

**IE 1061 Human Factors Engineering
Spring 2019 (SCUPI)**

Time/Place: Thursday 15:40 – 18:25, Zone 4 Rm 212; 19:20-21:00 Zone 4 Rm 212.

Instructor: Dr. Jing Qiu
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Office Hours: As needed – appointments can be made at any time.

TAs: TBD

Textbooks: *An Introduction to Human Factors Engineering, 2nd Edition* by Wickens, Lee, Liu, Gordon-Becker

Web Page: go to <http://courseweb.pitt.edu/> and enter your University Computer Account username and password. If you are on the roster, IE 1061 will be listed under “My Courses” click on it to have access to everything that’s been posted.

Note: Blackboard cannot be modified to accept other email accounts. If you use a different email address other than your Pitt address (e.g. Yahoo or AOL) and do not forward your email, you will not get emails from me and thus may not get information in a timely manner. It is your responsibility to make sure that if you have your Pitt email properly forwarded. To forward your Pitt email to the address to your preferred address, please go to <https://accounts.pitt.edu/menu/> and select under user options “Edit forwarding addresses.”

Course Description: This course provides an introduction to human factors engineering. The science of Human Factors seeks to gather information on human physical and mental capabilities and apply this information to the design / redesign of things people use. The purpose of Human Factors intervention is to enhance work performance, safety and user satisfaction. This course will cover Research Methods, Cognitive Aspects of Human Factors, Ergonomic Aspects of Human Factors, Work Physiology, Stress and Workload, Anthropometry and Design, Information Processing, Work Environment, Human Errors, Decision making, Safety and Accident, Human-machine System.

Course Objectives:

- To provide the student with a basic understanding of human factors engineering theory and practice over a diverse range of potential applications
- Apply various human factors industry based software.
- Familiarize the student with information resources and techniques used by human factors professionals to design and evaluate consumer products, machines, workplaces, work organizations
- To apply these concepts and principles in a team based design project.

Engineering Criteria Outcomes:

- An ability to apply knowledge of mathematics, science, and engineering
- An ability to design a system, component, or process to meet desired needs
- An ability to function on multi-disciplinary teams
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice issues

Exams: There will be **one** exams. Please see schedule attached. **If you have to miss and exam**, please see me prior to the scheduled date to make the proper arrangements. If it is an emergency, please see me as soon after the emergency as is possible. To be fair to everyone, I will have to see some sort of proof that

it was a true emergency.

Project: There will be two projects that will be completed in small groups and will involve the human factors design/redesign of some type of tool, device, or product that we will discuss in the beginning of the class. It will be a group assignment and you will be assigned to a group. The projects will be monitored throughout the three weeks with memos required at certain times (see schedule). More information will be given at a later time, but the format will be different than in prior years... First, there will be no final report... rather; you will be making a YouTube Video or presentation instead...

Note some of the initial work will start in the labs – so attendance will be required

Note: Group members who do not participate adequately in their groups in the project could receive a **much lower** grade for the project. You will rate yourself and your teammates on each project. If you do not carry your own weight, I will grade some individuals separately where necessary!

Book Report: There will be assigned one of two books

- *The Multisensory Driver: Implications for Ergonomic Car Interface Design (Human Factor in Road and Rail Transport) 1st Edition* by Cristy Ho
- *The Chair: Rethinking Culture, Body, and Design* by Galen Cranz

You will write a book report (according to my specifications) that will be read and graded by another student in the class who has read the other book.

Participation: Industry has indicated to engineering schools that graduates must possess teamwork abilities and interpersonal skills, as well as be technically proficient. In addition to learning the principles of human factors concepts and techniques, and how to apply them, you will also develop your teamwork abilities through various group activities, as well as project management skills. Be an active participant; a significant part of your grade revolves around working in a group and project participation.

Student Scholastic Conduct: Engineers are educated professionals, and every engineer is expected to subscribe to a professional canon of ethics. Paramount among these is the canon that *engineers shall not affix their signatures to documents that are not their own work*. This is also expected of engineering students, whether or not the work is being graded individually or as a group. So...do the work that is expected of you... don't be a slacker to your team for any of your labs or project... and... don't cheat on any of the exams.

Professional Conduct: Please be on time to class to avoid the disruption of a late entrance. If you do arrive late, please try to take a seat that won't require crossing other students' line of vision.

Silence or turn off all communication devices.

Please do not conduct side conversations during the lecture. Please do not send/read text messages, play video games, or surf the internet while in class since it may prove distracting to students sitting near you.

Please pick up graded assignments, quizzes, and exam papers in a timely manner. Failure to do so deprives you of the benefit of any feedback I have provided, and it conveys an impression of not taking the course seriously.

Just a Few Things:

1. I do not grade on a "curve" so you are not in competition with other students, only with yourself. I endeavor to make HFE straightforward and a useful engineering set of tools, but you must understand that learning is not a "spectator" sport. Second, I do not *give* grades. It is up to you to *earn* your grade in this course.
2. Students are expected to spend significant time outside of class preparing for lecture (by reading the appropriate chapter in the textbook), completing lab assignments, working on projects, and preparing for exams. No amount of last minute studying will compensate for not completing the lab assignments or attending class regularly. This will only lead to failure (and it has been proven in the past!).
3. Academic integrity is taken very seriously. I have no objections if you wish to study with friends or work together on homework – in fact, you should feel free to do so! *However*, all work that you turn in must represent your own effort (i.e. you do the first problem, your friend does the second

problem is not considered working together!). Cheating of any form on labs or exams and plagiarism on projects will result in a grade of 0!

4. During exams, cell phones are turned off, stowed in backpacks, etc.
5. The schedule provided is tentative; however, I will do my best to follow this so that you can prepare accordingly.
6. I will post an outline for the notes for the class. These will be provided the morning of the class on Course Web.

Course Grade:

	Normal
Exam	30
Project 1	25
Project 2	25
Book Report	20
Total	100.00%

**IE 1061 – Human Factors Engineering – Spring 2019
Week-to-Week Schedule**

IE 1061 Week	
Week 1	Course Overview, Introduction to Human Factors Engineering (Chapter 1, Chapter 2, Chapter 19)
Week 2	Factors of Human (Chapter 3 and Chapter 4)
Week 3	Factors of Human (Chapter 3 and Chapter 4)
Week 4	Work Physiology (Chapter 5 and Chapter 6)
Week 5	Work Physiology (Chapter 5 and Chapter 6)
Week 6	Stress and Workload (Chapter 12)
Week 7	Stress and Workload (Chapter 12)
Week 8	Stress and Workload (Chapter 12)

IE 1061 Week	
Week 9	Project 1
Week 10	Work Space Design
Week 11	Work Space Design, Safety and Accident
Week 12	Safety and Accident
Week 13	Human-Machine System
Week 14	Human-Machine System
Week 15	Project 2
Week 16	Final Exam