



Introduction to Human Factors Psychology Psychology 461 Spring 2012



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Course Description and Objectives

Human Factors is a specialization of psychology that studies how humans interact with technology and how those interactions may be made better (e.g., more safe, efficient, easy to learn, intuitive, enjoyable, etc.). Today human Factors psychologists work at companies that produce technology like Apple Computers, Google, and Microsoft Gaming, but they also work for media companies, medical device manufacturers, and in the design of automobiles and other forms of transportation. This course is designed around three 'core' topics: (1) the history and development of Human Factors, (2) the cognitive psychology and attributes of humans, and (3) an introduction to product evaluation techniques.

Course Structure and Reading Assignments

Before you decide to continue in this course, there are several considerations that should be made. First, Human Factors is still a young science, and because it is young, I have collected a variety of reading sources, including experimental articles on psychology, book chapters, industry guides, historical and contemporary interactive products for evaluation, etc. I do this to keep costs down for the student, and also because it is my intention to make this course interesting, relevant, and on the cutting-edge of science. Second, this course will require your active participation. There will be activities and reading completed both inside and outside of class. These activities provide experience learning about and applying human factors principles and research methodology to the analysis and evaluation of contemporary human factors problems.

Without a standard textbook to guide you, this course may be different than some of the others you have taken. It isn't designed to be more difficult, but it will require much of students by way of reading, discussion, and some time outside of class working on projects. Please see me immediately if you have concerns about continuing with the class because of the course workload or structure.

Course Assignments and Grading

Examinations

Examinations will measure students' mastery of the material covered in the textbook and class lectures using a format of my choosing. Exams may include multiple-choice, drawing, matching, fill-in-the-blank, short or long essay questions, hangman, crosswords puzzles, and so on. There will be three examinations, and one final, each worth 40 points (see final exam information below). The lowest exam will be dropped, for a total of 120 exam points. Please bring something to write with on exam days, but no other materials are required (e.g., I do not use Scantron sheets).

NOTE: The grade for a missed exam will be a 0. Makeup exams will be given only when a student gains prior approval to take a makeup exam, or when he or she provides official documentation clearly indicating that circumstances beyond the student's control (e.g., a serious illness, serious automotive

accident with documentation, death in the family, or other CSUN-approved absence). A note from a friend or family member is not acceptable documentation.

Quizzes

Quizzes motivate students to attend class, arrive on time, and complete the assigned readings. Quizzes are unannounced, and will usually cover material from that day’s reading assignment(s). Throughout the semester, I will administer quizzes at the beginning of class. If you are absent from class or arrive late after the quiz has been distributed, you will not be allowed to take the quiz and will receive no points. Some quizzes will be worth 5 points, but many will be worth 10 points, for a total of 70 quiz points

Human Factors Projects

In addition to reading and thinking about the concepts covered in the text, an important part of the learning process includes applying these concepts. Thus, you will complete three human-factors projects outside the class. Each project will be worth 20 points, for a total of 60 project points.

Final Exam

The final exam will be given at a time scheduled by the university. It will be formatted like the other exams, but will cover material from the entire semester. The final exam is worth 40 points, and can be dropped if becoming a student’s lowest exam grade.

Bonus Points or Extra Credit

No extra credit will be given in this course unless otherwise announced. Students who are performing poorly in the class are encouraged to see me during office hours to discuss how they may improve their performance on exams, quizzes, or projects, but no bonus points or extra credit points are available.

Computing Your Final Grade

Your letter grade will be calculated by dividing the number of points you earn by the total number of points possible to earn (250 points). Please do not approach me about bending the class rules to make personal exceptions about your grade: I take fair and equitable treatment of all students seriously and every student will be subject to the same grading standards outlined below. Where there are fractions of a point determining the difference between letter grades, I will round to the nearest whole number. The chart below should be useful for determining your course standings:

Source	Maximum Score	Determining Your Letter Grade	
Exam 1	40 points	A	100-93% 231-250 points
Exam 2	40 Points	A-	92-90% 224-230 points
Exam 3*	40 points	B+	89-87% 216-223 points
Quizzes	70 points	B	86-83% 207-215 points
Projects	60 points	B-	82-80% 200-206 points
	—————	C+	79-77% 192-199 points
	Total: 250 points	C	76-73% 182-191 points
		C-	72-70% 175-181 points
		D+	69-67% 167-174 points
		D	66-63% 157-166 points
		D-	62-60% 150-156 points
		F	59% or below 150 points or below

*Note that one exam (or the final) will be dropped.

