

Human Factors in Design
Course Syllabus
Psychology 2220 (56-2220)
Rensselaer Polytechnic Institute
Summer term, 1990

Instructor
Michael S. Wogalter, Ph.D.
305c Carnegie Hall
Office: 276-8513
Home: 273-8157

Class Meetings
M, T, W, Th, F
9:00 - 11:00 A. M.
201 Carnegie Hall

Office Hours
M, W, F
11:15 A. M. - 12:15 P. M.
or by appointment

Course Objectives

The aim of the course is to examine the relationship between people and various aspects of the world around them. People's characteristics, abilities, and limitations will be considered as they relate to the design of equipment, consumer products, environments, and work. Ways to improve productivity, satisfaction, and safety in the technological age will be discussed.

Text and Readings

The texts we will be using is:

Grandjean, E. (1988). *Fitting the Task to the Man (and Woman)*. 4th edition. London: Taylor & Francis.

Norman, D. A. (1988). *The Psychology of Everyday Things*. New York: Basic Books.

In addition we may have additional readings assigned and available on reserve in the library.

Course Requirements

Exams

Four short quizzes will be given each Friday. The quizzes will be based on the the lectures, and the assigned readings of the week. The first quiz will be worth 10% of the course grade. The second will be worth 15%, and the third and fourth will each account for 20% of the course grade

You are strongly encouraged to read the assigned readings, and to review and study your notes before to coming to every class. At the beginning of each class, the instructor will ask if there is any questions on previously covered material. You are encouraged to ask about material that is not clear in your notes or in your head. Of course, you may ask questions at any time and feel free to do so. It is strongly recommended that you take handwritten (outline) notes of the texts as you read them. You should take notes on the lectures--some material described in class will not be covered in the book and you will be responsible for knowing it at quiz time.

Projects

Three homeworks will be assigned. Each will account for 5% of the course grade. Most of the topics will correspond with the current class material and readings, and will serve to demonstrate some aspect of human factors. The homework will be due one week from the time they are assigned. Late assignments will be accepted, but an automatic penalty of 10% per day will be assessed. A makeup project will be available near the end of the semester to replace a low grade or missed assignment. It is highly recommended that you do all of the assignments and do them on time.

Group Projects

Groups of two students will work on a class project related to human factors. The groups will present their project to the class at the end of the semester. The oral presentation will account for 5% of the course grade. Each group is required to submit a written report based on the project at the end of the course. The written report will account for 15% of the course grade. Group assignment and discussion of suggested topics will occur during the 2nd week of class. Project topics must be approved by the instructor before the July 8 deadline.

Attendance Policy

Students will be expected to attend every class meeting. Excused absences will be limited to verifiable medical or legal reasons. There may be legitimate excuses other than these and the instructor will rule on them individually. Of course, if you missed class you are responsible for the material covered in lecture and any assignments made when you are absent. Take the necessary precautions to avoid getting into situations that might lead to missing class.

Class will meet every week day for 2 hours. Studying for exam will be made much easier and will result in high grades if you take the modest effort to be present for every class meeting. Missing a class will increase your workload later.

Grading

All students are expected to do and turn their own work. The only allowed exception is the group project described above). Academic integrity is expected. Dishonorable behavior (for example, cheating and plagiarism) will not be tolerated and when necessary will be pursued through the appropriate channels.

The grading scale is shown below:

A	At least 90%
B	At least 80%
C	At least 70%
D	At least 60%
F	Less than 60%

Most of the material tested in the quizzes will be from the lectures and notes. In much of the early part of the course, the content of the books and the lectures will not overlap. The lectures will cover a much wider range of human factors than the texts. However, there will be some overlap in the lectures at beginning of the course with the Norman book, and some overlap of the lectures with the Grandjean text later in the course. As you will note the Grandjean text is heavily biased towards the physiology of work. Some of the readings in this book are difficult. You are not expected to know all of details contained in it, but you should read it carefully and learn the general principles described therein. The content of the Norman book will be tested in the second quiz.

Calender for Human Factors in Design

M	June 24	1st hr. 2nd hr.	Course & Instructor Introduction, Syllabus, Short history of HF, Person-Machine Interface	
T	June 25	1st hr. 2nd hr.	Research Methods Human Information Processing I	Grandjean: Chap 1 & 2 Norman (part)
W	June 26	1st hr. 2nd hr.	Human Information Processing I I Vision & Visual Displays I	Grandjean: Chap 9 & 10 Norman (part)
Th	June 27	1st hr. 2nd hr.	Visual Displays II Visual Displays III Pattern, Gestalt, & Depth Perception	Grandjean: Chap 17 Norman (part)
F	June 28	1st hr. 2nd hr.	QUIZ 1; System Reliability Film: Human Factors Success Stories	Grandjean: Chap 3
M	July 1	1st hr. 2nd hr.	Audition and Auditory Displays I Auditory Displays II	Grandjean: Chap 4, 5 Norman (part)
T	July 2	1st hr. 2nd hr.	Olfactory & Tactile Displays Speed/Accuracy tradeoff, Controls I	Grandjean: Chap 6, 7 Norman (part)
W	July 3	1st hr. 2nd hr.	Controls II Reaction Time, Fitts Law, Tools	Grandjean: Chap 8 Norman (part)
Th	July 4		Holiday: Independence Day	
F	July 5	1st hr. 2nd hr.	QUIZ 2 (includes the Norman Book), Learning and Practice	
M	July 8	1st hr. 2nd hr.	Group Project Topic Deadline, Anthropometrics I Anthropometrics II	Grandjean: Chap 11, 12
T	July 9	1st hr. 2nd hr.	Human-Computer Interaction Human Error, Job Selection and Testing	Grandjean: Chap 13, 14
W	July 10	1st hr. 2nd hr.	Job Training and Simulation Intelligent Vehicle Highway Systems	Grandjean: Chap 15
Th	July 11	1st hr. 2nd hr.	Macroenvironments Microenvironments	Grandjean: Chap 16
F	July 12	1st hr. 2nd hr.	QUIZ 3; Lighting I Lighting II	
M	July 15	1st hr. 2nd hr.	Stress Heat and Cold	Grandjean: Chap 18, 21
T	July 16	1st hr. 2nd hr.	Noise Warnings and Instructions	Grandjean: Chap 19, 20
W	July 17	1st hr. 2nd hr.	Film: Mock Trial Part 1 Film: Mock Trial Part 2	
Th	July 18	1st hr. 2nd hr.	Forensic aspects Group Project Oral Presentations	
F	July 19	1st hr.	QUIZ 4, Written Project Due	