

PSY 436/536 Human Performance

CRN 26253 (436); CRN 26254 (536)

4 credits

**Lecture**

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Office Hours: M,W 1:00-2:30pm in 232 LISB
Lecture: M,W 4:00-5:20pm in 221 MCK

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Office and Office Hours: T,R 4:30-6:00pm in 350 LISB

Course Description

In this course, we will examine the perceptual, motor and intellectual capacities and limitations of the human brain, including discussions of the neural bases of these capacities, the role of attention, the flow of information within the nervous system, and applications of performance principles to human-machine systems and clinical populations. Although the only prerequisites for the course are PSY 302 and 303, the material in the course is in many ways an extension of the material presented in other psychology courses (Cognition, Learning & Memory, Perception, Psycholinguistics, etc.). In addition, this course will cover many mathematical descriptions of human performance. *However, this course will be conducted in a way that does NOT assume that you have completed these other psychology courses or your math requirements.*

Course Objectives

This course has both substantive and methodological objectives. By the end of the course, students should have a broad familiarity with human factors psychology and the ways in which psychological research and methodology have been applied to address human factors problems. Students should be able to read the relevant literature and perform simple human factors analyses using standard psychological and statistical methods, Cognitive Task Analysis, and Signal Detection Theory.

Course Pre-Requisites

Successful completion of Psychology 303 (Research Methods) is a pre-requisite for this course. We will review important methodological factors as they apply to human performance, but this should not be 'new' material to you.

Textbook

Required Books (1):

Wickens, C.D., Hollands, J.G., Banbury, S., & Parasuraman, R. (2013). *Engineering Psychology and Human Performance* (4th ed.). Upper Saddle River, NJ: Pearson.

Note that we will only be using selected chapters from the textbook (i.e., chapters 1,2,3,4,6,7,9,11). **A course packet for the selected chapters can be found in the bookstore**, at a price significantly less than the entire textbook.

Blackboard

Blackboard will be used in this course as an online resource for the syllabus, powerpoint lecture slides, assignments, study guides, additional/supplemental readings, and weblinks. It is recommended that you frequently check Blackboard in order to stay up to date on the course materials that are posted from week to week. Please note that while you may have access to the lecture slides ahead of time, attending class will be crucial to doing well in the course. The blackboard site for this course can be found at: <http://blackboard.uoregon.edu>.

Course Format

The material in this course will be presented through a combination of assigned reading from the text and additional handouts, class lectures, in-class discussion, and demonstrations. Lecture material and readings will have some overlap, but will not be replications of each other; some lecture material will not be covered in the readings and vice versa. You are expected to do the assigned reading *before* the class period in which it is due.

Course Points and Grading

Quizzes: 30 points

Assignments: 20 points

Midterm Exam 1: 75 points

Midterm Exam 2: 75 points

Final Exam: 100 points

Human Performance Papers: 50 points

Total Points: 350

Final course grades will be assigned based on your total percentage points in the course (i.e., your final point total/350), based on the table below. Note that extra credit is not offered in the course.

GRADE	PERCENTAGE		GRADE	PERCENTAGE
A+	99-100%		C	72-77.9%
A	92-98.9%		C-	70-71.9%
A-	90-91.9%		D+	68-69.9%
B+	88-89.9%		D	62-67.9%
B	82-87.9%		D-	60-61.9%
B-	80-81.9%		F	59.9% and Below
C+	78-79.9%			

Course Components

Quizzes (30 points):

There will be 7 quizzes throughout the term worth 6 points each. They will consist of 3 multiple-choice questions (worth 2 points each) and will be based on both lecture and textbook material. Of the seven quizzes, the two with the lowest scores will be dropped, with the total score of the remaining five (up to 30 points) counting toward your final grade. No make-up quizzes will be offered; if you miss a quiz, that grade will be one of the two that will be dropped. Be sure to keep the quizzes for later study materials, as some of the quiz questions may appear on exams.

Assignments (20 points):

Five times throughout the term, we will do an in-class activity. The activities will be based on in-class demonstrations, article discussions, and real-world applications of human performance related topics. A participation worksheet will be given with each activity, which is due at the end of class that day. Each activity is worth 5 points and, since they are based on in-class participation, cannot be made up. However, I will drop one of the activities (if you happen to miss one) so that only the highest 4 will count toward your final grade (20 points total, for 4 activities).

