AINV20006 *Safety and Accident Phenomenology*
Term 2 - 2018

Profile information current as at 03/05/2024 10:14 pm

All details in this unit profile for AINV20006 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

Safety and Accident Phenomenology enables students to understand the phenomena of accidents from an epidemiological perspective and apply their learning to actively improve safety. Students will use an analytical approach to risk and understanding of both failures and failure prevention methods. During the unit, students will apply a range of theoretical accident causation models to systems failures, while understanding their effective characteristics, including the strengths and weaknesses of these models. On completion, students will be able to articulate the evolution of principles, methods and models relating to the phenomenology and epidemiology of accidents, accident prevention systems and forensic analysis of accident data. Practical and theoretical application of the skills and concepts are developed during a compulsory Residential School.

Details

Career Level: *Postgraduate*
Unit Level: *Level 8*
Credit Points: *12*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.25*

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 2 - 2018

- Mixed Mode

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).

Residential Schools

This unit has a Compulsory Residential School for distance mode students and the details are:
Click here to see your Residential School Timetable.

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 12-credit Postgraduate unit at CQUniversity requires an overall time commitment of an average of 25 hours of study per week, making a total of 300 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. **Group Discussion**
Weighting: 20%
2. **Practical Assessment**
Weighting: 30%
3. **Written Assessment**
Weighting: 20%
4. **Written Assessment**
Weighting: 30%

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 Have Your Say

Feedback

Difficulty accessing zoom recordings hampered study of key unit content.

Recommendation

Information Technology have taken action to ensure zoom recordings will be readily available following each tutorial session in future and teaching staff will monitor the situation each week to respond quickly if an anomaly occurs in future.

Feedback from Have Your Say

Feedback

More discussion of assignments and clarification of assessment criteria in marking rubrics would be advantageous.

Recommendation

Additional emphasis will be placed on assignments and assessment criteria will be included in weekly zoom tutorials and additional opportunities for students to query assignment and assessment criteria will be provided during the residential schools in future unit offerings.

Unit Learning Outcomes

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

1. Examine the existence of multiple interpretations of reality and their impact on the recognition of accident pathogens and causation factors.
2. Appraise contemporary concepts and methods defining logic, reasoning and evidence based practice.
3. Analyse the nature of risk, systems, systems failure and failure prevention methods.
4. Explain the evolution of accident epidemiology and the precepts of accident causation.
5. Apply accident causation models to explain the accident phenomenon.

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 - Group Discussion - 20%	●	●	●		
2 - Practical Assessment - 30%				●	●
3 - Written Assessment - 20%			●		
4 - Written Assessment - 30%				●	●

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					

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes							
	1	2	3	4	5	6	7	8
1 - Group Discussion - 20%	○	○	○	○	○	○		
2 - Practical Assessment - 30%	○	○	○	○	○	○		
3 - Written Assessment - 20%	○	○	○	○	○	○		
4 - Written Assessment - 30%	○	○	○	○	○	○		

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

Geoffrey Dell Unit Coordinator
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Schedule

Week 1 - 09 Jul 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line tutorial Session 1: Introduction & Unit Overview Orientation to Transport & Safety Science Post-Graduate Study Preparing for the Residential School		

Week 2 - 16 Jul 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line tutorial Session 2: Topic 1: The Accident Phenomenon		

Week 3 - 23 Jul 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line tutorial Session 3: Topic 1 (Cont'd): The Accident Phenomenon		

Week 4 - 30 Jul 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line tutorial Session 4: Topic 2: The Context of Risk & Risk Analysis Tools		

Week 5 - 06 Aug 2018

Module/Topic	Chapter	Events and Submissions/Topic
Residential School - Bundaberg Crash Lab 6/8 to 10/8 inclusive. Topics Covered: Topic 2: The Context of Risk & Risk Analysis Tools: practical and field exercise Topic 3: Accident Investigation Fundamentals: theory, practical and field exercise Topic 4: The Context of People: tutorials and practical Topic 5: Logic, Reasoning and Evidence: tutorials, practical & field exercises Students are also required to prepare and deliver a presentation to staff and the student peer group at the residential school. More information concerning the requirements for the presentation will be provided on day one of the residential school.		**Group Discussions** Due: Week 5 Monday (6 Aug 2018) 9:00 am AEST

Vacation Week - 13 Aug 2018

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 20 Aug 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line tutorial Session 5: Topic 6: The Evolution of Accident Investigation and Prevention		

Week 7 - 27 Aug 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line tutorial Session 6: Topic 7: Theoretical Accident Causation Models Case Study: Heinrich's Domino Theory and Titanic		**Practical Assessment (carried out at the Res School)** Due: Week 7 Monday (27 Aug 2018) 9:00 am AEST

Week 8 - 03 Sep 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line Tutorial Session 7: Topic 7 (Cont'd): Theoretical Accident Causation Models Case Study: Haddon Matrix and Texas City Explosion		

