



AINV20010 Crash Lab Project

Term 1 - 2019

Profile information current as at 27/04/2024 03:30 pm

All details in this unit profile for AINV20010 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 will demonstrate advanced knowledge and skills in planning, conducting, managing and leading multidisciplinary accident investigations which utilise advanced accident analysis methods and models, contemporary simulation and reconstruction programs and methods while delivering investigation reports appropriate for submission as expert witness reports for a court or government. All students are required to attend a residential school at the CQUniversity Forensic Accident Investigation Laboratory at the Bundaberg campus.

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 1 - 2019

- 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. **Portfolio**

Weighting: 30%

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 Staff reflection

Feedback

Introduce and expose students to the developing technologies within the accident investigation domain. technologies such as drones, 3D scanning and virtual reality

Recommendation

Introduce the developing technologies used in accident investigation into the unit. These technologies include total stations, drones and 3D scanning. Virtual reality will also be included to enable students to be exposed to this technology.

Unit Learning Outcomes

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

1. Plan, execute and evaluate a detailed accident investigation involving appropriate accident analysis simulation and/or reconstruction methods.
2. Analyse accident investigation reporting paradigms associated with the various investigation domains.
3. Prepare an accident investigation report appropriate for submission as an expert witness report for a court or government.
4. Demonstrate individual initiative and effective teamwork and collaboration skills in multidisciplinary investigation teams.
5. Lead and manage investigation teams.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Group Discussion - 20%	•			•	•
2 - Portfolio - 30%	•	•			
3 - Written Assessment - 50%	•		•		•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
1 - Knowledge	○	○	○	○	

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
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 - Portfolio - 30%	○	○	○	○	○	○		
3 - Written Assessment - 50%	○	○	○	○	○	○		

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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Allison Hutton Unit Coordinator

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Schedule

Week 1 - 11 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Lecture: Zoom - Introduction and Unit

Overview:

- Unit content
- Expectations and requirements
- Preparing for residential school

Week 2 - 18 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Lecture: Zoom - Domains:

- Introduction to domains
- Aviation - Theory & case studies

Week 3 - 25 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Lecture: Zoom - Domains:

- Road - Theory and case studies

Week 4 - 01 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Lecture: Zoom - Domains:

- Rail - Theory and case studies

Week 5 - 08 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Lecture: Zoom - Domains:

- Industrial - Theory and case studies

Vacation Week - 15 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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No lecture.

Week 6 - 22 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Lecture: Zoom - Extension of Investigation Principles:

- Scene Management
- Evidence collection
- Witness interviewing:
 - Hostile witnesses
 - Stressed witnesses
 - Cognitive interviewing

Dell, W. 2016, Accident Forensics Evidence Study Guide
Dell, W. 2013, Study Guide - Witness Interviewing
Bennett & Hess 1991, Cognitive Interviewing
Dell, W.R. 2006, "The Limitations of Traditional Interview Methods", *Safety in Action 2006*, Safety Institute of Australia, Melbourne

Domain discussion due 22/4/19 0900 AEST.

Week 7 - 29 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Lecture: Zoom - Extension of Investigation Principles:

- Mapping - Various methodologies

Preparation for Residential School:

- Leading Teams
- Final preparation
- Expectations / professionalism
- Explanation of processes required

Dell, W. 2016, Accident Forensics Evidence Study Guide

Tutorial - Creating logic diagrams in real time - Event trees
 Domain feedback to peers due 29/04/2019 0900 AEST
 Risk Assessment for residential school - Due Friday May 2019 0900 AEST

Week 8 - 06 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
Residential School - Bundaberg: <ul style="list-style-type: none"> • Management of accident scenario • Assistant investigator • Collecting of evidence • Delivering presentation 		Portfolio Parts A, B, C and D due during Residential school

Week 9 - 13 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Zoom - Analysis and Reporting Collating the data from various sources.		Submission of residential school presentation slides in Moodle Due Monday (13 May 2019) 09:00 AM AEST

Week 10 - 20 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Zoom - Analysis and Reporting Refining your analysis		Tutorial - Testing logic diagrams Draft reports for review due Friday 24 May 2019 09:00 AM AEST.

Week 11 - 27 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Zoom - Analysis and Reporting Writing reports and reflections	Salguero-Caparros, Suarez-Cebador & Rubio-Romero 2015, Analysis of investigation reports on occupational accidents.	Peer review of accident report due Friday 31 May 2019 0900 AEST.

Week 12 - 03 Jun 2019

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Zoom - Court procedures Bringing it all together		Accident Analysis Report Due Friday (7 June 2019) 09:00 AM AEST

Review/Exam Week - 10 Jun 2019

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 17 Jun 2019

Module/Topic	Chapter	Events and Submissions/Topic
		Court briefing Due prior to Friday (21 June 2019) 09:00 AM AEST

Assessment Tasks

1 Peer review & discussion

Assessment Type

Group Discussion

Task Description

Discussion: 10%

You will be required to post a discussion about the presentations of the various domains.

You need to:

- Watch all of the lectures on the domains and participate in tutorial discussions.
- Explore the web sites of the various regulatory and investigation agencies.
- Access accident reports from the specific domain.
- Access any public accident databases relative to the domains.

