SAFE28003 *Safety in Complexity*
Term 1 - 2024

Profile information current as at 19/05/2024 05:33 am

All details in this unit profile for SAFE28003 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 the basis for understanding the modern nature of work and how people interact successfully with evolving system complexity in order to ensure safe outcomes. You will apply a systems thinking perspective to recognise the elements of socio-technical systems and the challenges associated with the emergence of sub-systems within systems. Consideration of contemporary theories on learning from failure and for promoting high reliability safety outcomes will be critically evaluated for optimising system performance, resilience and adaptability.

Details

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

Pre-requisites or Co-requisites

There are no requisites for this unit.
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 - 2024

* Online

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 Postgraduate 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. **Written Assessment**
Weighting: 25%
2. **Critical Review**
Weighting: 40%
3. **Literature Review or Systematic Review**
Weighting: 35%

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.

Unit Learning Outcomes

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

1. Analyse the relationships between people, organisations and safety in organisations
2. Apply contemporary safety science thinking to complex socio-technical systems
3. Explain system failure and failure prevention measures
4. Apply accident causation models to contemporary accident case studies
5. Evaluate the application and effectiveness of reliability, resilience and accident causation models.

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	5
1 - Written Assessment - 25%	•	•	•	•	
2 - Literature Review or Systematic Review - 35%	•	•			•
3 - Critical Review - 40%			•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
1 - Knowledge	○	○	○	○	○
2 - Communication	○	○	○	○	○
3 - Cognitive, technical and creative skills	○	○	○	○	○
4 - Research	○	○	○	○	○
5 - Self-management	○	○	○	○	○
6 - Ethical and Professional Responsibility	○	○	○	○	○
7 - Leadership	○	○	○	○	○
8 - Aboriginal and Torres Strait Islander Cultures					

Textbooks and Resources

Textbooks

There are no required textbooks.

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

Kevin Perry Unit Coordinator
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Schedule

Week 1 - Introduction - The Extent of the OHS Problem - 04 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic

Week 2 - The Organisational Context of Work - 11 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic

Week 3 - The Socio-Political Context of Work. - 18 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic

Week 4 - Socio-technical Systems Approach - 25 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic

Week 5 - Accident Causation - Simple Linear Models - 01 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Simple Linear Accident Causation Models		

Vacation Week - 08 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
		Socio-Technical Approach to OHS - Written Assignment Due: Vacation Week Monday (8 Apr 2024) 9:00 am AEST

Week 6 - Accident Causation Models - Systemic linear Models - 15 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Systemic Linear Accident Causation Models		

Week 7 - Accident Causation Models - Complex non-linear models - 22 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Complex Non-Linear Accident Causation Models		

Week 8 - The Fifth Age of Safety - 29 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic

Week 9 - High Reliability in Organisations - 06 May 2024

Module/Topic	Chapter	Events and Submissions/Topic

Week 10 - Organisation Resilience - Safety I & Safety II - 13 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
		Accident Causation Models - Critical review Due: Week 10 Monday (13 May 2024) 9:00 am AEST

Week 11 - Emerging Trends in OHS - 20 May 2024

Module/Topic	Chapter	Events and Submissions/Topic

Week 12 - Industry 4: The Sixth Age of Safety - 27 May 2024

Module/Topic	Chapter	Events and Submissions/Topic

Review/Exam Week - 03 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic
		Review of High Reliability theory and Organisational Resilience Due: Review/Exam Week Monday (3 June 2024) 9:00 am AEST

Exam Week - 10 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

For all assessment items, no large language models with generative artificial intelligence capability are to be used (e.g. ChatGPT, BERT, T5, etc.). To avoid academic misconduct, all submitted work must be the students own original work.

Assessment Tasks

1 Socio-Technical Approach to OHS - Written Assignment

Assessment Type
Written Assessment

Task Description
Develop a conceptual model that represents the relationship between people, the organisation, technology and systems that can be used to develop an anticipatory sociotechnical systems approach to managing safety in the organisation. This conceptual model should be in the form of a graphical representation.
Provide a detailed explanation that justifies the proposed model. This should be supported by recent, reputable literature relating to the organisational context, OHS management systems. a socio-technical system approach and an overall socio-political context of work.
For this assessment item, no large language models with generative artificial intelligence capability are to be used (e.g. ChatGPT, BERT, T5, etc.). To avoid academic misconduct, this work must be your own original work.

Assessment Due Date
Vacation Week Monday (8 Apr 2024) 9:00 am AEST

Return Date to Students

Within 2 weeks of due date

Weighting
25%

Assessment Criteria
Relevance (25%)
Depth of understanding in formulating a conceptual model.
A cogent conceptual model is presented.
The model design demonstrates relationships between people, the organisation, technology and systems.

The model provides an anticipatory sociotechnical systems framework that can be used to understand work systems and what can contribute to system success.

Validity (25%)

Connections are made between the model presented, supporting evidence and discussion.

Depth and extent of discussion, ie: understanding of concepts is evident.

Accuracy and originality of the discussion.

Judgement and reasoning is applied in the discussion; ie: assertions made are based on level of critical thought, analysis and synthesis of current literature.

Depth and extent of evidence used in the discussion (25%)

Quality of evidence sourced in support of the model and discussion.

Ability to critically analyse literature and apply to real-world contexts.

Linkages to systems used within the organisation are evident.

Presentation (25%)

Structure and flow of information is clear and methodical.

Coherence and clarity of expression (spelling, grammar, syntax).

