

Fall 2017: Course Description for Human Factors Engineering (SYST 470-001)

Instructor: Dr. Leonard Adelman

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Office Hours: Tuesdays & Thursdays, 3:00 - 3:30 (or by appointment)

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Office Hours: Mondays and Tuesdays, 3:00 – 4:00

Text: Lee, J.D., Wickens, C.D., Liu, Y., & Boyle, L.N. (2017). An Introduction to Human Factors Engineering: A Beta Version. Custom edition by Create Space.

Prerequisite: SYST 210 & STAT 344

The purpose of this course is to help students design better systems by taking into account the “human” component of the system. Our goal is improved system usability by taking a “user-centered” design orientation. The course focuses on human performance characteristics and limitations. It includes such topics as perception, cognition, memory, and decision making. It also includes system design and safety issues for addressing these characteristics and limitations, and research & evaluation methods for improving system development.

I use the full grading scale, including pluses and minuses. In general, that means the following grading range: A ( $\geq 90$ ), B (80 to 89), C (70 to 79), D (60 to 69), and F ( $< 60$ ). Your course grade will be based on three exams including the final exam (each worth 20% of your grade), a student project (20%), and class participation (20%). The exams will be based on questions that I handout in class. The questions will cover material presented in the textbook and class. The exams are closed-book and closed-notes. I will tell you which questions have the highest probability of being on the exams during the review period. I will not review written answers to questions prior to the exams. Laptops cannot be used to take the exams. [Note: I will not email exam grades or post them on Blackboard. I'd like you in class to hear the answers to the exam questions. You have only one week after I return the exams to ask me to review any answers.]

I use a seminar format. Therefore, I expect students to read the material before class so that they can answer questions about it. Consider “reading and class participation” as your homework. I will grade class participation after each class session, starting with Class 2. You'll receive 1 point for actively participating, 0.70 points for attending class but not participating, and no points if you do not attend class. You are permitted to miss 2 classes, with prior notification. (Note: Participation points will be less when students give their presentations.)

Students will work in pairs (of their choosing) to complete their project. The project needs to be an experiment evaluating two or more interactive products. Projects need to be guided by user requirements and usability goals, employ experimental design principles, and use statistical analyses to determine if there are significant differences in product usability. (Failure to use statistical analysis will result in a loss of at least two letter grades on the project.) Each team will make a 10-minute presentation describing their project. Students who present on Dec. 5<sup>th</sup> will receive one additional point. I will give date priority to students who need additional points.

## Timeline

Week 1 (8/29 & 8/31)	Introduction (Ch. 1) and Design Methods (Ch. 2)
Week 2 (9/5 & 9/7)	Design Methods (Ch. 2) and Evaluation Methods (Ch. 3)
Week 3 (9/12 & 9/14)	Evaluation Methods (Ch. 3) and Cognition (Ch. 6)
Week 4 (9/19 & 9/21)	Cognition (Ch. 6) & Review for Exam 1 [No class on 9/21]
<b>Week 5 (9/26 &amp; 9/28)</b>	<b>Exam #1 on 9/26</b> & Cognition (Ch. 6)
Week 6 (10/3 & 10/5)	Decision Making (Ch. 7) and Go over Exam #1
Week 7 (10/10 & 10/12)	No Class on 10/10 (Columbus Day Recess) & DMing. (Ch. 7)
Week 8 (10/17 & 10/19)	Displays (Ch. 8) [and Exam #2 Review on 10/19]
<b>Week 9 (10/24 &amp; 10/26)</b>	Displays (Ch. 8) & Exam #2 Review; and <b>Exam 2 on 10/26</b>
Week 10 (10/31 & 11/2)	Discuss Projects (ongoing) and Controls (Ch. 9 to pg. 296)
Week 11 (11/7 & 11/9)	Go over Exam 2; Ch. 3 Review; and HCI (Ch. 10) [No class on 11/9]
Week 12 (11/14 & 11/16)	Human-Computer Interaction (Ch. 10)
Week 13 (11/21 & 11/23)	Human-Automation (Ch. 11) & No Class on 11/23 (Thanksgiving)
Week 14 (11/28 & 11/30)	Human-Automation Interaction (Ch. 11)
Week 15 (12/5 & 12/7)	Student Presentations & Review for Exam #3 (Final Exam)
Week 16 (12/12 & 12/14)	No Class
<b>Week 17 (12/19, from 1:30 to 3:15)</b>	<b>Exam #3 (Final Exam)</b>

## Additional Information

- GMU is an Honor Code university
- Emails will be sent to your GMU email address
- Office of Disability Services: 703-993-2472 (<http://ods.gmu.edu>)
- Counseling & Psychological Services: 703-993-2380 (<http://caps.gmu.edu>)
- Writing Center: A114 Robinson Hall, 993-1200 (<http://writingcenter.gmu.edu>)
- University Libraries: <http://library.gmu.edu/mudge/IM/IMRef.html>