Course Description

Comprehensive study of ergonomics and ergonomic principles with particular attention given to ergonomic development in the workplace. Design and evaluation of ergonomic systems and specific contents of ergonomic program design and development are given special attention.

Course Textbook


Course Learning Objectives

Upon completion of this course, students should be able to:

1. Explain and discuss the structure of the human body.
2. Formulate an overview and assessment of the linkage between the mind and the body.
3. Illustrate and explain the principles behind basic human senses.
4. Illustrate environmental factors that affect the human body, and explain their interaction and relationships.
5. Generate specific stimuli to the body, and how these affect human performance.
6. Identify, explain and analyze elements of effective and non-effective ergonomic models.
7. Explain ergonomic design and how it applies in a variety of contexts.
8. Formulate a research question, develop a method to answer the question, collect and analyze results, recommend mitigation measures and report all in an APA formatted research paper.

Credits

Upon completion of this course, the students will earn three (3) hours of college credit.

Course Structure

1. **Unit Learning Objectives**: Each unit contains Unit Learning Objectives that specify the measurable skills and knowledge students should gain upon completion of the unit.
2. **Written Lectures**: Each unit contains a Written Lecture, which discusses lesson material.
3. **Reading Assignments**: Each unit contains Reading Assignments from one or more chapters from the textbook.
4. **Learning Activities**: Each unit contains Learning Activities. These are non-graded exercises to help broaden the student’s knowledge of the information covered in each course unit.
5. **Key Terms**: Key Terms are intended to guide students in their course of study. Students should pay particular attention to Key Terms as they represent important concepts within the unit material and reading.
6. **Discussion Boards**: Discussion Boards are a part of all CSU term courses. Information and specifications regarding these assignments are provided in the Academic Policies listed in the Course Menu bar.
7. **Unit Assessments**: This course contains six Unit Assessments – to be completed at the end of Units I-III and V-VII.
8. **Article Critique**: Information and specifications regarding this assignment are provided below in the syllabus. You will submit the completed assignment in Unit IV.
9. **Research Paper**: Information and specifications regarding this assignment are provided below in the syllabus. You will submit the completed assignment in Unit VIII.
10. **Ask the Professor**: This communication forum provides you with an opportunity to ask your professor general or course content related questions.

11. **Student Break Room**: This communication forum allows for casual conversation with your classmates.

**Article Critique**

The Article Critique assignment for this class is to investigate a peer reviewed professional journal in the field of ergonomics for an article of interest to you. The object of your critique is to describe how the study followed or failed to follow the criteria for good research. Speculate on which of the writer’s conclusions were warranted and which were not. Please include the following topics in your critique of the selected article:

- A brief introduction of the article.
- A statement of the research problem.
- A description of research procedures.
- Flaws in the procedural design.
- Analysis of the data.
- Limited and justifiable conclusions.

The article you select for this assignment should not be more than two years old, and must be a peer reviewed publication. Generally, a statement regarding peer review can be found in the introductory pages of a professional journal. You are encouraged to utilize the Research Database found in the CSU Online Library located in the Course Menu. This database will allow you to quickly search through thousands of journal articles.

To submit your Article Critique upload it using the “View/Complete” link located in Unit IV. Do not e-mail your paper directly to your professor. By uploading through SafeAssign, your university record will automatically be updated to indicate you have submitted your paper and it will be provided to your professor for grading.

**Research Paper**

For your Research Paper assignment, please select and answer one of the following questions in a well-organized and thoughtful 5-7 page paper.

1. Observe your work environment for a period of one to three days. Take note of particular habits of employees relating to ergonomic issues, i.e. posture at workstations, lifting techniques, patterns of movements, biomechanical factors etc. Refer to page 333 of the textbook and develop a hypothesis around your observations. Describe how you would go about testing that hypothesis, and how you would ultimately implement a training program, behavior modification, or design change to the environment, equipment, or process to positively affect what you observed.

   **Special Note**: In conducting your observations it is important that you observe only your work environment. There should be no effort made to intervene or to experiment due to federal guidelines related to research performed on human subjects.

2. In the textbook, review Tables 8-8 (p. 399) and 11-8 (p. 557). Choose one or more examples from each, or both, tables. Compare and analyze the key ergonomic principles involved with the movements, activities or techniques. Explain why you think injuries associated with these disorders, activities, or techniques continue to be observed, and offer your opinions on how you would structure an ergonomic program to effect a positive, measurable change to the chosen example situations.

3. If there is an ergonomic topic of particular interest to you that you feel would be appropriate for a research paper project, then you may discuss the topic with your course professor. Carefully outline the topic, scope, content, and resource materials you intend to use before you contact the professor for approval of the topic.

4. An excellent source of resource material is the International Ergonomics Association at [www.iea.cc](http://www.iea.cc). The following peer reviewed journals are being published in cooperation with the IEA, and are good sources:

   - International Journal of Human-Computer Interaction
   - Human Factors and Ergonomics in Manufacturing
   - International Journal of Occupational Safety and Ergonomics
Submit your selected topic and summary outline to your professor via e-mail before you begin writing your Research Paper. Generally, your outline should include the following major sections which correspond to level 1 headings per APA publications guidelines:

1. **Introduction** – Briefly describe issue and state the purpose for the paper.
2. **Background** – Review relevant literature on the subject. This is a good section to satisfy the requirement for 5 + primary sources. Be sure to use APA formatted in-text citations to identify sources for information. Note that in-text citations are required even if the information has been reworded.
3. **Methods** – State how you will address the issue. For example, you could perform a literature review of related research literature, conduct interviews, and/or perform observations. If you use a tool such as a standardized checklist you should provide information from the research literature on the tool's reliability and validity.
4. **Results** – Present the findings from implementation of your selected methods. The inclusion of tables, figures, and/or pictures in addition to describing the results in the text adds much to the paper's readability.
5. **Conclusions** – Present your conclusions and recommendations. In general your own opinions should only be included in this section.
6. **References** – Must be in APA format

As stated above the Roman Numeral headings in the example outline above are level 1 headings. The next level (A, B, C, etc.) within your outline would be level 2 headings per APA and so forth. Research paper title page and reference page are not included in the required paper length. You should also use only MS Word when writing your paper. Your paper must contain at least five references, and may include Internet sources, books, and professional journals or resources related to the profession.

To submit your Research Paper upload it using the “View/Complete” link located in Unit VIII. Do not e-mail your paper directly to your professor. By uploading through SafeAssign, your university record will automatically be updated to indicate you have submitted your paper and it will be provided to your professor for grading.

**APA Guidelines**

CSU requires that students use the APA style for papers and projects. Therefore, the APA rules for formatting, quoting, paraphrasing, citing, and listing of sources are to be followed. A document titled “APA Guidelines Summary” is available for you to download from the APA Guide Link, found in the Learning Resources area of the myCSU Student Portal. It may also be accessed from the Student Resources link on the Course Menu. This document provides links to several internet sites that provide comprehensive information on APA formatting, including examples and sample papers.

**CSU Grading Rubric for Papers/Projects**

The course papers will be graded based on the CSU Grading Rubric for all types of papers. In addition, all papers will be submitted for electronic evaluation to rule out plagiarism. Course projects will contain project specific grading criteria defined in the project directions. To view the rubric, click the Academic Policies link on the Course Menu, or by accessing the CSU Grading Rubric link, found in the Learning Resources area of the myCSU Student Portal.

**Communication Forums**

These are non-graded discussion forums that allow you to communicate with your professor and other students. Participation in these discussion forums is encouraged, but not required. You can access these forums with the buttons in the Course Menu. Instructions for subscribing/unsubscribing to these forums are provided below. Click here for instructions on how to subscribe/unsubscribe and post to the Communication Forums.

**Ask the Professor**

This communication forum provides you with an opportunity to ask your professor general or course content questions. Questions may focus on Blackboard locations of online course components, textbook or course content elaboration, additional guidance on assessment requirements, or general advice from other students.
Questions that are specific in nature, such as inquiries regarding assessment/assignment grades or personal accommodation requests, are NOT to be posted on this forum. If you have questions, comments, or concerns of a non-public nature, please feel free to email your professor. Responses to your post will be addressed or emailed by the professor within 48 hours.

Before posting, please ensure that you have read all relevant course documentation, including the syllabus, assessment/assignment instructions, faculty feedback, and other important information.

**Student Break Room**

This communication forum allows for casual conversation with your classmates. Communication on this forum should always maintain a standard of appropriateness and respect for your fellow classmates. This forum should NOT be used to share assessment answers.

**Grading**

Discussion Boards (8 @ 1%) = 8%
Unit Assessments (6 @ 10%) = 60%
Article Critique (Unit IV) = 10%
Research Paper (Unit VIII) = 22%
Total = 100%

**Course Schedule/Checklist (PLEASE PRINT)**

The following pages contain a printable Course Schedule to assist you through this course. By following this schedule, you will be assured that you will complete the course within the time allotted.
### Course Schedule

By following this schedule, you will be assured that you will complete the course within the time allotted. Please keep this schedule for reference as you progress through your course.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Anatomical and Mechanical Structure of the Human Body</th>
</tr>
</thead>
</table>
| **Review:** | - Unit Study Guide  
- **Learning Activities (Non-Graded):** See Study Guide |
| **Read:** | - **Chapter 1:** The Anatomical and Mechanical Structure of the Human Body |
| **Discuss:** | - **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time) |
| **Submit:** | - **Assessment** by Tuesday, Midnight (Central Time) |

**Notes/Goals:**

<table>
<thead>
<tr>
<th>Unit</th>
<th>How They Work – Mind, Body and Senses</th>
</tr>
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</table>
| **Review:** | - Unit Study Guide  
- **Learning Activities (Non-Graded):** See Study Guide |
| **Read:** | - **Chapter 2:** How the Body Does its Work  
- **Chapter 3:** How the Mind Works  
- **Chapter 4:** Human Senses |
| **Discuss:** | - **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
- **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| **Submit:** | - **Assessment** by Tuesday, Midnight (Central Time) |

**Notes/Goals:**

<table>
<thead>
<tr>
<th>Unit</th>
<th>The Environment and Stimuli</th>
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</thead>
</table>
| **Review:** | - Unit Study Guide  
- **Learning Activities (Non-Graded):** See Study Guide |
| **Read:** | - **Chapter 5:** How the Body Interacts with the Environment  
- **Chapter 6:** Body Rhythms, Work Schedules, and Effects of Alcohol |
| **Discuss:** | - **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
- **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| **Submit:** | - **Assessment** by Tuesday, Midnight (Central Time) |

**Notes/Goals:**
# MOS 6701, Advanced Ergonomics

## Course Schedule

### Unit IV  Article Critique

- **Review:**
  - Unit Study Guide
  - **Learning Activities (Non-Graded):** See Study Guide

- **Read:**
  - A recent ergonomic article from a peer reviewed journal of your choice.

- **Discuss:**
  - **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
  - **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

- **Submit:**
  - **Article Critique** by Tuesday, Midnight (Central Time)

### Notes/Goals:

### Unit V  Design, Models, Methods, and Measurements

- **Review:**
  - Unit Study Guide
  - **Learning Activities (Non-Graded):** See Study Guide

- **Read:**
  - **Chapter 7:** Ergonomic Models, Methods and Measurements
  - **Chapter 8:** Designing to Fit the Moving Body

- **Discuss:**
  - **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
  - **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

- **Submit:**
  - **Assessment** by Tuesday, Midnight (Central Time)

### Notes/Goals:

### Unit VI  Ergonomics in the Workplace I

- **Review:**
  - Unit Study Guide
  - **Learning Activities (Non-Graded):** See Study Guide

- **Read:**
  - **Chapter 9:** The Office (Computer) Workstation
  - **Chapter 11:** Handling Loads

- **Discuss:**
  - **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
  - **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

- **Submit:**
  - **Assessment** by Tuesday, Midnight (Central Time)

### Notes/Goals:
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<th>Ergonomics in the Workplace II</th>
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<tbody>
<tr>
<td>Review:</td>
<td>☐ Unit Study Guide</td>
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<tr>
<td></td>
<td>☐ <strong>Learning Activities (Non-Graded):</strong> See Study Guide</td>
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<tr>
<td>Read:</td>
<td>☐ <strong>Chapter 10:</strong> Selection, Design, and Arrangement of Controls and Displays</td>
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<td></td>
<td>☐ <strong>Chapter 12:</strong> Designing for Special Populations</td>
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<th>Research Paper</th>
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<tbody>
<tr>
<td>Review:</td>
<td>☐ Unit Study Guide</td>
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<tr>
<td></td>
<td>☐ <strong>Learning Activities (Non-Graded):</strong> See Study Guide</td>
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<tr>
<td>Read:</td>
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