Style and formatting in accordance with required academic standards.

Typographical precision is evident.

Referencing Style

- Harvard (author-date)

Submission

No submission method provided.

Learning Outcomes Assessed

- Analyse the relationships between people, organisations and safety in organisations
- Apply contemporary safety science thinking to complex socio-technical systems
- Explain system failure and failure prevention measures
- Apply accident causation models to contemporary accident case studies

2 Accident Causation Models - Critical review

Assessment Type

Critical Review

Task Description

This assessment has 2 parts.

Part A. Critical review

Select one accident causation model from each of the categories below:

- Simple linear model
- Systemic linear model
- Complex non-linear model

Explore literature and critically review the theoretical underpinnings of the chosen models in relation to their effectiveness in:

- Addressing failure,
- Establishing and validating corrective, remedial and preventative actions, and
- Learning from Failure in general.

Your position paper should be limited to 2000 words maximum and be supported by relevant citations (Minimum of 8) from the literature.

Part B. Position paper.

In this assessment task you will choose a case study of an accident that has occurred in the 21st century. Ensure that the case study you chose has adequate published material to enable you to complete the task.

Select **two** of the 3 models used in Part A.

Populate the models with the critical factors from your chosen case study to explain, in the language of the models, the failures which occurred in the accident.

Prepare a written report to contrast and explain how well the two theoretical models enabled explanation of the accident phenomena in the case study.

Your report should not exceed 2000 words. It should be supported by relevant citations (minimum of 8) from the

literature.
Both papers are to be written in the third person.
For these assessment items, no large language models with generative artificial intelligence capability are to be used (e.g. ChatGPT, BERT, T5, etc.). To avoid academic misconduct, this work must be your own original work.

Assessment Due Date
Week 10 Monday (13 May 2024) 9:00 am AEST

Return Date to Students

Within 2 weeks of due date

Weighting
40%

Assessment Criteria

1. Critically reviews the theoretical underpinnings of 3 accident causation models. (20%)
2. Reviews the models in relation to their effectiveness in addressing the failure, establishing and validating corrective, remedial and preventative actions and learning from the failure. (20%)
3. Populates the selected accident causation models and provides a clear depiction of the chosen accident. (20%)
4. Compares and contrasts the selected models on their effectiveness in explaining the accident phenomena in the selected case study. (20%)
5. Submissions are professionally presented and (5%)
6. Grammar and spelling are consistently accurate (5%)
7. References including the provision of a reference list and intext referencing in Harvard style for all information, data, table, images sourced for this assignment. (10%)

Referencing Style

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

Submission
Online

Learning Outcomes Assessed

- Explain system failure and failure prevention measures
- Apply accident causation models to contemporary accident case studies
- Evaluate the application and effectiveness of reliability, resilience and accident causation models.

3 Review of High Reliability theory and Organisational Resilience

Assessment Type
Literature Review or Systematic Review

Task Description
For this task, assume you work within the health and safety team for a large and complex organisation. Senior management is aware of two theories that explain system safety in complex systems and have tasked you to write a report on the two theories: High Reliability Theory and Organisational Resilience, how they differ, and how effective might they be into the future?
To complete this task, you will need to review the literature on both theories, and then critically compare the two theories. Based on this comparative exercise, you are to consider which theoretical approach is more effective at addressing system failure into the future. For this you will need to critically reflect on both theories and present an argument for why one theoretical approach will likely be more effective in the future than the other by presenting reasons that informed your judgement.
To be effective, you will need to identify and consider future needs of the organisation and how the theoretical model might address system failure. This could include technology advancement, workforce changes, business strategy, climate change etc.
For this assessment item, no large language models with generative artificial intelligence capability are to be used (e.g. ChatGPT, BERT, T5, etc.). To avoid academic misconduct, this work must be your own original work.

Assessment Due Date
Review/Exam Week Monday (3 June 2024) 9:00 am AEST

Return Date to Students

Within 2 weeks of due date

Weighting
35%

Assessment Criteria
This assessment item is graded according to the following assessment criteria:
Literature review (40 marks)

- Demonstrates a comprehensive understanding of both theories under examination (10 marks)
- Key concepts, principles and historical developing are clearly explained (10 marks)
- The literature review is substantial and covers seminal and recent research on both theories. (10 marks)
- A broad range of highly reputable academic sources are utilised to form judgement (i.e. peer reviewed) support the analysis (a minimum of 10 sources). (10 marks)

Analysis (20 marks)

- Critically evaluates the merits of theory in addressing identified future challenges. (10 marks)
- Identifies future trends and the challenges they create to system safety in complex organisations. (10 marks)

Discussion (20 marks)

- Demonstrates insight of the theoretical and practical implications for safety in complex systems. (10 marks)
- Presents a well-reasoned argument for which theory is likely to be more effective in the future. (10 marks)

Recommendations (10 marks)

- Recommendations are logical and link to the future challenges previously identified. (5 marks)
- Recommendations are prioritised and supported to enhance their adoption. (5 marks)

Technicalities (10 marks)

- The report is well-structured, concise, and appropriately formatted.
- Adheres to academic writing standards (CQUniversity Harvard Style in referencing style)

Referencing Style

- Harvard (author-date)

Submission
No submission method provided.

Learning Outcomes Assessed

- Analyse the relationships between people, organisations and safety in organisations
- Apply contemporary safety science thinking to complex socio-technical systems
- Evaluate the application and effectiveness of reliability, resilience and accident causation models.

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