OCHS12019 *Human Factors*
Term 1 - 2018

Profile information current as at 06/05/2024 06:02 pm

All details in this unit profile for OCHS12019 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview
This unit provides an understanding of human factors and how a knowledge of human strengths and limitations, both mental and physical, can lead to better safety outcomes in the real world. It will be concerned with end user design issues and human variability in work environments. Students will be exposed to foundational human factors principles and knowledge and learn human factors methods for the identification and assessment of human factors issues, as well as develop skills to make human factors design recommendations to enhance human performance in the real wold.

Details
Career Level: *Undergraduate*
Unit Level: *Level 2*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites
Pre-requisite study of 24 credit points.
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

Offerings For Term 1 - 2018

- Adelaide
- Brisbane
- Bundaberg
- Distance
- Gladstone
- Melbourne
- Perth
- Rockhampton
- Sydney

Attendance Requirements
All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website
This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

Class and Assessment Overview

Recommended Student Time Commitment
Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses
Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview
1. **Portfolio**
Weighting: 25%
2. **Written Assessment**
Weighting: 25%
3. **Group Work**
Weighting: 50%

Assessment Grading
This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Student feedback

Feedback

Teamwork at distance continues to be a concern for students.

Recommendation

Include the Teamwork Role Test as a non-graded requirement. Then form teams based on student preferred roles to achieve a balance of strengths within each team.

Feedback from Student feedback

Feedback

Some students did not like developing a poster abstract.

Recommendation

The ability to present information visually is an authentic human factors design skill and thus will remain an assessable item. A tutorial on developing a poster will continue to be provided.

Feedback from Student feedback

Feedback

The balance of learning material (readings, lectures and tutorials) was appreciated.

Recommendation

Continue this practice.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Use knowledge of the discipline of human factors including physical, cognitive and organisational ergonomics in a variety of contexts.
2. Apply human factors knowledge to the evaluation of work systems and equipment design including work capacity and limitation.
3. Discuss and demonstrate the use of human factors assessment tools to enable the development of problem identification skills on human factors issues within the workplace.
4. Develop team work and project management skills through the application of human factors assessment and solutions to design issues with the workplace.

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level	○ Introductory Level	● Intermediate Level	● Graduate Level	○ Professional Level	○ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	**2**	**3**	**4**
1 - Portfolio - 25%	●		●	
2 - Written Assessment - 25%	●	●	●	

Assessment Tasks	Learning Outcomes			
	1	2	3	4
3 - Group Work - 50%		●		●

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication		●	●	●
2 - Problem Solving		●	●	●
3 - Critical Thinking	●	●	●	●
4 - Information Literacy	●	●	●	●
5 - Team Work				●
6 - Information Technology Competence		●	●	●
7 - Cross Cultural Competence				
8 - Ethical practice				●
9 - Social Innovation				
10 - Aboriginal and Torres Strait Islander Cultures				

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Portfolio - 25%	●	●	●	●		●				
2 - Written Assessment - 25%	●	●	●	●						
3 - Group Work - 50%	●	●	●	●	●	●	●	●		

Textbooks and Resources

Textbooks

OCHS12019

Prescribed

An Introduction to Human Factors Engineering
Edition: 2nd (International) (2014)
Authors: Wickens, Lee, Liu, Gordon-Becker
Pearson
Harlow , Essex , England
ISBN: 10: 1-292-02231-0
Binding: Paperback

View textbooks at the CQUniversity Bookshop

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Elise Crawford Unit Coordinator
e.crawford@cqu.edu.au

Schedule

Week 1 - 05 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Introduction	1 - Introduction to Human Factors	

Week 2 - 12 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Physical ergonomics	11 - Work Physiology	

Week 3 - 19 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Physical ergonomics	10 - Biomechanics of Work	

Week 4 - 26 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Cognitive ergonomics	5 - Cognition	

Week 5 - 02 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Cognitive ergonomics	7 - Displays	**MSD Poster** Due: Week 5 Friday (6 Apr 2018) 11:45 pm AEST

Vacation Week - 09 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 16 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Safe Design	18 Social Factors	

Week 7 - 23 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Organisational ergonomics	17 Selection and Training	Team Project Plan Due: Friday (27/04/18) 11:45 pm AEST

Week 8 - 30 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Organisational ergonomics	12 Stress and Workload	**Human Factors Research** Due: Week 8 Friday (4 May 2018) 11:45 pm AEST

Week 9 - 07 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Work Space Design	9 Engineering Anthropometry	

Week 10 - 14 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Environmental Design		

Week 11 - 21 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
The Practice of Human Factors	19 Research Methods	

