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.

Prerequisites

None

Course Textbook


Course Learning Outcomes

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 Outcomes:** Each unit contains Learning Outcomes that specify the measurable skills and knowledge students should gain upon completion of the unit.
2. **Unit Lesson:** Each unit contains a Unit Lesson, which discusses unit 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. **Unit Assessments:** This course contains six Unit Assessments, to be completed at the end of Units I-III and V-VII.
7. **Unit Assignments:** Students are required to submit for grading Unit Assignments in Units IV, and VIII. Specific information and instructions regarding these assignments are provided below. Grading rubrics are included with each assignments. Specific information about accessing these rubrics is provided below.

8. **Ask the Professor:** This communication forum provides you with an opportunity to ask your professor general or course content related questions.

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

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**CSU Online Library**

There is a virtual library with resources, including both journals and ebooks, to support your program and your course at Columbia Southern University. eResources are accessible 24 hours a day/7 days a week from the CSU Online Library gateway page. To access the library, log into myCSU, and then click on CSU Online Library. Resources are organized in the library by title, but if you click on Research Guides, you will find eResources arranged by subject.

The Library Reference service is available 7 days a week; you can reach CSU’s virtual librarians by e-mailing thevirtuallibrarian@columbiasouthern.edu. These professional librarians will be glad to help you develop your research plan or to assist you in any way in finding relevant, appropriate, and timely information.

Librarian responses may occur within minutes or hours, but it will never take more than 24 hours for a librarian to send a response to the e-mail address you have provided. Replies to reference requests may include customized keyword search strategies, links to videos, research guides, screen captures, attachments, a phone call, live screen sharing, meeting room appointments, and other forms of instruction.

**Unit Assignments**

**Unit IV 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.

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.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

**Unit VIII Research Paper**

For your Research Paper assignment, please select and answer ONE of the following questions in a well-organized and thoughtful paper, five to seven pages in length.
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). 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. The CSU Online Library is an excellent source for material. The following peer-reviewed journals are good sources:
   - Journal of Occupational Medicine
   - Environmental & Occupational Health
   - International Journal of Cognitive Ergonomics
   - Applied 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 at least five 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 of 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. Your paper must contain at least five references, and may include Internet sources, books, and professional journals or resources related to the profession.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.
APA Guidelines

CSU requires that students use APA style for papers and projects. Therefore, the APA rules for formatting, quoting, paraphrasing, citing, and listing of sources are to be followed. Students can find CSU's Citation Guide in the myCSU Student Portal by clicking on the "Citation Resources" link in the "Learning Resources" area of the myCSU Student Portal. This document includes examples and sample papers and provides information on how to contact the CSU Success Center.

Grading Rubrics

This course utilizes analytic grading rubrics as tools for your professor in assigning grades for all learning activities. Each rubric serves as a guide that communicates the expectations of the learning activity and describes the criteria for each level of achievement. In addition, a rubric is a reference tool that lists evaluation criteria and can help you organize your efforts to meet the requirements of that learning activity. It is imperative for you to familiarize yourself with these rubrics because these are the primary tools your professor uses for assessing learning activities.

Rubric categories include: (1) Assessment (Written Response) and (2) Assignment. However, it is possible that not all of the listed rubric types will be used in a single course (e.g., some courses may not have Assessments).

The Assessment (Written Response) rubric can be found embedded in a link within the directions for each Unit Assessment. However, these rubrics will only be used when written-response questions appear within the Assessment.

Each Assignment type (e.g., article critique, case study, research paper) will have its own rubric. The Assignment rubrics are built into Blackboard, allowing students to review them prior to beginning the Assignment and again once the Assignment has been scored. This rubric can be accessed via the Assignment link located within the unit where it is to be submitted. Students may also access the rubric through the course menu by selecting “Tools” and then “My Grades.”

Again, it is vitally important for you to become familiar with these rubrics because their application to your Assessments and Assignments is the method by which your instructor assigns all grades.

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.

Once you have completed Unit VIII, you MUST unsubscribe from the forum; otherwise, you will continue to receive e-mail updates from the forum. You will not be able to unsubscribe after your course end date.

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

Unit Assessments (Unit I-III and V-VI @ 11.4%) = 57.0%
Unit Assessment (Unit VII) = 11.5%
Article Critique (Unit IV) = 11.5%
Research Paper (Unit VIII) = 20.0%
Total = 100.0%

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.
### MOS 6701, Advanced Ergonomics

#### 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 I</th>
<th>Anatomical and Mechanical Structure of the Human Body</th>
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</thead>
<tbody>
<tr>
<td>Read:</td>
<td>- Chapter 1: The Anatomical and Mechanical Structure of the Human Body</td>
</tr>
<tr>
<td>Submit:</td>
<td>- Assessment</td>
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<tr>
<td>Notes/Goals:</td>
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<table>
<thead>
<tr>
<th>Unit II</th>
<th>How They Work – Mind, Body and Senses</th>
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<tbody>
<tr>
<td>Read:</td>
<td>- Chapter 2: How the Body Does its Work&lt;br&gt;- Chapter 3: How the Mind Works&lt;br&gt;- Chapter 4: Human Senses</td>
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<tr>
<td>Submit:</td>
<td>- Assessment</td>
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<td>Notes/Goals:</td>
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<tr>
<th>Unit III</th>
<th>The Environment and Stimuli</th>
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<tbody>
<tr>
<td>Read:</td>
<td>- Chapter 5: How the Body Interacts with the Environment&lt;br&gt;- Chapter 6: Body Rhythms, Work Schedules, and Effects of Alcohol</td>
</tr>
<tr>
<td>Submit:</td>
<td>- Assessment</td>
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<td>Notes/Goals:</td>
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### MOS 6701, Advanced Ergonomics

#### Article Critique

<table>
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<tr>
<th>Review</th>
<th>Unit Study Guide</th>
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<tbody>
<tr>
<td></td>
<td><strong>Learning Activities (Non-Graded):</strong> See Study Guide</td>
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| Read   | A recent ergonomic article from a peer reviewed journal of your choice. |

| Submit | Article Critique |

#### Notes/Goals:

### Unit V

#### Design, Models, Methods, and Measurements

<table>
<thead>
<tr>
<th>Review</th>
<th>Unit Study Guide</th>
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<td><strong>Learning Activities (Non-Graded):</strong> See Study Guide</td>
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<table>
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<tr>
<th>Read</th>
<th>Chapter 7: Ergonomic Models, Methods and Measurements</th>
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<td>Chapter 8: Designing to Fit the Moving Body</td>
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| Submit | Assessment |

#### Notes/Goals:

### Unit VI

#### Ergonomics in the Workplace I

<table>
<thead>
<tr>
<th>Review</th>
<th>Unit Study Guide</th>
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<td><strong>Learning Activities (Non-Graded):</strong> See Study Guide</td>
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<thead>
<tr>
<th>Read</th>
<th>Chapter 9: The Office (Computer) Workstation</th>
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<td>Chapter 11: Handling Loads</td>
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| Submit | Assessment |

#### Notes/Goals:
### Unit VII: Ergonomics in the Workplace II

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

**Read:**
- Chapter 10: Selection, Design, and Arrangement of Controls and Displays
- Chapter 12: Designing for Special Populations

**Submit:**
- Assessment

**Notes/Goals:**

### Unit VIII: Research Paper

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

**Read:**
- Supplemental Reading: See Study Guide

**Submit:**
- Research Paper

**Notes/Goals:**

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MOS 6701, Advanced Ergonomics