Attendance

Attendance is required in all lecture sessions without exception, and will be taken at my discretion, including formal roll calls, attendance quizzes, or in my mind (i.e., when I notice that you are absent from a course or lecture). No 'make-up work' will be allowed. Information covered in a lecture that is not in the reading, and information in the reading that is not covered in lecture, will appear on quizzes and tests. If you need to miss my course for any reason, I strongly urge you to speak with me BEFORE you are absent. Please do not arrive late to class. It is annoying to me because it disrupts other students who are on time. Arriving late to class also risks being counted absent (see attendance policy above). Students who miss quizzes or other materials because of lateness will not be given the opportunity to make up the work. As a courtesy, I will allow two unexcused absences before punitive actions are taken. After two unexcused absence, you will incur a penalty of a reduction in your final course grade of half a letter grade for each unexcused absence (e.g., a student who earns a grade of "A-" and who misses three classes would receive a grade of "B+," a "C-" would become a "D," etc.).

GMU Honor Code

George Mason University has an Honor Code that each student accepts as a condition of enrollment. This code is consistent with APA's ethical principles for working professionals, and it is required that each student adhere to the Honor Code. For this course, group studying is expected and encouraged, but all students are required to produce original work on all assignments unless otherwise noted. Plagiarism, academic dishonesty, and other failures to follow the GMU honor code will result in disciplinary actions that include receiving a failing grade for this course, along with referral to the GMU Honor Committee for further review and documentation of the offense. A lack of knowledge about what constitutes a violation of the GMU honor code is not a defense against possible violations; it is your responsibility as a GMU student to review and adhere to this code. If you have ANY questions about plagiarism or the GMU honor code, I encourage students to review the code for themselves at:

<http://academicintegrity.gmu.edu/honorcode/>

Performing at Your Best

Learning Accommodations: It is my policy, as well as the university's, to accommodate all students with disabilities that might affect their learning, course participation, or assignment completion. If you are a student with a disability and you need academic accommodations, please feel free to speak with me about making appropriate accommodations and contact the Disability Resource Center (DRC) at 703-993-2474, or online at <http://ods.gmu.edu/> - accommodations will be arranged through that office.

Stress and Academics: Let's face it, being a student can be stressful, and life events can create anxiety or depression that can hurt anybody's academic performance. GMU is committed to helping students maintain their emotional well-being through the GMU Counseling and Psychological Services (CAPS) office, located online at: <http://caps.gmu.edu/> and by telephone at: 703-993-2380. CAPS services are free to Mason students, and include one-on-one stress and anxiety counseling, and Academic Skills Workshops that can teach students how to 'study smarter' and make the most of your higher education.

Improving Academic Writing: Strong writing is a skill that is learned through guided instruction and practice. Strong writing skills are likely to be a benefit for students pursuing academic or industry careers in most domains. Students who seek to improve their academic writing are encouraged to do so by visiting the GMU Writing Center. Information can be found online at: <http://writingcenter.gmu.edu/>

461 Weekly Schedule and Assignments

<u>Date & Topics</u>	<u>Reading Assignments (Finish BEFORE class)</u>
Jan 24	Overview of the Course
Jan 26	What is Human-Factors psychology?
Jan 31	Origins of HF: Industrialization
Feb 2	Origins of HF: Industrialization and Production
Feb 7	Origins of HF: Machines of War 1800-1918
Feb 9	Origins of HF: Machines During WWII
Feb 14	Origins of HF: Electronics
Feb 16	Exam 1
Feb 21	Exam 1 Returned & Reviewed
Feb 23	Cognitive Attributes: Sensory Memory - Project 1 Assigned
Feb 28	Cognitive Attributes: Working Memory & Attention
Mar 1	Cognitive Attributes: Long-Term Memory
Mar 6	Cognitive Attributes: Perception
Mar 8	Cognitive Attributes: Vigilance
Mar 13	SPRING BREAK – No Class!
Mar 15	SPRING BREAK – No Class!
Mar 20	Cognitive Attributes: Fixation Effects
Mar 22	Exam 2
Mar 27	Exam 2 Returned & Reviewed
Mar 29	HF Skills: Heuristic Evaluations
April 3	HF Skills: Concurrent Think Aloud and Retrospective Probing
April 5	HF Skills: Keystroke Level Modeling Project 2 Assigned
April 10	HF Skills: Prototyping
April 12	In Class Presentations of Project 2
April 17	HF Skills: Applied Cognitive Task Analysis – Project 3 Assigned
April 19	HF Skills: Usability Testing
April 24	HF Skills: Usability Testing (continued)
April 26	Exam 3
May 1	Exam 3 Returned & Reviewed – Semester Standing Reviewed
May 3	Professional Development: Getting Involved in HF Psychology
TBA	Final Exam

Final Caveat

This syllabus and schedule are provided for your information. The reading schedule and reading assignments are what is anticipated, but may change as deemed necessary – any changes will be announced in advance both in class and online.