

PSYCHOLOGY 490

INTRODUCTION TO HUMAN FACTORS ENGINEERING



COURSE SYLLABUS

FALL 2018

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INTRODUCTION TO HUMAN FACTORS ENGINEERING
Fall 2018 SYLLABUS

Welcome back from what I hope was a great winter vacation. Psychology 490 Introduction to Human Factors Engineering (HFE) is the study and implementation of integrating humans with technology effectively. In this course, you will learn to understand what HFE is and how you can more effectively design technology to enhance human performance. Throughout the course, you will read and understand how HFE is used and how it enhances our daily life. You will also be exposed to various psychological concepts and will be expected to explain from a critical viewpoint why various technological designs enhance performance. Specifically, this course will cover diverse theories, design issues, and experimental practices. This course will allow you to understand the many diverse issues that surround psychologists when designing technology to meet our needs.

Instructor: Justin Rueb **Section:** M(2:00-4:30) **Room:** D216 Science Bldg
Office: B301 Science Center **Office Hours:** MTW(1-2), by appointment
Phone: 346-2191 **Email:** Justin.Rueb@UWSP.edu

REQUIRED TEXTS

Lee, J. D., Wickens, C. D., Liu, Y., & Boyle, L. N. (2017). *An Introduction to Human Factors Engineering: A Beta Version*. Lexington, KY: McGraw-Hill Education.

COURSE PROCESS

PSYC 490 will be a class seminar. This approach is designed to maximize your personal involvement and to give you experience participating in groups and understanding the art of scientific inquiry.. You must come to class fully prepared to discuss the lesson assignment and to relate that material to your own experiences and observations. The lectures/discussions will not simply repeat your reading assignment. During the course, you will also work in different teams. Each team should also ensure that absent members receive all relevant information presented during a specific class.

I believe the best way to understand HFE is through discussion, hands-on experience, and personal reflection. Since this is a writing emphasis course, I have incorporated several written projects (e.g., research proposals, Stupid design project paper, and essays) as an integral part of the course. The combination of leadership paper, journals, pop quizzes, and examinations will give you ample opportunity to display your knowledge and provide me with sufficient evidence to evaluate it.

Furthermore, this course is both a communication in the major and a capstone course requiring you to demonstrate the vast knowledge learned in psychology while at UWSP. Accordingly, you will have ample opportunity to demonstrate writing and oral communications skills throughout this semester. I know that you will embrace these opportunities and not cower from them.

Social Sciences GEP Learning Outcomes:

- Define the major concepts and methods used by social scientists to investigate, to analyze, or to predict human or group behavior.
- Explain the major principles, models, and issues under investigation by the social sciences.
- Examine how the individual or groups of individuals are influenced by social, cultural, or political institutions both in their own culture and in other cultures.

Communication in the Major Learning Outcomes:

- Apply APA standards of oral and written communication to compose an articulate, grammatically correct, and organized presentation/piece of writing with properly documented and supported ideas, evidence, and information suitable to the topic, purpose, and audience.
- Critique your own and others' writing/oral presentations to provide effective and useful feedback to improve our communication.

Course Structure and Policies

Unrestricted Joint Effort - For any assignment presented in this course, ***excluding exams and daily questions***, you may work with anyone and use any outside sources. However, the final product must reflect your own work and ideas. ***Any exceptions must be duly noted through proper documentation techniques***. I strongly encourage the use of fellow students as editors and reviewers of papers prior to your submittal for grade.

Attendance - University Policy is that all students will attend class (see <http://www.uwsp.edu/reg-rec/Attendance.aspx>). Failure to attend class will result in missed DQs and missed information vital to all grading aspects of the course.

Late turn-in policy - The policy for this unlikely event will be a 10% reduction in your score for each day the paper is late. Any exceptional circumstances that may result in an unforeseen late submission (e.g., hospitalization, emergency absence) will be coordinated with your instructor. Missed exams may be rescheduled **within a week** of returning to class. Papers **are due when noted** in the syllabus unless prior arrangements have been made with the instructor.