Exams (250 points):

There will be three exams throughout the term (see course calendar for specific dates), two midterms (worth 75 points each) and a final exam (worth 100 points). Each exam will cover the textbook chapters listed in the course calendar in addition to the lecture material we covered in class. The exams will consist of multiple-choice, matching, fill-in-the-blank, and short answer questions. The final exam will contain questions drawn from the entire course, but with a greater focus on material covered after the second midterm. Study guides will be handed out one week prior to the exam date, and you will not need to bring scantron forms. **No make-up exams will be given without evidence of a valid excuse**, and the final cannot be taken earlier or later than the time listed in the University final exam schedule – if you know in advance that you cannot take all exams on the appointed dates (see the course schedule below), do not take this course! If unforeseen circumstances during the term prevent you from taking an exam, notify the instructor immediately.

Human Performance Papers (50 points):

Paper 1: Human Performance in the Real World (25 points). The purpose of this paper is to examine a human performance-related issue in the real world. For example, potential topics include: What factors enhance signal detection in radiologists? How do spatial displays affect eye-witness testimony? How do vigilance and fatigue affect performance of TSA agents? How does multitasking affect driving performance? How does stress affect performance of air traffic controllers? What human factors contributed to incident X (e.g., plane accident, major disaster, etc.)? Note that these are only sample topics – if you come up with your own topic, make sure to first run it by the instructor for approval. A good source for other potential topics can also be found in the textbook.

Once a topic is selected, you will then search for two articles on the topic. One of these articles can be a media article of the topic (e.g., a news story of major accident), while the other should be a peer-reviewed article from an academic journal (i.e., an article with data collected to investigate a specific question related to the topic of interest, that is published after 1980). I would suggest first

searching for peer-reviewed articles on PsychINFO, Google Scholar, and Medline searches (for online assistance in your search, see <http://libweb.uoregon.edu/guides/psychology/>). Students will then write a 2 – 3 page paper (double-spaced, 1 inch margins, 11-12 point font) that includes 1) a description of the topic and its application to the real world, 2) a summary of the journal article and main findings of the study, and 3) an analysis of how, based on the article/s read, human performance-related factors contribute to the real-world topic selected. In regards to formatting (e.g., title page, font size, margins, page numbers, citations and references), the paper should be written in APA style (reference copies of the APA Publication Manual are available in many of the University Libraries). However, you are not required to have separate sections for the introduction, methods, results, etc. (i.e., it is acceptable to have the text as one flowing document, not broken into sections). *The paper should be in your own words* – as a general rule, I do *NOT* allow any quotations (even properly cited ones), since their inclusion prevents you from demonstrating that you understood the quoted material. Further guidelines for this paper will be provided in class.

Papers are due at the beginning of class on the day they are due (see course calendar below). Finally, **plagiarism will not be tolerated**, and will be dealt with according to official University policy (see section on Academic Honesty below).

Paper 2: Human Performance in Your World (25 points). The purpose of this paper is to examine a human performance-related issue in your own life. This can include academic performance (e.g., how study strategies/environments affect your performance), athletic performance (e.g., how different types of training facilitate or hinder your performance in a sport), job performance (e.g., how multitasking or attentional distractors affect performance at your job), or every day performance-based behaviors you concurrently engage in (e.g., what are some of the factors that contribute to memory lapses, motor errors, etc.).

Once a topic is selected, you will then search for two articles on the topic, both of which should be peer-reviewed articles from academic journals. This paper will have the same formatting and general guidelines as the first (e.g., 2-3 pages double-spaced, 11-12 pt. font, APA style), but this one should include 1) a description of your own performance-related topic, 2) a summary of the main findings of the studies, and 3) an analysis, based on the articles read, of the factors that contribute to your own performance-related issue (i.e., what may lead you to make fewer errors, or perform faster, or better train, etc.). Additional guidelines will be provided in class.

PSY 536 (Graduate Credit)

In addition to the course work above, students taking the course for graduate credit will also be required to prepare and deliver a 5-10 minute class presentation on their ‘Human Performance in the Real World’ paper, or on a psychological phenomenon that fits within the topics of discussion in the course. For optimal success, students should do more than just relate the information presented in the paper/literature; successful presentations should also include a demonstration, video, data, or interactive class activity. The presentation will be worth 20 points that will count toward your final grade (i.e., for graduate students, total course points are therefore based on 370 total points possible), and will be graded on the following three criteria as assessed by the instructor: 1) the presentation’s effectiveness at demonstrating the real world issue/phenomenon; 2) the creativity of the presentation; and 3) the amount of work that was required in creating the presentation (e.g., writing a computer program to demonstrate the performance effects of divided attention will be worth much more than simply reading a newspaper article on the performance effects of using a cell phone while driving). Once the presentation is prepared, please contact the instructor regarding scheduling a time in class to deliver the presentation.

Course Expectations

Academic Honesty:

Group discussion outside of class is encouraged. However, all work submitted in this course must be your own and produced exclusively for this course. Copying or paraphrasing information from any source, print or electronic, without citation, is plagiarism. The use of sources must therefore be properly acknowledged and documented. The consequences of academic dishonesty will be taken seriously (e.g., an 'F' in the course and a report to the Office of Student Conduct) and are noted on student disciplinary records. If you are in doubt regarding any aspect of these issues, please come and speak with me.

Academic Responsibility:

Attendance is critical to earning a good grade for the course. I do not take roll, however, it is very important that you show up to class to participate. This class will be guided by University Policies that entails a standard of responsibility, honesty, and integrity for me, your classmates, and the work that you do. This also means that you should do your absolute best to attend every class meeting, and to come to class prepared and ready to participate in our discussions. There will be topics in lecture that may not be in the textbook, and there will be exam questions based on lecture material. In addition, there will be certain things we shall do in class (demonstrations, videos, etc.) to which exam questions will apply, and therefore, you must show up if you wish to do well on the exams. This course has been designed to comply with the psychology department's guidelines for teaching and learning. Please review these guidelines at <http://psychweb.uoregon.edu/guidelines/index.htm>

Due Dates and Late policies: Due dates for the term paper are contained in the course outline. A term paper turned in after its deadline will be marked down 10% for each day late, and will not be accepted after 5:00pm on Friday of finals week. Activity assignments are due by the end of lecture on the appropriate date, and can be turned in to the instructor at the end of class.

Student Accommodations

Accessible Education Center:

If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with me. Also, please request that the Counselor for Students with Disabilities, Molly Sirois, send me a letter verifying your disability. The phone number for disability services is 346-1155 and the email address is disabsrv@uoregon.edu.

Students for Whom English is Not Their Native Language:

Foreign language dictionaries are permitted during exams. Exams will be designed to take approximately one hour to complete within an hour and twenty minute period; therefore, it is unlikely that you will need additional time. However, if you find that you do need additional time to complete the exam, please make arrangements with me ahead of time.

Academic Learning Services:

If you have difficulty with the course materials at any time, you are encouraged to contact the instructor for assistance. In addition, the resources of the Academic Learning Services (<http://als.uoregon.edu/services/services.html>) can be invaluable to students that require assistance in, for example, perfecting good study habits or honing their writing skills.

Course Calendar				
Week	Date	Lecture Topic	Chapter Readings	Exams/Quizzes/Activities
1	Mon., 1/5	Course Overview; Introduction to Engineering Psychology and Human Performance	Chapter 1	Quiz 1 (take-home; due 1/12)
	Wed., 1/7	Signal Detection and Absolute Judgment	Chapter 2	
2	Mon., 1/12	Signal Detection and Absolute Judgment	Chapter 2	Quiz 2 (Quiz 1 due)
	Wed., 1/14	Signal Detection and Absolute Judgment	Chapter 2	Activity 1
3	Mon., 1/19	No Class (Holiday)		
	Wed., 1/21	Attention in Perception and Display Space	Chapter 3	Quiz 3
4	Mon., 1/26	Attention in Perception and Display Space	Chapter 3	Activity 2
	Wed., 1/28	Attention in Perception and Display Space	Chapter 3	Quiz 4 Paper 1 due
5	Mon., 2/2	Midterm Exam 1 (Chapters 1-3)		Midterm Exam 1
	Wed., 2/4	Spatial Displays	Chapter 4	
6	Mon., 2/9	Spatial Displays	Chapter 4	Activity 3
	Wed., 2/11	Language and Communications	Chapter 5	Quiz 5
7	Mon., 2/16	Memory and Training	Chapter 6	Activity 4
	Wed., 2/18	Memory and Training	Chapter 6	Quiz 6
8	Mon., 2/23	Midterm Exam 2 (Chapters 4-6)		Midterm Exam 2
	Wed., 2/25	Selection of Action	Chapter 7	Activity 5
9	Mon., 3/2	Selection of Action	Chapter 7	
	Wed., 3/4	Mental Workload, Multitasking, Stress, and Individual Differences	Chapter 8	Quiz 7
10	Mon., 3/9	Mental Workload, Multitasking, Stress, and Individual Differences	Chapter 8	
	Wed., 3/11	Final Exam Review		Paper 2 due
FINALS WEEK	Monday, 3/16 At 2:45pm	Final Exam (Chapters 7-8, & Comprehensive)		Final Exam

NO WORK OF ANY KIND WILL BE ACCEPTED AFTER FRIDAY, MARCH 20th