San José State University  
Department of Psychology  
PSYC 173: Human Factors  
Section 1, Summer 2017

Instructor Contact Information

Instructor: Dave Schuster, Ph.D.

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Office Hours: Available by appointment only; no office hours for summer

Course Information

Classroom Clark Building 318

Class Days/Time: Tues. & Thurs., 1:00pm - 5:10pm

Prerequisites PSYC 001

Course Description

How can technology make our lives safer, more efficient, and more enjoyable? To answer this question, you need to consider the capabilities, characteristics, and limitations of people. This course will introduce you to human factors, a field focused on understanding the interactions among humans and other elements of human-machine systems.

From the catalog: Human psychology and physiological characteristics and methods for taking these into account in designs and development of human-machine systems. Current human factor engineering efforts in lab, design process and operational environment.

Course Format

This course uses elements from a flipped classroom delivery format. Internet access is required, as described below.
Learning Outcomes

Program Learning Outcomes
Upon successful completion of the requirements for a major in psychology, students will be able to:

- PLO1 - Knowledge Base of Psychology - identify, describe, and communicate the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology
- PLO2 - Research Methods in Psychology - design, implement, and communicate basic research methods in psychology, including research design, data analysis, and interpretations
- PLO3 - Critical Thinking Skills in Psychology - use critical and creative thinking, skeptical inquiry, and a scientific approach to address issues related to behavior and mental processes
- PLO4 - Application of Psychology - apply psychological principles to individual, interpersonal, group, and societal issues
- PLO5 - Values in Psychology - value empirical evidence, tolerate ambiguity, act ethically, and recognize their role and responsibility as a member of society

Course Learning Outcomes
The major goal of this course is to provide you with an introduction to Human Factors as it is used in science and practice.

Upon successful completion of this course, you will be able to:

- CLO1 - Describe human factors, appropriately use its fundamental terminology, and describe its importance in the effectiveness of human-machine systems
- CLO2 - Apply research, principles, and methods of human factors to human-machine system design, system evaluation, and training
- CLO3 - Describe how human capabilities and limitations interact with design to affect human-machine system performance
- CLO4 - Perform basic usability testing

The learning objectives will be assessed via assignments, exam questions, and the final project.

Required Materials

Canvas and E-Mail
Unless otherwise announced in class, all graded assignments will be accepted only in electronic form using the Canvas learning management system assignments page. Having access to the Internet is your responsibility, so have backup plans in case you have problems with your primary computer. I cannot accept excuses about technology problems as valid, unless the entire University network or all of Canvas is offline.

Supplementary course material will be made available on Canvas regularly. Communication regarding the course will be sent via the e-mail address linked to your MySJSU account or posted to Canvas. It is your responsibility to make sure you are enrolled in Canvas and receiving my e-mails.

Required Textbook
You will need the textbook throughout the course and occasionally during class. Because the purchase price of this text is high ($255.60 new at the Spartan Bookstore, which is $20 more than the bookstore charged for this same book last semester), rental options are recommended for students who may not need the text beyond this course ($35.65 for rental through August from amazon.com; $43.48 rental from barnesandnoble.com). These prices were obtained on June 2, 2016.

**Laptop or Tablet (recommended)**

You are encouraged to bring a laptop computer or a tablet to class, since most materials will be available through Canvas, but a laptop is not required. Laptops can only be used during class for course-related work. Instead of bringing a laptop, you can print materials from Canvas and bring them to class.

**Calculator**

You will occasionally need a scientific or graphing calculator for this course; a calculator app on a phone, tablet, or laptop is fine. Bring a calculator to every class meeting. You will not need (or be allowed to use) your calculator during exams. Your calculator must have statistics functions, a square root function, and an exponent button.

**Grading Policy**

**How to be Successful in this Course**

It is *essential* that you make time to:

- Check Canvas and your e-mail for course announcements and changes
- Read the assigned textbook pages and readings posted to Canvas
- Check this syllabus for due dates and upcoming assignments and plan accordingly
- Attend class meetings
- Complete any work at home for the activity and remember to turn it in
- Ask questions in class or via e-mail

**Determination of Grades**

Grades will be available to you on Canvas throughout the course. Grades are assigned based on your final point total (out of 1000 points for the course):

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
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<tbody>
<tr>
<td>A+</td>
<td>966+</td>
</tr>
<tr>
<td>A</td>
<td>916 - 965</td>
</tr>
<tr>
<td>A-</td>
<td>896 - 915</td>
</tr>
<tr>
<td>B+</td>
<td>866 - 895</td>
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<tr>
<td>B</td>
<td>816 - 865</td>
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<tr>
<td>B-</td>
<td>796 - 815</td>
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<tr>
<td>C+</td>
<td>766 - 795</td>
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<tr>
<td>C</td>
<td>716 - 765</td>
</tr>
<tr>
<td>C-</td>
<td>696 - 715</td>
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</tbody>
</table>
Rounding is Included in the Grading Scale
The point totals reflect rounding up to the nearest percentage. For example, an A- would normally require 900 points (or 90% of 1000 points). With rounding, it only requires 896 points (or 89.6% of 1000 points). Because rounding is built in to the grading scale, your grade will be based on your final point total, rounded to the nearest whole point (so, 895.75 points is an A-, but 895.25 points is a B+). To be fair to everyone in the class, these are firm cutoffs; please do not ask for more rounding, special extra credit, or other unfair adjustments to your grade.

Grade Checks
Under Federal privacy laws, I can never e-mail grades to you. Instead, you have my official permission to use the Canvas printout as a record of your current progress in the course. If you need a signed grade check, then please bring the grade check form with a printout of your current Canvas grade to my office hours. Grade checks are only available during office hours or by appointment.

Course Requirements and Assignments

Activities
Activities are 20% of your final grade (200 points total). There are no make-ups or extensions on activities for any reason.

Each activity is worth 34 points. Activities are designed to give you hands-on practice with the techniques discussed in the lecture and readings. Activities will be assigned most weeks and will be due either at the end of class or immediately at the start of the next class meeting. You may be asked to complete a homework portion of the activity before or after we meet; these are required to receive credit. You must be present for the entire in-class portion of the activity to receive credit. You are encouraged to work collaboratively, but everyone must do his or her own work unless otherwise specified; copying is not allowed and will not be tolerated.

Note that strict policies apply to the activities:

- There are no make-ups or extensions on activities for any reason. Most activities require equipment or class collaboration, so they would be logistically difficult to reschedule.
- Late activities are not accepted. All deadlines are strict. No credit is awarded for late work.
- All activities must be submitted online from the assignment page on Canvas. Hard copies are not accepted.
- In place of make-ups, extensions, and partial credit, the lowest activity grade is dropped. You do not need to notify me if you will miss an activity, although I am happy to discuss its content with you when you return.

Exams
Exams are 60% of your final grade (600 points total).
Each exam is worth 200 points. The three exams will focus on applying the knowledge learned in the previous part of the course. While they are not intended to be cumulative, later exams may require skills and knowledge learned in the earlier part of the course. The exams are closed book.

**Final Examination or Evaluation**  
*The final project is 20% of your final grade (200 points total).*

You will be asked to prepare a project on a topic of your interest. More details about the project, including a rubric for grading, will be posted to Canvas during the course. As part of the project, you will present your work in a poster presentation. This presentation will take place during our scheduled final exam period, and you must be present to receive credit.

**Extra Credit**  
Your grade should reflect your performance in the course over the entire course. For this reason, there are limited opportunities for extra credit.

**Make-Up and Extension Policy**  
Make-ups or extensions for any graded assignment will only be given when:

- The assignment is not labeled, “no make-ups or extensions for any reason.”
- The reason is exceptional, unforeseen, and unavoidable. Examples of exceptional circumstances are health emergencies, religious obligations, and military service. Work scheduling is not a sufficient reason for a make-up or extension.
- You provide written documentation.
- You notify me immediately after you become aware of the circumstances requiring a make-up or extension by filling out this form:

If the need for a make-up is known before the assignment due date, the assignment must be completed early. Make-up exams will be scheduled based on instructor availability. Do not e-mail your instructor with requests for a make-up or extension; instead, complete the request form.