Week 9 - 10 Sep 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line Tutorial Session 8: Topic 7 (Cont'd): Theoretical Accident Causation Models Viner's Energy Damage Model & Viner's Time Sequence Model Case Study: Loss of the Challenger Space Shuttle		

Week 10 - 17 Sep 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line Tutorial Session 9: Topic 7 (Cont'd): Reason's System of Safety Management Model Case study: Teneriffe air crash		**Accident Prevention Paper** Due: Week 10 Monday (17 Sept 2018) 9:00 am AEST

Week 11 - 24 Sep 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line Tutorial Session 10: Topic 8: Introduction to Contemporary Theoretical Causation Models - FRAM		

Week 12 - 01 Oct 2018

Module/Topic	Chapter	Events and Submissions/Topic
On-line Tutorial Session 11: Review and discuss student progress and any issues with assessment tasks		

Review/Exam Week - 08 Oct 2018

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 15 Oct 2018

Module/Topic	Chapter	Events and Submissions/Topic
		Theoretical Accident Causation Models: Evaluation Reports Due: Exam Week Monday (15 Oct 2018) 9:00 am AEST

1 Group Discussions

Assessment Type
Group Discussion

Task Description
Four key subjects related to the history of accidents and investigation will be introduced in the AINV20006 Moodle discussion forum in Week 1.
The discussion subjects will be:

Discussion subject 1: It has been said that people cause accidents, or are they a part of the hazard control system that can fail?
Discussion subject 2: Systems failures can lead to accidents:So, how can systems be made more fail safe?
Discussion subject 3: What is 'Safety Culture' and how can you measure it?
Discussion subject 4: What are the impacts of 'Just Culture' and 'blame' on the effectiveness of investigations?

All students are expected to participate in Moodle in every one of these group discussions.You must post your own considered opinion on each topic and also respond to and comment upon at least two of your fellow students posts in each topic.
You must then prepare and submit a "mind map" that summarises the concepts and issues related to each of two of the four subjects arising from the on-line discussions and your own research and experience. This means that you have to create and submit two mind maps (one for each of the two subjects chosen from the four online discussions).
Each Mind Map will be worth 6% of the total marks for the unit (total of 12% for Mind Maps). The balance of 8% of the marks for this assessment will be allocated for your contribution to the on-line discussions.

Assessment Due Date
Week 5 Monday (6 Aug 2018) 9:00 am AEST

Return Date to Students
Week 6 Friday (24 Aug 2018)

Weighting
20%

Assessment Criteria
A specific rubric for grading the Moodle Discussions and Mindmaps can be found in the Moodle Unit.
Marks allocated for the discussions and mind maps are:

- Human error discussion - 3 marks
- Systems failure discussion - 3 marks
- Safety culture discussion - 3 marks
- Blame/No blame discussion - 3 marks
- Mindmap 1 - 4 marks
- Mindmap 2 - 4 marks

Referencing Style

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

Submission
Online

Learning Outcomes Assessed

- Examine the existence of multiple interpretations of reality and their impact on the recognition of accident pathogens and causation factors.
- Appraise contemporary concepts and methods defining logic, reasoning and evidence based practice.
- Analyse the nature of risk, systems, systems failure and failure prevention methods.

Graduate Attributes

- Knowledge
- Communication

- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility

2 Practical Assessment (carried out at the Res School)

Assessment Type
Practical Assessment

Task Description
Students will carry out a range of practical and applied activities at the residential school. The activities will address student understanding and application of concepts and models including:

1. Accident Investigation basics
2. The context of risk and applied risk analysis
3. The context of people
4. Logic, reasoning and evidence

Students are also required to prepare and deliver a presentation to staff and the student peer group at the residential school.
Most practical activities, including the formal presentation by each student, will be completed and assessed at the residential school.
Professionalism will also be assessed during the residential school.
Student artefacts from some residential school activities will need to be consolidated and submitted in Moodle after the residential school by the submission deadline.
Further details of the assessments will be provided on day 1 of the residential school.

Assessment Due Date
Week 7 Monday (27 Aug 2018) 9:00 am AEST

Return Date to Students
Week 8 Friday (7 Sept 2018)

Weighting
30%

Assessment Criteria
Specific assessment criteria for each activity at the res school will be provided at the res school and on the Moodle site
Professionalism will also be assessed during the residential school on a pass/fail basis and the criteria are attendance, teamwork, personal leadership, professional and ethical practice.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Explain the evolution of accident epidemiology and the precepts of accident causation.
- Apply accident causation models to explain the accident phenomenon.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility

3 Accident Prevention Paper

Assessment Type
Written Assessment

Task Description
Write a paper to describe why you think accidents are still occurring after more than 100 years of "modern" approaches to accident prevention.

Your paper needs to draw conclusions from the learnings from all the topics covered in this unit, the readings and a comprehensive review of the relevant literature. Where you draw conclusions from specific industries or individual cases or circumstances, you must demonstrate how these industry examples, cases or circumstances are representative of the overall accident phenomenon affecting modern society.

Your paper should be a maximum of 2000 words and your arguments should be supported by appropriate citations from the literature and applicable case studies. Your work should be correctly referenced using Harvard author/date. A list of all references used should be included at the end of your paper.

Assessment Due Date
Week 10 Monday (17 Sept 2018) 9:00 am AEST

Return Date to Students
Week 11 Friday (28 Sept 2018)

Weighting
20%

Assessment Criteria
The specific rubric for grading this assessment task can be found in Moodle.
Marks for this assessment will be allocated as follows:

- Viewpoint as to why accidents are still occurring and draws from the learnings from all the topics covered in this course to date - 12 marks
- Logical argument - 4 marks
- Consistently accurate spelling and grammar - 2 marks
- Referencing - 2 marks

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Analyse the nature of risk, systems, systems failure and failure prevention methods.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility

4 Theoretical Accident Causation Models: Evaluation Reports

Assessment Type
Written Assessment

Task Description
PART A: Position Paper
In this part of the assessment task you will investigate the literature relating to two of the theoretical accident models and prepare a position paper.
You will select two accident models from the following list:

- Heinrich's Domino Theory
- Haddon Matrix
- Reason System of Safety Management Model
- Viner's Time Sequence Model
- Viner's Extended Energy Damage Model
- Hollnagel's FRAM

Explore the relevant literature and:

1. Compare and contrast the features of the chosen models
2. Discuss the theoretical underpinnings of the chosen models, their expected validity today given the issues you identified in the on-line Moodle discussions and your opinions, supported by references from the literature where appropriate, on how the models might address such issues as:
   a. The complexity of society, technology, work and human endeavour
   b. Their effectiveness in addressing failures in human factors, social & organisational networks (including culture, management & supervision), systems, education & training
   c. The models' guidance on establishing and validating corrective and remedial actions, learning from failure and risk

Your position paper should be limited to 2000 words maximum and be supported by relevant citations (minimum of 15) from the literature.

Part A of this assessment task attracts 15% of the overall marks for the unit

PART B: Theoretical Models Report

In this part of the assessment task you will:

   1. Populate the two models chosen in Part A with the critical factors from a case study selected from the following list, to explain, in the language of the model, the failures which occurred in the accident

   The case studies to select from are:

- Union Carbide Fatal Methyl Isocyanate Gas Leak, Bhopal India, December 2, 1984
- Pan American B747 and KLM B747 Collision at Tenerife, Canary Islands on March 27, 1977
- Waterfall rail accident, Waterfall Sydney Australia, January 31, 2003
- Level crossing collision between a school bus and train 7GP1 near Moorine Rock, Western Australia, 23 March 2009

   2. 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 1500 words. It should be supported by relevant citations (minimum of 10) from the literature.

Part B of this assessment task attracts 10% of the overall marks for the unit

PART C: Reflection

In this part of the assessment task you will:

1. Reflect on an accident that you have personal knowledge of and consider the issues of causation that you understood at the time
2. Describe the accident model, perspective or lens that you were applying to the situation at the time.
3. Compare the model, perspective or lens you applied against those you have studied in this unit.
4. Discuss any changes you would make if you were to analyse that same accident now.

You may find it useful to read Chapter 10 of Dekker (2006) to inform your reflections.

You may choose the format for your response to this assessment task that suits you (eg short essay, brief report, mind map etc).

This assessment task (Part C) represents 5% of the overall assessment for this unit.

Reference: Dekker S. (2006), The Field Guide to Understanding Human Error, Chapter 10 What is your Accident Model, Ashgate Publishing Limited, Farnham

Assessment Due Date

Exam Week Monday (15 Oct 2018) 9:00 am AEST

Return Date to Students

Maximum of two weeks from submission due date

Weighting

30%

Assessment Criteria

The specific rubric for grading this assessment task can be found in Moodle.

Marks for this assessment will be allocated as follows:

PART A - 15 marks assigned generally as:

- Compares and contrasts the features of the two chosen models - 4 marks
- Discusses the theoretical underpinnings of the chosen models and their expected validity today - 4 marks
- Discusses the complexity of the models and their fit with the natural complexity of society etc - 4 marks
- Discusses the models' guidance on establishing and validating corrective and remedial actions, learning from failure and/or risk minimisation - 3 marks

PART B - 10 marks assigned generally as:

- Theoretical Models Report populates the two models with the critical factors from the case study selected- 2 marks
- Evaluate and compare how well the two theoretical models enabled explanation of the accident phenomena - 3 marks
- Discussed the perceived strengths and weaknesses of the chosen models in describing the accident phenomenon - 3 marks
- Addressed the key characteristics of the models which enabled the tapestry of failures which led to the accident - 2 marks

PART C - 5 marks assigned for your coverage of the following:

- Reflected on an accident, considered the issues of causation you understood at the time and describe the accident "model", perspective or "lens" that you were unconsciously applying to the situation
- Compared and contrasted the model, perspective or lens you applied against those you have studied in this course
- Discussed the changes you would apply if you were to analyse that same accident now

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Explain the evolution of accident epidemiology and the precepts of accident causation.
- Apply accident causation models to explain the accident phenomenon.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility

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