Then write a post about the domain you would be interested in pursuing both in further academic studies or in a work area, and why you have chosen it, with consideration of the following:

- What are the unique characteristics of this domain in relation to laws, technologies, operation and hazards?
- What agencies are responsible for regulation and investigation in the domain?
- What accident investigation/forensic methods are used that are unique to this domain?
- Any other differences or reasons that influenced your choice.

Posting is to be no more than 1000 words and appropriately referenced (Harvard).

You are also required to respond constructively to two of your colleagues, each consisting of approximately 300 words. When you respond to another student's post in each of the discussion threads, engage constructively and respectfully with what they have said. For example, you could say whether you agree or disagree with them and explain why briefly, or you could take what they have said and extend it with another example.

Peer review: 10%

You will be required to post your draft accident report in Moodle for comment from your colleagues. You are required to review and provide **thorough** constructive feedback to one of your colleagues on their report.

Assessment Due Date

As per study schedule

Return Date to Students

Within two weeks

Weighting

20%

Minimum mark or grade

Students must attempt all tasks in this assessment to pass the unit.

Assessment Criteria

Discussion 10%

1. Posting discussing the various domains presented and the domain which you would like to pursue in both academic studies and vocation, and why you have selected this domain (5%).
2. Constructive feedback to **two** of your colleagues' discussions (2 x 2.5%).

Peer review 10%

1. Draft report showing substantial progress against Assessment 3 Part A criteria (7%).
2. Constructive feedback to **one** of your colleagues' reports (3%).

Referencing Style

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

Submission

Online

Submission Instructions

Submit via the appropriate forum in the Assessment Block in the Moodle site.

Learning Outcomes Assessed

- Plan, execute and evaluate a detailed accident investigation involving appropriate accident analysis simulation and/or reconstruction methods.
- Demonstrate individual initiative and effective teamwork and collaboration skills in multidisciplinary investigation teams.
- Lead and manage investigation teams.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills

- Research
- Self-management
- Ethical and Professional Responsibility
- Leadership

2 Residential School Portfolio

Assessment Type

Portfolio

Task Description

During the Crash Lab Project residential school, students will work in investigation teams to investigate a series of accidents. Each student will lead one team and work as a team member on a number of teams led by other students. You will be accountable for the integrity of the investigation in which you are the leader. This includes responsibility for:

- Managing your investigation team
- Safety at the accident scene
- Preservation of the the accident scene
- Gathering and continuity of evidence
- Identifying and interviewing witnesses
- Obtaining witness statements
- Identifying and collecting documentary and other evidence
- Creating and maintaining appropriate logs
- Initial analysis of the accident
- Initial preparation of the applicable logic diagrams

Your practical application of the relevant theory will be assessed during the residential school against each of these subject areas. You and your team will collect evidence throughout the residential school. We will verify your understanding of your collected evidence Portfolio at the end of the residential school.

In addition, you will be required to prepare and deliver a presentation, supported by Powerpoint and other relevant artifacts, that describes your investigation, your preliminary analysis, including your preliminary logic diagrams.

There will be four parts to this assessment:

Part A : Preparedness (5%)

- Crash Kit understanding
- Risk Assessment

Part B : Advanced Scene Management and Evidence Collection (15%)

- Accident Scenario - Team Leader Assessment
- Collected evidence Portfolio

Part C : Initial Analysis (10%)

- Verbal Presentation supported by visual materials

Part D : Professionalism (Pass/Fail)

- Throughout the residential school, students will be assessed on their ability to apply professional approaches to all activities.

The majority of the assessment will be completed during the residential school. Your completed Powerpoint presentation should also be uploaded into the applicable assessment lodgement area in Moodle by 0900 hours on the Monday following the residential school.

NOTE: In order for all students to satisfactorily complete this assessment, it will be necessary for students in the investigation teams to share their collected evidence, artefacts, photos, maps, documents, records and logs etc with their team leader/s in a timely fashion. To facilitate this, students should each bring an appropriate USB stick to the residential school to facilitate the transfer of files.

Failure to share with your team leader (your evidence, artefacts, photos, maps, documents, records and logs etc collected during the investigation activities at the residential school) in a timely fashion, will result in your failure of this assessment task.

Assessment Due Date

Risk assessment due Friday prior to the residential school (3 May 2019) via Moodle. Presentation slides are due via Moodle on 13 May 2019 9am AEST. Assessment of the remainder of this assessment task will take place during the residential school.

Return Date to Students

Within three weeks of submission date

Weighting

30%

Minimum mark or grade

To pass this assessment, students must be graded Pass in all core skills: scene management, photography, mapping, witness interviewing and professionalism during the Residential School. Students must pass this assessment to pass this unit.

Assessment Criteria

The detailed assessment criteria for each part will be provided and explained during the term. In summary, students will be assessed on their demonstration of:

PART A: - Pre-planning (5%) Students are required to have completed an effective risk assessment (submitted prior to the residential school) and understand the necessity of a complete crash kit as detailed during the lectures.

PART B: - Scene Management & Evidence Collection (15%)

Accident Scenario - Team Leader Assessment

Physical Evidence Collection - has collected, engaged with and can verbally explain:

- photographs
- sketch map and the process to create a scale map from this
- log sheets completed by their team.

Also has:

- witness statement - identifying the appropriate witness, planned questions, collects a statement using appropriate techniques and prepares a written witness statement.
- sufficient materials and understanding to be able to prepare a report.
- recognised weaknesses in collected materials and has a plan to address any shortcomings identified.

PART C: - Preliminary Analysis (10%)

Presentation - Presentation style, formatting, content & preliminary event tree logic diagram

PART D:- Professionalism (Pass/fail) Throughout the residential school, students are expected to apply professional approaches to all activities.

Referencing Style

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

Submission

Offline Online

Submission Instructions

Submission will be both during residential school and via Moodle. Detailed submission instructions will be provided.

Learning Outcomes Assessed

- Plan, execute and evaluate a detailed accident investigation involving appropriate accident analysis simulation and/or reconstruction methods.
- Analyse accident investigation reporting paradigms associated with the various investigation domains.

Graduate Attributes

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

3 Investigation report

Assessment Type

Written Assessment

Task Description

This assessment contains two parts. Submission/participation of the two parts is mandatory. Failure to submit or participate in any of the two parts will result in failure of this assessment. Students must achieve a Pass in part B to pass this assessment.

Part A (50%) - Accident Analysis Report (Week 12)

During the Crash Lab Project residential school each student will have lead an investigation team. For this assessment task, you must:

- Obtain copies of all the relevant physical and documentary evidence, photographs, logs, interview statements etc collected by the members of your investigation team as part of the investigation in which you were leader
- Assemble a timeline to display the critical sequence of events
- Explain the accident using an event tree
- Complete your analysis of the accident and PEEPO, Timeline and Event Tree diagrams which were commenced during the residential school
- Prepare a comprehensive report describing the accident, your investigation, your analysis of the evidence including your PEEPO, Timeline and Event Tree logic diagrams. Your report should conclude with your findings regarding causation of the accident and recommendations for corrective action.

The report should include sections that reflect your learnings over the whole course. These should include, but not be limited to:

- Executive Summary
- Backgrounds including organisation, stakeholders, staff/workers/bystanders etc
- The incident (including pre incident and post incident activities)
- Analysis (PEEPO, timeline, event tree)
- Human factors Analysis
- Engineering Analysis
- Procedural deficiencies
- Organisational deficiencies
- Regulatory analysis
- Comparison to similar incidents
- Key findings (including causal factors)
- Conclusion (including recommendations)
- References

Part B (Pass/Fail) - Defend your report in a pre-trial briefing (Exam week)

You will be required to attend, via Zoom, a session at a mutually agreeable time during exam week to proof the evidence in your report produced in Part A.

Assessment Due Date

Part A due 0900 Monday 3 June 2019; Part B to have been completed by 21 June 2019

Return Date to Students

Within two weeks

Weighting

50%

Minimum mark or grade

To pass this assessment students must achieve a passing grade in each of Parts A & B. Students must pass this assessment to pass this unit.

Assessment Criteria

Part A: Final report (50%)

The report will be assessed using the following points:

1. Introduction
2. Establishment of the facts and supports evidence from the scene in the form of relevant photographs, sketches and maps
3. Photographs accurately depict the scene management and evidence collection process. They are cross-

referenced and recorded accurately.

4. The final scale map accurately depicts the accident scene, based on the information provided on the sketch map.
5. Witness statements are included in the evidence
6. Critical witness evidence is taken into consideration in the causation argument
7. PEEPO
8. Timeline
9. Event Tree showing a minimum of 30 lines of inquiry, all causation sequences back to the latent failures for each line of inquiry.
10. Causation narrative describing all of the causation sequences leading to the event
11. Analysis considers other accidents of same type
12. Logical conclusions are drawn from the evidence and analysis
13. Recommendations are made to address each causal factors
14. Report demonstrates application of knowledge from throughout the Graduate Diploma (HF Analysis, Engineering, Victim Pathology, Regulatory Analysis)
15. Formatting & presentation
16. Uses written expression appropriate to a report
17. Sources and referencing (eg. company documents, Australian Standards, Codes of Practice, legislation)

Criteria 1-6: Introduction and evidence - 15%

Criteria 7-11: Analysis of evidence - 15%

Criteria 12-14: Conclusions & recommendations - 15%

Criteria 15-17: Professional report formatting, written expression and referencing - 5%

Part B: Pre-trial briefing (Pass / Fail)

You will be assessed on your understanding of the work produced in your report including your explanation of:

- the field work undertaken at the residential school
- the analysis of the evidence collected
- the accident analysis tools used
- the recommendations and conclusions

Referencing Style

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

Submission

Online

Submission Instructions

Submission will be via Moodle

Learning Outcomes Assessed

- Plan, execute and evaluate a detailed accident investigation involving appropriate accident analysis simulation and/or reconstruction methods.
- Prepare an accident investigation report appropriate for submission as an expert witness report for a court or government.
- Lead and manage investigation teams.

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