**Classroom Protocol**  
We will be working in groups frequently. The success of our class depends on respect for everyone involved. Specifically:

- Come to class having read the assigned material. Showing up unprepared is unfair to the rest of your group and will waste your time as well. If you are unprepared, excuse yourself from your group to catch up on your own.
- Class will start on time; avoid arriving late. If you are late, enter quietly.
- Silence your electronics during class.
- Don’t text, check your phone, IM, surf off-topic websites during class, or sleep; if you need to do these things, leave the room quietly and return quietly when finished. If you do any of these things in class, you will be asked to leave.
- Stay on topic during group work.
University Policies
Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs’ Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/.

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, and clinical practica.

About Diversity
Consistent with the mission of San José State University, I welcome persons of differing backgrounds and experiences including but not limited to age, disability and health status, ethnicity and race, family structure, geographic region, language, religious/spiritual and secular beliefs, resident status, sex, sexual orientation and gender identity/expression, and socioeconomic status.

It is my goal to foster an environment in which diversity is recognized and embraced, and every person is treated with dignity, respect, and justice. I hope that your academic experience in this course and at San José State University will provide the opportunity to gain knowledge and experiences necessary to thrive in a diverse, global environment.

Useful Software at No Cost

**Microsoft Office at No Cost**
SJSU’s license for Microsoft Office allows you a free subscription to Office 365, which includes downloads of Word, Excel, PowerPoint, and others. Visit the eligibility web site at http://www.office.com/getoffice365.

**Adobe Creative Cloud at No Cost**
SJSU provides students with free Adobe software for SJSU-related activities. Visit the program web site at http://its.sjsu.edu/services/software/adobe/.

**Axure Prototyping Tool at No Cost**
Axure provides a free non-commercial license to SJSU students who submit proof of enrollment. This software is not required for this course but may be useful. Visit Axure’s web site at http://www.axure.com/edu. This free license is provided by Axure, not SJSU, and is subject to their licensing terms.
Course Schedule

The course schedule is subject to change; modifications will be posted to Canvas.

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Date</th>
<th>Topics</th>
<th>Readings from Wickens et al. (2004) other readings will be required &amp; posted to Canvas</th>
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<tr>
<td>1</td>
<td>Tue. June 6</td>
<td>Definitions and history</td>
<td>Chapters 1-3</td>
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<td>Human factors methods</td>
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<td></td>
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<td>Activity 1</td>
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<td>2</td>
<td>Thu. June 8</td>
<td>Sensation and perception</td>
<td>Chapters 4 &amp; 5</td>
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<td>Activity 2</td>
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<td>Tue. June 13</td>
<td>Exam Review</td>
<td>Exam 1</td>
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<td>4</td>
<td>Thu. June 15</td>
<td>Cognitive factors</td>
<td>Chapters 6 &amp; 7</td>
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<td>Decision making</td>
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<td>Activity 3</td>
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<td>5</td>
<td>Tue. June 20</td>
<td>Automation</td>
<td>Chapters 15 &amp; 16</td>
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<td>Human-computer interaction</td>
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<td>Activity 4</td>
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<td>Thu. June 22</td>
<td>Displays</td>
<td>Chapters 8 &amp; 9</td>
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<td>Control</td>
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<td>Activity 5</td>
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<td>7</td>
<td>Tue. June 27</td>
<td>Exam 2</td>
<td>Chapters 10 &amp; 11</td>
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<td>Physical ergonomics &amp; anthropometry</td>
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<td>Activity 6</td>
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<td>8</td>
<td>Thu. June 29</td>
<td>Safety</td>
<td>Chapters 13 &amp; 14</td>
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<td>Stress and workload</td>
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<td>Activity 7</td>
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<td>9</td>
<td>Tue. July 4</td>
<td>Fourth of July, No class meeting</td>
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<td>10</td>
<td>Thu. July 6</td>
<td>Exam 3</td>
<td>Project Presentations</td>
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