Week 12 - 28 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Project Work		Design Project (Team Concept Proposal AND Individual Reflections) **Design Project** Due: Week 12 Friday (1 June 2018) 11:45 pm AEST

Review/Exam Week - 04 Jun 2018

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 11 Jun 2018

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Textbook hard copy availability (Wickens et al. 2014)
The CQUni Rockhampton bookshop has only eight (8) physical copies of the textbook left in stock. When these copies are sold you will have to purchase the ebook version. Follow this link to access the ebook:
http://www.pearson.com.au/9781292035512

Assessment Tasks

1 Human Factors Research

Assessment Type
Portfolio

Task Description
As with all professions, evidence-based practice is extremely important to the integrity of the profession. Therefore, knowing where to find evidence to support practice is valuable for improving human factors concerns that impact health and safety. This exercise is intended to help you practice your research skills and to give all students a brief overview of some of the research being conducted in the field of Human Factors (aka Ergonomics). Furthermore, this exercise may also serve as a useful starting point for the other assessments. Your task is to do the following:

- Post a review of one (1) research article that no other student has reviewed (word limit 150)
- Reply to three (3) of your colleagues to extend the discussion topic (word limit 100 each)
- Ensure you make one contribution in each of the four domain forums
- In total, you will have made four (4) contributions, one in each domain forum
- References (not included in the word count)

While not assessed, you are free to respond to feedback provided to you by another student. The four domain forums for this assessment item are:

- Discipline of Human Factors (aka Ergonomics)
- Physical Ergonomics
- Cognitive Ergonomics
- Organisational Ergonomics

To post your research article review, start a new topic and provide the citation of the article in the topic header, e.g. (Smith 2017). This will make it easier to know which articles have been reviewed. Your post should include:

- The research article review (aim/problem, methods, results, conclusions)
- A complete reference and publication DOI number
- The attached article (pdf)

The reply posts should meaningfully add to the topic. To do this you may:

- Relate a personal experience, or
- Extend the topic by sharing another study, news story, or other source (cite and include references where appropriate)

Note: all reviewed articles must be published in a journal. Therefore, do not review chapters, books, white papers, conference papers, workbooks, handbooks, and the like. However, these items are acceptable in a reply post where appropriate.

Assessment Due Date
Week 8 Friday (4 May 2018) 11:45 pm AEST

Return Date to Students
Week 10 Friday (18 May 2018)

Weighting
25%

Assessment Criteria
The review post (16 marks):

- The aim of the study/article (2 mark)
- The human interaction problem being investigated (2 mark)
- The research method used (4 marks)
- The research findings and conclusions drawn (4 marks)
- Reference and DOI number (3 marks)
- Article attached (1 mark)

The meaningful reply (3 marks each):

- Adds meaningfully to the discussion
- References included where appropriate

Referencing Style

- [Harvard (author-date)](#)

Submission
Online

Learning Outcomes Assessed

- Use knowledge of the discipline of human factors including physical, cognitive and organisational ergonomics in a variety of contexts.
- Discuss and demonstrate the use of human factors assessment tools to enable the development of problem identification skills on human factors issues within the workplace.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

2 MSD Poster

Assessment Type
Written Assessment

Task Description
An important skill of human factors experts is to identify work tasks that present Musculoskeletal Disorder (MSD) risks. This assignment is about developing your understanding of the principles of assessment for human-task interactions while at work. You are required to identify a manual handling task that involves a two-handed lift. You are required to conduct a hierarchical task analysis and then to assess the task being carried out using two different human factors analytical tools. You <u>must</u> use the Revised NIOSH Lifting Equation and another suitable tool (e.g. RULA, REBA, ...). From the findings of your analyses you are to offer redesign recommendations. Your work is to be presented in a scientific poster abstract format. The poster should incorporate design principles to achieve low cognitive load for the viewer. The poster is to be suitable for display at a conference to inform delegates of the physical task you have assessed.
Your poster should contain the following:

- Describes the context of the workplace or other setting
- Identifies who is at risk (stakeholders)
- Describes the task being performed
- Identifies the MSD risk and when it arises during the task
- Discusses the significance of the risk
- Redesigns the task to reduce the MSD risks found
- Reference list contains scholarly articles that are appropriately referenced

Assessment Due Date
Week 5 Friday (6 Apr 2018) 11:45 pm AEST

Return Date to Students
Week 7 Friday (27 Apr 2018)

Weighting
25%

Assessment Criteria
Poster content:

- Identifies context of workplace and/or other setting and people involved (2 marks)
- Describes the task being assessed (2 marks)
- Conducts a hierarchical task analysis (2 marks)
- Assesses the MSD risk using two appropriate human factors analytical tools (6 marks)
- Discusses the significance of the risk (2 marks)
- Redesigns the task to reduce the MSD risks found (4 marks)
- Reference list contains scholarly articles that are appropriately referenced (2 marks)

Poster design:

- Utilises human factors design principles to enhance swift comprehension of the message portrayed (e.g. low cognitive load, colour, placement, imagery, etc.) (5 marks)

Referencing Style

- [Harvard (author-date)](#)

Submission
Online

Learning Outcomes Assessed

- Use knowledge of the discipline of human factors including physical, cognitive and organisational ergonomics in a variety of contexts.
- Apply human factors knowledge to the evaluation of work systems and equipment design including work capacity and limitation.
- Discuss and demonstrate the use of human factors assessment tools to enable the development of problem identification skills on human factors issues within the workplace.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

3 Design Project

Assessment Type
Group Work

Task Description
This project has three main objectives:

- to develop leadership and project management skills relevant to design projects
- to redesign a product with a usability problem
- to develop reflective practice

You are required to complete the following tasks:

- Team project plan (20 marks: due Friday [27/04/18] Week 7 at 11:45 pm AEST)
- Team concept proposal (60 marks: due Friday [01/06/18] Week 12 at 11:45 pm AEST)
- Individual reflections (20 marks: due Friday [01/06/18] Week 12 at 11:45 pm AEST)

Team project plan
As a team, you are to develop a team project plan to establish lines of communication and rules of process. Before developing the project plan, you are required to complete an individual *team role test* that is provided on our unit website. The results from this test will be used to form your team and help you build your team profile. Details about forming teams will be provided on the unit website. The project plan is to contain:

- Team profile (team leader and other roles)
- Communication details and arrangements
- Tentative schedule of tasks and responsibilities
- Issues resolution plan (that does not involve the Unit Coordinator)
- Word range: 1000 to 1500 words

Team concept proposal
As a team, you are to prepare and submit online one Concept Proposal. Your task is to find a usability problem with a product (i.e. problematic human-machine interaction) and to apply human factors design principles and tools to assess the usability problem. Based on study findings, your team is to propose redesign changes to the product to improve usability in the form of a Redesign Concept Proposal. The proposal should include:

- Title page
- Executive summary
- Significance of the usability problem
- Methods
- Results and Discussion
- Problem definition statement
- Redesign options
- Justification and details of chosen concept (including, technical drawings and materials costing)
- References
- Appendices (if necessary)

- Word range: 3000 to 4000 words

Individual Reflections
As individuals, you are required to reflect on your teamwork experience by (1) answering two questions and by (2) reviewing your peers' contribution to the teamwork effort. Your reflections are to be completed on the Individual Reflections form available on the unit website. Please submit online by the due date to avoid a late penalty. The word range for reflections is 300 to 400 words. The two questions to be answered are:

1. How did you help create a productive team effort?
2. What will you do differently in future teamwork events?

Assessment Due Date
Week 12 Friday (1 June 2018) 11:45 pm AEST

Return Date to Students
Exam Week Friday (15 June 2018)

Weighting
50%

Assessment Criteria
Team Project Plan (20 marks)

- Team profile (team leader and other roles) (5 marks)
- Communication details and arrangements (5 marks)
- Tentative schedule of tasks and responsibilities (5 marks)
- Issues resolution plan (that does not involve the Unit Coordinator) (5 marks)

Team Concept Proposal (60 marks)

- Integrates principles of human capability and limitations (physical and mental) (10 marks)
- Analyses the usability problem including the environment of use (10 marks)
- Develops a suitable problem definition statement (10 marks)
- Systematically evaluates potential concept solutions (10 marks)
- Develops a redesign concept that meets the problem definition from a human and technical perspective (10 marks)
- Format is consistent with a professional concept proposal in that it contains all relevant parts, is logically argued, structured appropriately, clearly expressed, and void of grammatical and referencing errors (10 marks)

Individual reflections (20 marks)

- Response demonstrates depth of thought (10 marks)
- Average score from the peer review process (10 marks)

Referencing Style

- [Harvard (author-date)](#)

Submission
Online

Submission Instructions
Team tasks are to be submitted by one team member only

Learning Outcomes Assessed

- Apply human factors knowledge to the evaluation of work systems and equipment design including work capacity and limitation.
- Develop team work and project management skills through the application of human factors assessment and solutions to design issues with the workplace.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence

- Cross Cultural Competence
- Ethical practice

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem