



# AINV13001 Accident Analysis

## Term 1 - 2019

Profile information current as at 03/05/2024 07:38 pm

All details in this unit profile for AINV13001 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

On completion of this unit students should be able to explain the characteristics, strengths and weaknesses of key theoretical accident analysis, simulation and reconstruction models. These students should also be able to apply the models to complex accident scenarios.

#### Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

#### Pre-requisites or Co-requisites

AINV12002 Accident Phenomenology and 48 units of credit

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 - 2019

- Adelaide
- Brisbane
- Bundaberg
- Gladstone
- Melbourne
- Online
- 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. **Written Assessment**

Weighting: 40%

#### 2. **Group Discussion**

Weighting: 10%

#### 3. **Written Assessment**

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 emails; staff

##### Feedback

A restructure of the unit toward the use of logic diagrams, and removal of the simulation software issue is intended.

##### Recommendation

A course change proposal to include these recommendations has been agreed in principle by the teaching team, and is in progress.

#### Feedback from Student emails

##### Feedback

More detail could be included in the marking matrices

##### Recommendation

Additional explanatory notes will be included with the marking matrices in the next offering.

## Unit Learning Outcomes

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

1. Evaluate the benefits, features and application of accident analysis models.
2. Reconstruct accident causation sequences using contemporary methods of reconstruction and simulation.
3. Employ effective communication strategies appropriate to accident analysis.
4. Demonstrate reflective skills appropriate to the development at an advanced level.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Group Discussion - 10%			•	•
2 - Written Assessment - 50%	•		•	•
3 - Written Assessment - 40%		•	•	•

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication			•	

Graduate Attributes	Learning Outcomes			
	1	2	3	4
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 - Group Discussion - 10%	•		•	•		•	•	•		
2 - Written Assessment - 50%	•	•	•	•		•	•	•		
3 - Written Assessment - 40%	•	•	•	•		•	•	•		

## 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

**Sarah Munn** Unit Coordinator  
[s.munn@cqu.edu.au](mailto:s.munn@cqu.edu.au)

## Schedule

### Week 1 - 11 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
Pre-recorded Video: Introduction to the unit - models and tools	Ferry, T.S (2007) <i>Modern Accident Investigation and Analysis</i> , 2nd Ed. John Wiley & Sons, Inc. NY. Chapter 8.	Tutorial: Thinking about your case studies

### Week 2 - 18 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
Pre-recorded Video: Understanding event tree layouts and the importance of timelines	Additional readings will be available in Moodle	Tutorial: Models and tools - preparing for Assessment 1 Choose your case study from the list provided in Moodle

### Week 3 - 25 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
Pre-recorded Video: Event Tree layout	Additional readings will be available in Moodle	Tutorial: Developing a timeline to inform your event tree

### Week 4 - 01 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
Pre-recorded Video: Further developing event tree layouts	Additional readings will be available in Moodle	Tutorial: Practicing event tree layouts

### Week 5 - 08 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
Pre-recorded Video: Testing event tree logic	Additional readings will be available in Moodle	Tutorial: Exercising your deductive, inductive and abductive logic  <b>Investigating the link between theoretical models and accident analysis tools</b> Due: Week 5 Monday (8 Apr 2019) 10:00 am AEST

### Vacation Week - 15 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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### Week 6 - 22 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
Pre-recorded Video: Finding and reviewing simulation tools	Additional readings will be available in Moodle	Tutorial: Discussing the strengths and weaknesses of simulation tools - preparing for assessment 2

### Week 7 - 29 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Informing an event tree using analysis - Using accident analysis tools	Additional readings will be available in Moodle	Tutorial: Discussing the lenses that inform our event trees  <b>Group discussion - the value of accident simulations</b> Due: Week 7 Monday (29 Apr 2019) 10:00 am AEST

**Week 8 - 06 May 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Informing an event tree - Management Oversight and Risk Tree (MORT) deconstruction	Ferry, T.S (2007) <i>Modern Accident Investigation and Analysis</i> , 2nd Ed. John Wiley & Sons, Inc. NY. Chapter 11. Additional readings will be available in Moodle	Tutorial: Discussing MORT and its informative relationship to an event tree

**Week 9 - 13 May 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Informing an event tree - logic-based diagrams, Fault Tree Analysis (FTA)	Ferry, T.S (2007) <i>Modern Accident Investigation and Analysis</i> , 2nd Ed. John Wiley & Sons, Inc. NY. Chapter 9. Additional readings will be available in Moodle	Tutorial: Discussing FTA and other logic diagrams and their informative relationship to an event tree

**Week 10 - 20 May 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Pre-recorded Video: Creating a narrative of the event tree using supporting analysis	Additional readings will be available in Moodle	Tutorial: Improving your causation narrative, appraising your evidence and reviewing your reasoning

**Week 11 - 27 May 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Pre-recorded Video: Putting it all together		Tutorial: Preparing your report for assessment 3

**Week 12 - 03 Jun 2019**

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		Wrap up tutorial and feedback on unit  <b>Accident Analysis report</b> Due: Week 12 Monday (3 June 2019) 10:00 am AEST

**Review/Exam Week - 10 Jun 2019**

Module/Topic	Chapter	Events and Submissions/Topic
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**Exam Week - 17 Jun 2019**

Module/Topic	Chapter	Events and Submissions/Topic
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## Term Specific Information

The following book is available as an e-book from the CQU library.  
Ferry, T.S. (1988) *Modern Accident Investigation and Analysis*, 2nd Ed. John Wiley & Sons, Inc.

## Assessment Tasks

### 1 Investigating the link between theoretical models and accident analysis tools

**Assessment Type**  
Written Assessment

### **Task Description**

This assignment draws on your learnings from AINV12002 Accident Phenomenology. Each accident analysis tool is derived from one of the theoretical perspectives (models) of how accidents occur. This assignment explores the link between the theoretical models and accident analysis tools to help us understand how any limitation of the lens of the theoretical model might also translate as a limitation to the usefulness of the accident analysis tool.

You are required to:

1. Choose three accident analysis tools highlighted on the list provided in Moodle.
2. For each tool, explain what theoretical model/s might underpin it and why you think this is the case.
3. For each tool, explain any limitations you might anticipate in the accident analysis tool given the theoretical model/s that underpin it.
4. For each tool, explain the strengths and weaknesses that you are able to anticipate using the structure of the tool as the basis of your discussion.
5. Reflect on your learning about the link between the theoretical models and accident analysis tools and how that learning will inform your use of accident analysis tools.

Your assessment should be around 3000 words, comprising approximately 750 - 1000 words per tool and 300-350 for reflection, and be supported by relevant citations (minimum of 12) from the literature.

**Your paper MUST be written in the third person**

### **Assessment Due Date**

Week 5 Monday (8 Apr 2019) 10:00 am AEST

### **Return Date to Students**

Two weeks following submission

### **Weighting**

40%

### **Minimum mark or grade**

Students must achieve a minimum grade of 40%

### **Assessment Criteria**

The following assessment criteria will apply:

1. (20%) For each tool, there is an explanation of what theoretical model/s might underpin it and why this is the case.
2. (20%) For each tool, limitations anticipated in the accident analysis tool given the theoretical model/s that underpin it, are explained.
3. (20%) For each tool, the strengths and weaknesses able to be anticipated using the structure of the tool, are explained.
4. (20%) Reflection on the learnings about the link between the theoretical models and accident analysis tools and how that learning informs the use of accident analysis tools, has been explained.
5. (10%) Paragraph and sentence construction, spelling, language and grammar use in the assignment
6. (10%) Referencing - includes the provision of a referencing list and the application of the Harvard style for referencing information, data, tables or images sourced for the assignment

### **Referencing Style**

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

### **Submission**

Online

### **Submission Instructions**

Submissions will not be marked unless they are in a format compatible with Microsoft Word

### **Learning Outcomes Assessed**

- Reconstruct accident causation sequences using contemporary methods of reconstruction and simulation.
- Employ effective communication strategies appropriate to accident analysis.
- Demonstrate reflective skills appropriate to the development at an advanced level.

## **Graduate Attributes**

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

## **2 Group discussion - the value of accident simulations**

### **Assessment Type**

Group Discussion

### **Task Description**

Utilising a Web based search, you are required to find three accident simulation or reconstruction videos. Then write a brief critical comparison of the three simulations you have chosen, commenting on the tools used to create the simulation, the limitations and/or strengths and weaknesses of the simulation, and the overall usefulness of the simulation with respect to the credibility and knowledge base of the author of the simulation.

Your choice of reconstructions must use different simulation software. For example, you cannot choose three reconstructions that all use PC Crash.

Your post must include the video links of the simulations or reconstructions that you have chosen.

You may use a table format to make your comparison. You may also use dot points as appropriate.

To post your response simply respond to the "Post your response here" located in Group Discussion under the Assessment Block.

You will be able to see what your peers have posted only after you have posted your own submission.

Your post should be limited to 750 words. Provide a final reference list for the sources you have used. The final reference list is not included in your word count.

Your response will be graded online and rated out of five.

### **Assessment Due Date**

Week 7 Monday (29 Apr 2019) 10:00 am AEST

### **Return Date to Students**

Two weeks following closing of the forum

### **Weighting**

10%

### **Minimum mark or grade**

To pass this unit students must attempt the group discussion and obtain an aggregate score of at least 50% for the overall unit.

### **Assessment Criteria**

The following assessment criteria will apply:

1. Tools used to create the simulation have been identified
2. A critical comparison is evident
3. Limitations and/or strengths and weaknesses have been identified
4. Usefulness of the simulation based on author credibility and knowledge base has been commented on
5. Video links included and appropriate referencing

### **Referencing Style**

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

### **Submission**

Online

### **Submission Instructions**

Post in the relevant area in Moodle

### **Learning Outcomes Assessed**

- Employ effective communication strategies appropriate to accident analysis.
- Demonstrate reflective skills appropriate to the development at an advanced level.



## Graduate Attributes

- Communication
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

## 3 Accident Analysis report

### Assessment Type

Written Assessment

### Task Description

The aim of this assessment task is for students to develop an evidence informed timeline and an event tree with appropriate sub-trees that inform understanding of the sequence of events, causation sequences and outcomes of an accident. The resultant set of logic diagrams are then to be incorporated in a report which describes the event, the context of the event, and a causation narrative of the analysis.

### Assessment Task

In this assessment task you must analyse an accident from a list of case studies provided in Moodle, or other case study that has been approved by the unit coordinator, and prepare:

- An evidence informed Timeline to explain the sequence of events that led to the accident, and
- An Event Tree to explain all the causal factors sequences and outcomes of the accident
- A report, incorporating your completed diagrams, describing your event tree analysis and findings.

**Your comprehensive analysis should involve at least six (6) lines of enquiry** (People, Environment, Equipment, Procedures, Organisation).

There is no minimum or maximum word limit given the inclusion of a timeline and event tree, however narratives should be concise. You must include relevant citations from the literature as appropriate.

**Your report MUST be written in the third person.**

### Assessment Due Date

Week 12 Monday (3 June 2019) 10:00 am AEST

### Return Date to Students

Two weeks following submission

### Weighting

50%

### Minimum mark or grade

Students must achieve a minimum grade of 50%

### Assessment Criteria

1. (60%) Technical Content—includes the accuracy, relevance and application of key concepts, analysis, and logical argument.
2. (20%) Paragraph and sentence construction, spelling, language and grammar used in the report.
3. (10%) Report format
4. (10%) Referencing—includes the provision of a reference list and the application of the Harvard style for referencing information, data, tables or images sourced for the assignment or report

### Referencing Style

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

### Submission

Online

### Submission Instructions

Submissions will not be marked unless they are in a format compatible with Microsoft Word

### Learning Outcomes Assessed

- Evaluate the benefits, features and application of accident analysis models.
- Employ effective communication strategies appropriate to accident analysis.
- Demonstrate reflective skills appropriate to the development at an advanced level.

## Graduate Attributes

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