

INDE 549A/ENVH 549A: Human Factors in Engineering Design “Research Methods in Human Factors”

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Office: G10A

Office Hours: MW 9:00-10:00 am (or by appt)

Course Material on Canvas

Class Hours: TuTh; 2:30-3:50 pm

Class Room: Loew 217

Course Description

The objective of this course is to provide students with the principles of human factors engineering, and the research tools that are used to examine these principles. The class will showcase (through weekly journal article readings) the value of qualitative (e.g., focus groups, interviews) and quantitative (e.g., controlled A/B testing, design of experiments) methods for human factors research. That is, how to capture abstract thoughts, people’s opinions, and trends as well as design studies to capture the impact of design changes and interventions more formally. The focus of the class is centered on human factors design principles for safety, productivity, functionality, and usability. Upon course completion, students will be able to begin fundamental research in human factors. The journal articles will cover research methods and design issues related to operator performance given functional, psychological, physiological, and environmental constraints.

Required Materials

- Designing for People: An Introduction to Human Factors Engineering, 3rd edition.
Authors: Lee, Wickens, Liu, and Boyle
There is a Facebook page with additional resources: <https://www.facebook.com/groups/134491173834029/>
- Journal articles (on canvas)

Prerequisites/Corequisites

There are no prerequisites or corequisites for this class. However, an introductory class in Human Factors would be useful. Some of the concepts from the introductory class will be presented at a high level in this graduate level course.

Weekly Readings

Students are expected to read the material before class. There is a weekly assignment that includes a write-up of the journal article that was assigned for discussion that week.

Course Objectives

Successful students will understand:

1. research methods to test human-machine interactions
2. measurement tools to capture human performance and behavior
3. task analysis to identify gaps in the process
4. examine user trust, acceptance, and satisfaction
5. differences in experimental designs and the corresponding analysis challenges
6. design studies to examine a product or service with the human operator in mind

Midterm and Class Project

There is one midterm in this class and a final project. The midterm may be take home or in-class. The final project includes multiple parts to be completed throughout the quarter. If done correctly, many parts of the final project will be completed before the June due date. This is a group project with only one paper and one presentation per group. A peer evaluation (to be filled out by each person) is also due on the day of the Final Exam.

Grading

Graded Items	Percent
Weekly write-ups of readings	10
Class discussions/participation	10
Midterm	20
Final Project	
Part I	10
Part II	10
Part III	15
Presentation	10
Final Paper	15
Total	100

Course Policies

During Class

I understand that electronic recording of notes are important. Hence, computers are allowed in class. Please refrain from using computers for anything but activities related to the class. Phones are prohibited as they are rarely used for anything in the course. **You are expected to participate in class.**

All course material (included HW and project assignments) will be available on canvas. You have a responsibility to help create a classroom environment where all may learn. This means that you will treat other members of the class with courtesy. The points for participation will be allocated according to the following basis: attentiveness and contributions to class discussions, and student responses to periodic in-class requests to clarify and identify confusing topics, potential quizzes, and exam questions.

Participation Policy

Participation is expected in all lectures. I hope to learn as much from your comments and questions as [I hope] you will from my comments and questions.

Academic Integrity and Honesty

Students will be held to the highest standards of academic honesty. There are specific actions that are considered academic dishonesty, cheating or fraud. I follow the list outlined on the following website: <https://faculty.washington.edu/mlg/students/cheating.htm> Students who conduct any of the behavior outlined in the above website will receive a failing grade in the course. If any of the items outlined on the website is unclear, it is up to the student to clarify any and all information outlined in this syllabus with me.

Collegiate Policies

For each quarter hour credit in the course, students are expected to spend 2-3 hours per week preparing for the class sessions. Given that this class is 3 credit hours, the standard out-of-class preparation is 6-9 hours.

Accommodations for Disabilities

Under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, instructors must make reasonable accommodations for students who have verifiable physical, mental, or learning disabilities. Therefore, if you require seating modifications or testing accommodations or accommodations of other class requirements, please let me know so that appropriate arrangements may be made.