Cell Phones and Electronic Recording Devices - All cell phones are to be silenced. Should a phone ring in class, I will be more than happy to answer that phone and talk to the caller. Anticipated emergency phone calls can be pre-arranged with the instructor, but the call must be answered outside of the classroom. Electronic recording devices for recording lectures must be pre-approved by the instructor.

Student's Rights and Responsibilities – Understanding your rights and responsibilities as students is an important aspect of your education here at UWSP. Your instructor expects you to understand and adhere to these rights and responsibilities in accordance with UWSP policy. Accordingly, students are encouraged to visit the Community Rights and Responsibilities document on-line at the listed URL below:

<http://www.uwsp.edu/centers/rights/RRBOOKLET8-2005-06.pdf>

Course Withdrawal - Students must withdraw from class in a timely manner in accordance with published deadlines. Failure to do so could result in a failing grade or the loss of reimbursable tuition fees. The published deadlines can be found at:

<http://www.uwsp.edu/news/uwspcatalog/academic.htm#Drop/Add>

Academic Honesty – If I suspect that a violation of academic honesty has occurred, I will pursue disciplinary sanction in accordance with UWS/UWSP 14, “Student Academic Standards and Disciplinary Procedures,” of the Wisconsin Administrative Code, Rules of the Board of Regents of the University of Wisconsin System. Copies of UWS/UWSP Chapter 14 are located at <http://www.uwsp.edu/admin/stuaffairs/rights/rightsChap14.pdf> and in paper form at The Office of Students Rights and Responsibilities, each residence hall, the Reserve Desk of the Learning Resources Center, the University Center Information Center, and the office of each academic dean.

Emergency Response Guidance:

Medical Emergency. Call 911 or use Red Emergency Phone (List Location). Offer assistance if trained and willing to do so. Guide Emergency Responders to victim.

Tornado Warning. Proceed to the lowest level interior room without window exposure in the basement of this Science Building. See www.uwsp.edu/rmgt/Pages/em/procedures/other/floor-plans.aspx for floor plans showing severe weather shelters on campus. Avoid wide-span rooms and buildings.

Fire Alarm. Evacuate the building in a calm manner. Meet at west end of Gym (Swimming pool side). Notify instructor or emergency command personnel of any missing individuals.

Active Shooter: Run/Escapes, Hide, Fight. If trapped hide, lock doors, turn off lights, spread out and remain quiet. Follow instructions of Emergency Responders.

See UW-Stevens Point Emergency Management Plan at www.uwsp.edu/rmgt for details on all emergency response at UW-Stevens Point.”

Title IX. *Under several federal and state laws, and according to several university guidelines, I am required to report acts of a criminal or offensive nature. This includes acts of sexual harassment and assault, bias and hate crimes, illicit drug use, and acts of violence. Any disclosure or description of these incidents – both current and in the past – may be reported to the Dean of Students office (<http://www.uwsp.edu/dos/>) or the local authorities.*

COURSE ASSIGNMENTS

Classroom Attendance & Participation (CAP) Points (200 points – 20%)

CAP points account for 25% of a student's grade in the course. These points result from a calculation at the end of the semester based on how well and how often a student participates in the class or provides items of interest (e.g., articles, cartoons, videos) to the instructor that can assist in another student's learning. These points may also come from pop quizzes or unlisted outside assignments. Should students fail to participate in class, they can expect to receive no better than 90 of 125 points. Active oral participation is essential to do well in this portion of the grading. You can also expect a downgrade in this area for more than one absence. One absence or less will result in a 125 out of 125 points for attendance. Attendance is recorded. The student participation score results daily based on the following scale (0-Slept in class/did not attend, 1-Failed to participate, refused to answer question when called upon or was late to class; 2-participated when called upon; 3-active, voluntary participation). The participation portion of the grade will be calculated using an instructor-derived formula based on your daily score total.

Examinations (250 Points – 25%)

Five quizzes worth 50 points each will test your knowledge of the subject areas. These closed-book examinations will be either multiple-choice question, fill-in-the-blank, essay or any combination of the three. The quizzes, usually administered during the first 30 minutes of the class, will cover material for the previous class periods. Generally, the quizzes will cover main points found within the reading assignments. Students with conflicts are responsible for scheduling and making-up the examination by the next lesson or receive a “0” for that quiz.

On the day after each unit of material, we will have a short quiz, about every three weeks. These quizzes will cover the material addressed in the assigned readings. These quizzes will help you better understand the basic concepts of the class. Each quiz will consist of a brief Q/A session; each student taking the quiz individually; a re-take of the quiz in small groups; and a larger group discussion to increase understanding. Your quiz grade will be calculated by the following formula:

$$(2/3 \times \text{Individual Quiz}) + (1/3 \times \text{Group Quiz}).$$

WRITTEN ASSIGNMENTS

All written assignments will be typewritten and abide by the rules of APA format as outlined in the APA Manual. Additionally, I will review rough drafts, if I receive the rough drafts **at least one week** prior to the due date. This lead-time will help ensure students are not waiting until the last minute, while providing me the time to provide essential feedback so students can revise their paper prior to the due date. This policy encourages a quality product by the students and capitalizes on the educational practice of feedback incorporation. I will discuss your paper and project at length with anyone who is interested.

Stupid Design Project Paper (250 points - 25%) – Each individual will choose a design that you have personally encountered that you believe is very poorly designed, but not one discussed in class. You will explain the current design of the device and why it is poorly design, focusing on the psychological principles you have learned in this class or other classes. Furthermore, you will propose a design that overcomes these deficiencies. Your paper will

highlight how your new design will enhance human performance. **The paper will be a maximum of three pages, double-spaced, 1-inch margins with Times New Roman, 12-point font.** For the papers, each individual can rewrite their paper for turn-in a second time. The rewrite will receive a grade, with an individual's final grade being the average grade for the two papers. This process will allow the student to learn from editorial review and capitalize on improving their writing skills, the objective of a writing emphasis course.

Research Proposal (200 points - 20%). This paper should include the Introduction, Method, and Statistical Analysis Planned sections. Explain in detail how you will test the hypothesis (e.g., the method section). The proposed participants, apparatus, and procedures should be discussed. All measures and supporting material that would be used should be included in an appendix at the end of the paper, observing copyright laws. The paper will contain an analysis section describing the statistics of choice for analyzing the research design. If you are not sure of the analysis, then come see me with your research design and we will determine the correct analysis. **No discussion section** will be required for the research proposal. Please remember to include the title page, the reference pages, and appendices, as necessary.

This paper will be done as a team. Authorship will be based on contribution to the paper. This approach will emphasize that most research projects are done as teams and requires immense effort to ensure a quality paper. To minimize social loafing, each member's grade will be a combination of the team's grade adjusted by the team's evaluation of your contribution to the project. This evaluation will be confidential and done during class on the day the paper is due. Your team of three/four individuals will present their project in class during the final.

Final Research Presentation (100 points - 100%) - Each team will elaborate on the team-selected design and explain the theories that explain what you intend to evaluate. Your presentation is essentially trying to student must explain the movie well enough that other students in the class understand the plot or background of the movie. Each team will then describe the importance of the chosen leader and what leadership attributes s/he possessed. Next, each team will choose one of the many leadership theories/concepts discussed in class and then make critical connections between the theory and your chosen movie's leader. Due to its late turn-in date, this paper will not be able to be turned in a second time.

Bonus Points (15 Points maximum)

To encourage an in-depth reading and review of this syllabus and other course material, this instructor will award any student 1 point (up to a maximum of 15 points-1.5% of your grade) for any error that s/he discovers in any of the instructor's written documents. Only the first individual who notifies the instructor of the error will receive the point. So as not to interrupt the class, students are to notify the instructor before or after class via email. E-mail is the acceptable method of notification as this provides this instructor with a traceable record for assigning the bonus points. Only students who email the error will get credit. Verbal notification is not enough. However, if two students should have the same error listed, I will use the date/time of the message to indicate who was first. The instructor will keep a master copy of the student's name for each error for each document. Since I strive to produce the best product possible, this approach will help me reach my goal of zero errors in my materials. Should a student also receive a verbal bonus point in class, that student must again email the instructor reminding him of that bonus point awarded on that day. Delayed or Non-notification results in loss of the bonus point.

Course Grading Summary	Points	%	SCORE
CAP	200	20	_____
Quiz 1-5 (60 points each)	240	24	_____
Stupid Design Project Paper	250	25	_____
Research Proposal	210	21	_____
<u>Final Research Presentation</u>	<u>100</u>	<u>10</u>	<u>_____</u>
Total	1000	100	

Quiz 1 _____ Quiz 2 _____ Quiz 3 _____ Quiz 4 _____ Quiz 5 _____

THE MEANING OF GRADES IN PSYC 490

Since scores on papers and examinations reflect the student's ability, instructor's grading tendencies, and the difficulty of the test, a contract grade schedule for this course would be inappropriate. Therefore, this course will not use a rigid contract for converting percentages to letter grades. However, the following guidelines will be used to assign points on essays and projects. For example:

A	94-100	B+	88 – 89.99	C+	78 – 80.99	D+	67 – 70.99
A-	90-93.99	B	84 – 87.99	C	74 – 77.99	D	64 – 66.99
		B-	81 – 83.99	C-	71 – 73.99	F	Below 64

The most important question remains: What do these examinations mean in terms of academic performance. The typical project will fall into the following guidelines.

An “Average” (C) paper should meet the following standards:

- Conform to the basic requirements of the assignment, and address all relevant questions asked;
- Exhibit sound organization: a clear purpose adequately supported by main ideas that are easily identified;
- Be intellectually sound in developing a strong thesis, using argument strategies appropriate to the writing;
- Conform to APA guidelines with regard to word choice, sentence construction, and overall format; and
- Be turned in on the data assigned.

A “Better Than Average” (B) paper should meet the foregoing tests and also:

- Contain elements of vividness and special interest in its style;
- Be of more than average stimulative quality in challenging the reader to think or in arousing depth of response; and
- Demonstrate skill in understanding unusually difficult concepts or processes or in winning agreement from readers initially inclined to disagree with the writer’s purpose.

A “Superior” (A) paper not only meets the foregoing standards, but also:

- Constitutes a genuinely individual contribution by the writer and
- Achieves a variety and flexibility of mood/manner suited to the presentation.

**PSYC 490-Human Factors
Fall 2018 Schedule**

Lesson	Topic	Readings	Items Due
September			
10	Course Introduction Understanding Human Factors	Chapter 1 (16)	Syllabus
17	Design Methods	Chapter 2 (34)	
24	Evaluation Methods	Chapter 3 (28)	
October			
1	Visual Sensory System	Chapter 4 (44)	Quiz 1 (5%)
8	Auditory-Other Senses (Project 1)	Chapter 5 (38)	
15	Cognition	Chapter 6 (40)	Quiz 2 (5%)
22	Decision Making	Chapter 7 (42)	
29	Displays	Chapter 8 (40)	Quiz 3 (5%)
November			
5	Controls	Chapter 9 (40)	
12	Displays and Controls Research Proposal Discussion	Chapters 8-9	SDP paper (25%)
19	Human-Computer Interaction	Chapter 10 (34)	Quiz 4 (5%)
	Have a Happy Thanksgiving Break!		
26			
December			
3	Human-Automation Interaction	Chapter 11 (31)	
10	Research Presentation Discussion		Quiz 5 (5%) Proposal (20%)
17	Presentations-Monday (10:15-12:15)		11%
	Merry Christmas-Happy Holiday!		