

INDE/ENVH 549A Research Methods in Human Factors
Autumn 2020

Class Meeting: TTh 2:30 pm – 3:50 pm (3 credits) <https://washington.zoom.us/j/92985749282>
Instructor: Ji-Eun Kim, Ph.D. Email: jikim@uw.edu
Office Hours: TTh 4:00 – 5:00 pm <https://washington.zoom.us/j/97587459686>

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.

Grading Policy: Students will be expected to fully participate in class discussions and activities. Grades will be based on such class-participation, as well as on performance in conducting weekly assignments, midterm, paper presentation, and final project.

Weekly critiques	15 %
Midterm	20 %
Class discussions/participation	5 %
Paper presentation	10 %
Final project (group)	50%
(Part I 10%, Part II 5 %, Part III 10%, Presentation 10%, Final Paper 15%)	

Required Text:

- Readings assembled by instructor (on course website)
- Recommended textbook: Designing for People: An Introduction to Human Factors Engineering, 3rd edition., Lee et al.

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.

Midterm: There is one midterm in this class. The midterm will be take-home in the week of Nov 17.

Weekly Readings and Critiques: 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. You will submit a one-page critique for one of the assigned papers. The critiques are worth 5 pts each. Do not merely copy the abstract, introduction or conclusion of the papers, you need to add value and insight beyond what is in the paper. A good critique:

- Describes the research problem being addressed and existing approaches (in your own words) (1 pt)
- Explains the general approach the authors used to address the problem (1 pt)
- Critically analyzes and questions the data, results and methods used (1 pt)
- Discusses supplemental or follow-up research that might be pursued in the future (1pt)

CANVAS: All information pertaining to this course can be found in Canvas. All lecture notes and assignments will be posted on the course's Canvas page. Students are responsible for visiting the course page frequently for any announcements and updates.

Privacy/FERPA statement: This course is scheduled to run synchronously at your scheduled class time via Zoom. These Zoom class sessions will be recorded. The recording will capture the presenter's audio, video and computer screen. Student audio and video will be recorded if they share their computer audio and video during the recorded session. The recordings will only be accessible to students enrolled in the course to review materials. These recordings will not be shared with or accessible to the public. The University and Zoom have FERPA-compliant agreements in place to protect the security and privacy of UW Zoom accounts. Students who do not wish to be recorded should:

- Change their Zoom screen name to hide any personal identifying information such as their name or UW Net ID, and
- Not share their computer audio or video during their Zoom sessions.

Course Policy on Academic Misconduct: Engineering is a profession demanding a high level of personal honesty, integrity and responsibility. Therefore, it is essential that engineering students, in fulfillment of their academic requirements and in preparation to enter the engineering profession, shall adhere to the University of Washington’s Student Code of Conduct (<https://www.washington.edu/cssc/for-students/student-code-of-conduct/>). Any student in this course suspected of academic misconduct (e.g., cheating, plagiarism, or falsification) will be reported to the College of Engineering Dean’s Office and the University’s Office of Community Standards and Student conduct. (See CoE website for more detailed explanation of the academic misconduct adjudication process:

<https://www.engr.washington.edu/mycoe/academic/integrity>). Any student found to have committed academic misconduct may receive a grade of 0 on impacted academic work (e.g., assignments, project, or exams).

Access and Accommodations: Your experience in this class is important to me. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you have already established accommodations with Disability Resources for Students (DRS), please activate your accommodations via myDRS so we can discuss how they will be implemented in this course. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), contact DRS directly to set up an Access Plan. DRS facilitates the interactive process that establishes reasonable accommodations. Contact DRS at disability.uw.edu.

Religious Accommodation Policy: Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW’s policy, including more information about how to request an accommodation, is available at [Religious Accommodations Policy](https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/) (<https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/>). Accommodations must be requested within the first two weeks of this course using the [Religious Accommodations Request form](https://registrar.washington.edu/students/religious-accommodations-request/) (<https://registrar.washington.edu/students/religious-accommodations-request/>).

Tentative Course Outline (Any necessary changes will be announced in class and posted on the website)

Critiques are **due at 2 pm on the Thursday** listed before class. * Journal articles to be presented by students.

Week	Topic	Readings	Assignments
1 10/1	Intro to Human Factors Engineering	Chap 1. Introduction, <i>Designing for People: An Introduction to Human Factors Engineering</i> , 3rd edition	
2 10/6 10/8	Task Analysis	Militello & Hutton, <i>Ergonomics</i> , 1998	Critique #1 (Due: 10/8)
3 10/13 10/15	Design Methods	Jaspers, <i>IJ of Medical Informatics</i> , 2009	Critique #2 (Due: 10/15)
4 10/20 10/22	Qualitative Methods	Hsieh & Shannon, <i>QualHealthRes</i> , 2005 *Van Dongen et al., <i>BMC</i> , 2016	Critique #3 (Due: 10/22) Project Part I (Due: 10/23)
5 10/27 10/29	Controlled Studies	*Kim et al., <i>IJHCI</i> , 2020	Critique #4 (Due: 10/29)
6 11/3 11/5	Survey Design	*Deb et al., <i>Applied Ergonomics</i> , 2017	Critique #5 (Due: 11/5)
7 11/10 11/12	Objective vs. Subjective Measures	*He et al., <i>IEEE HMS</i> , 2019	Critique #6 (Due: 11/12) Project Part II (Due: 11/13)
8 11/17 11/19	Midterm (Take-Home) (No Class)		
9 11/24 11/26	Observation (Thanksgiving-No Class)		
10 12/1 12/3	Observation	*Manser et al., <i>Human Factors</i> , 2013	Critique #7 (Due: 12/1) Project Part III (Due: 12/4)
11 12/8 12/10	Project Presentation		Presentation Materials (Due: 12/8) Final Paper (Due: 12/11)