San José State University
Department of Psychology
PSYC 173: Human Factors
Section 1, Spring 2019

Instructor Contact Information

Instructor: Dave Schuster, Ph.D.
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E-mail: david.schuster@sjsu.edu
Office Hours: Tues. & Thurs., 1:00pm – 2:00pm

Course Information

Classroom: CL 117
Class Days/Time: Tues. & Thurs., 9:00am – 10:15am
Prerequisites: PSYC 001

Course Format

A mobile device with internet access is required, as described below.

Course Description

How can technology make our lives safer, more efficient, and more enjoyable? To answer this question, this course will introduce you to human factors, a field focused on understanding interactions among people, technologies, and other elements of a human-machine system. Human factors professionals improve human-machine systems by considering the capabilities, characteristics, and limitations of people.

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 technology intensive course uses elements from a flipped classroom delivery format. Required technology is 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

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 (Canvas is available at https://sjsu.instructure.com/). 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.

Mobile Device
This course requires you to use a mobile computing device during class activities, preferably a laptop or tablet. A smartphone will also work, but a laptop is recommended. The mobile computing device must support HTML5 web browsing, spreadsheets, a calculator, and word processing. You will have the best
experience if you can bring a laptop to class. I trust that you will avoid using your technology to distract your classmates, as off-topic technology use will not be tolerated.

Required Texts/Readings

You will need the textbook during the semester. Besides using it for readings, we will use the textbook as reference material (e.g., tables of anthropometry data). Additional Readings will be made available on the Canvas site.

Grading Policy

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>A+</td>
<td>&gt; 965 points</td>
</tr>
<tr>
<td>A</td>
<td>916 to 965 points</td>
</tr>
<tr>
<td>A-</td>
<td>896 to 915 points</td>
</tr>
<tr>
<td>B+</td>
<td>866 to 895 points</td>
</tr>
<tr>
<td>B</td>
<td>816 to 865 points</td>
</tr>
<tr>
<td>B-</td>
<td>796 to 815 points</td>
</tr>
<tr>
<td>C+</td>
<td>766 to 795 points</td>
</tr>
<tr>
<td>C</td>
<td>716 to 765 points</td>
</tr>
<tr>
<td>C-</td>
<td>696 to 715 points</td>
</tr>
<tr>
<td>D+</td>
<td>666 to 695 points</td>
</tr>
<tr>
<td>D</td>
<td>616 to 665 points</td>
</tr>
<tr>
<td>D-</td>
<td>595 to 615 points</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 595 points</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, 895.6 points is an A-, but 895.4 points is a B+). To be fair to everyone in the class, these are firm cutoffs.
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:
- You submit a request form at http://goo.gl/forms/0yjQ2KbvtP.

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.

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 grade in the course. If you need a signed grade check, then please bring the grade check form to my office hours or make an 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.

Typically, our second class meeting each week will be dedicated to an activity. The 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 immediately at the start of class on the following Tuesday. You may be asked to complete a homework portion of the activity before we meet; these are required to receive credit. You must do the homework and 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.

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. If you arrive late to class after an activity has been collected, it will not be accepted for credit.
- In place of make-ups or extensions, the lowest three grades for these activities are dropped. Three activities are dropped with the understanding that you may miss one or two for an otherwise valid reason (for example, an illness, family emergency, or a school-sponsored activity). You do not need to notify me when 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.

**Project**

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

Instead of a final exam, 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 semester. As part of the project, you will present your work in a poster presentation. This presentation will take place during a class meeting, and you must be present to receive credit.

**Classroom Protocol**

We will be working in groups frequently. This will only work if you come prepared to class, arrive on time (entering quietly if you are late), silence your electronics, are polite and respectful to everyone in the room, refrain from off-topic activities during lecture or group work, and speak up when you are confused, have questions, or need help.

**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/](http://www.sjsu.edu/gup/syllabusinfo/).

You must obtain the instructor’s permission to make any audio or video recordings in this class.

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 three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

**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.
Course Schedule

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

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Readings</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Thu., Jan. 24</td>
<td>Definitions and history</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>2</td>
<td>Tue., Jan. 29, Thu., Jan. 31</td>
<td>Human factors methods of practice</td>
<td>Chapter 2</td>
</tr>
<tr>
<td>3</td>
<td>Tue., Feb. 5, Thu., Feb. 7</td>
<td>Human factors scientific methods</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>4</td>
<td>Tue., Feb. 12, Thu., Feb. 14</td>
<td>Human performance</td>
<td>Chapters 4 &amp; 5</td>
</tr>
<tr>
<td>5</td>
<td>Tue., Feb. 19, Thu., Feb. 21</td>
<td>Exam review (Tue.)</td>
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<tr>
<td></td>
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<td>Exam 1 (Thu.)</td>
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<tr>
<td>6</td>
<td>Tue., Feb. 26, Thu., Feb. 28</td>
<td>Cognitive factors</td>
<td>Chapter 6</td>
</tr>
<tr>
<td>7</td>
<td>Tue., Mar. 5, Thu., Mar. 7</td>
<td>Decision making &amp; macrocognition</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>8</td>
<td>Tue., Mar. 12, Thu., Mar. 14</td>
<td>Displays &amp; Control</td>
<td>Chapters 8 &amp; 9</td>
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<tr>
<td>9</td>
<td>Tue., Mar. 19, Thu., Mar. 21</td>
<td>Exam review (Tue.)</td>
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<td>Exam 2 (Thu.)</td>
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<td>10</td>
<td>Tue., Mar. 26, Thu., Mar. 28</td>
<td>Human-computer interaction</td>
<td>Chapter 10</td>
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<tr>
<td>11</td>
<td>Tue., Apr. 2, Thu., Apr. 4</td>
<td>Spring Break</td>
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<tr>
<td>12</td>
<td>Tue., Apr. 9, Thu., Apr. 11</td>
<td>Automation</td>
<td>Chapter 11</td>
</tr>
<tr>
<td>13</td>
<td>Tue., Apr. 16, Thu., Apr. 18</td>
<td>Physical ergonomics &amp; anthropometry</td>
<td>Chapter 12</td>
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<tr>
<td>14</td>
<td>Tue., Apr. 23, Thu., Apr. 25</td>
<td>Stress, workload, and safety</td>
<td>Chapters 15 &amp; 16</td>
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<tr>
<td>15</td>
<td>Tue., Apr. 30, Thu., May 2</td>
<td>Design of jobs and organizations</td>
<td>Chapters 17 &amp; 18</td>
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<tr>
<td>16</td>
<td>Tue., May 7, Thu., May 9</td>
<td>Project Presentations</td>
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<tr>
<td>Final</td>
<td>Fri., May 17</td>
<td>Exam 3: 7:15am – 9:30am</td>
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