the university's academic integrity policy.

Core IMPACTS statement(s) (if applicable):

This is a Core IMPACTS course that is part of the Social Sciences area.

Core IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help master course content, and support students' broad academic and career goals.

This course should direct students toward a broad Orienting Question:

- How do I understand human experiences and connections?

Completion of this course should enable students to meet the following Learning Outcomes:

- Students will effectively analyze the complexity of human behavior, and how historical, economic, political, social or geographic relationships develop, persist or change.

Course content, activities and exercises in this course should help students develop the following Career-Ready Competencies:

- Intercultural Competence
- Perspective-Taking
- Persuasion.