



# PMSC29002 Human Performance Optimisation in Complex Environments

## Term 1 - 2023

Profile information current as at 03/05/2024 01:40 am

All details in this unit profile for PMSC29002 have been officially approved by CQU University 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

Prehospital critical care requires the application of advanced theoretical frameworks and practical skills in high stimulus, high cognitive load environments with potential life and death consequences. Optimal clinician performance is expected in every patient interaction. Resilience to duplicate excellence during each interaction, sometimes multiple times a day is required throughout a clinician's career. Through an understanding of human factors related to mental and physical performance and personal-surveillance, you will apply research-based personal interventions to optimise your performance in multiple critical care domains.

### Details

Career Level: *Postgraduate*

Unit Level: *Level 9*

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 - 2023

- 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: 50%

#### 2. **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 SUTE

##### **Feedback**

"The lecturer's style and quality of teaching were of a high standard, and his videos were professional and well structured. I was only disappointed with the content - dietary assignments etc and struggled to connect how it relates to critical care pre-hospital. Maybe the wrong degree for this. The leadership content, however was helpful and very useful."

##### **Recommendation**

Performance in the physical and cognitive domains of critical care paramedicine will be parsed and explained more clearly to elucidate the connections with dietary behaviours in future iterations of this course.

## Unit Learning Outcomes

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

1. Identify human factors associated with optimal physical and psychological performance within complex clinical environments
2. Utilise communication strategies to mitigate the incidence of medical error or negligence in complex clinical environments
3. Employ techniques to mitigate acute stress responses within complex clinical environments
4. Develop, articulate and implement physical and psychological resilience initiatives across an organisation.



## 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

**Aldon Delpont** Unit Coordinator  
[a.delpont@cqu.edu.au](mailto:a.delpont@cqu.edu.au)

## Schedule

### Week 1 - 06 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Introduction.</b> Assessment familiarisation. Nutrition diary. Sleep diary. Activity diary.		

### Week 2 - 13 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Situational Awareness.</b> OODA Loop. Fear and stress response. PTSD.		

### Week 3 - 20 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Situational response.</b> Automaticity. Visualisation. Graded stress immersion. Management of acute physiological stress.		

### Week 4 - 27 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Communication.</b> Tacit communication. Explicit communication. Shared mental models. Closed-loop communication.		

**Week 5 - 03 Apr 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Nutrition basics.</b> Calories. Macro and Micro Nutrients. Supplementation.		<b>Health surveillance and cognitive performance case study.</b> Due: Week 5 Friday (7 Apr 2023) 11:45 pm AEST

**Vacation Week - 10 Apr 2023**

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

**Week 6 - 17 Apr 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Nutritional implications.</b> Nutrition and cognition. Nutrition and physical performance.		

**Week 7 - 24 Apr 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Movement basics.</b> Weight training. Conditioning. Benefits of sport.		

**Week 8 - 01 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Implications of exercise.</b> Exercise and cognition. Exercise and physical performance. Exercise and resilience.		

**Week 9 - 08 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Recovery.</b> Implications of shift work. Sleep optimisation for shift workers.		

**Week 10 - 15 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Implications of recovery.</b> Sleep and cognition Sleep and physical performance. Sleep and long term health.		<b>Performance optimisation plan.</b> Due: Week 10 Friday (19 May 2023) 11:45 pm AEST

**Week 11 - 22 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Review.</b> Finalise assessment 2.		

**Week 12 - 29 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Review and feedback.</b>		

**Review/Exam Week - 05 Jun 2023**

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

**Exam Week - 12 Jun 2023**

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

## Assessment Tasks

### 1 Health surveillance and cognitive performance case study.

#### Assessment Type

Written Assessment

#### Task Description

This assessment consists of two parts, part A and part B.

##### Part A.

In part A, you are required to present a diary that contains a minimum of two weeks of sleep, nutrition and physical activity data.

Nutrition data must be presented visually using the excel template provided or a custom excel spreadsheet that visually shows the data. Dietary data must include all mealtimes, foods eaten, including snacks and supplements, fluid intake and macronutrient profile.

Sleep data must be presented on an excel spreadsheet as per the attached example on Moodle or a custom excel spreadsheet. Sleep data must include bedtime, wake up time, amount of sleep and subjective reflection on restfulness. Additional data such as sleep phases and heart rate variability (HRV) can be included but is not essential.

Activity data must include physical activities such as sport or exercise, type and duration. Step count can be included if available but is not a requirement.

To conclude Part A, you must provide a 1000-word reflective summary of the data that includes analyses of any correlational patterns that emerge from the documented behaviours.

Personal data divulged by you in this assessment is confidential and will adhere to the CQUni Privacy Policy and Procedure. If you have any concerns, please contact the unit coordinator.

##### Part B.

In part B, you will be given a link to a video that contains an emergency simulation or live event. You must analyse the footage and identify elements of cognitive and communication behaviours that contributed to the success or failure of the simulation or event. Your analysis must be written as a 1000 word essay that should analyse the following key elements.

- Identify markers of physiological stress, for example, auditory exclusion.
- Identify instances of failures or successes in situational awareness and response.
- Identify communication behaviours, successes, pitfalls or misunderstandings.
- Suggest evidence-based alternative behaviours that would contribute to success.

#### Assessment Due Date

Week 5 Friday (7 Apr 2023) 11:45 pm AEST

#### Return Date to Students

Week 7 Friday (28 Apr 2023)

#### Weighting

50%

#### Assessment Criteria

There is a minimum word count of 1000 (+/- **10% deviation maximum**) words for part A and 1000 (+/- **10% deviation maximum**) words for part B, excluding references. Your health surveillance and case study analysis must be clear and concise. You will be assessed per the information and rubric on the units Moodle page. Your assignment must be presented in Word and Excel formats. PDF file formats are not permitted.

This Health surveillance and cognitive performance case study are worth 50% of your overall unit mark.

#### Referencing Style

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

#### Submission

Online

#### Learning Outcomes Assessed

- Identify human factors associated with optimal physical and psychological performance within complex clinical environments
- Utilise communication strategies to mitigate the incidence of medical error or negligence in complex clinical environments

## Graduate Attributes

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

## 2 Performance optimisation plan.

### Assessment Type

Written Assessment

### Task Description

This assessment consists of two parts, part A and part B.

#### Part A

In part A, you must utilise the data and insights from assessment 1 to develop a plan that optimises performance across three domains.

Nutrition must be optimised by presenting a plan that draws insight from assessment one and considers nutritional needs based on your unique data and working constraints. Your plan must include a macronutrient profile, optimal calorie count, and foods you intend to eat. If you intend to incorporate a supplement protocol in your plan, you must present the protocol in detail. You must include details on how you intend to execute your plan. Your nutrition plan and supplement protocol must be supported by contemporary evidence.

Recovery must be optimised by presenting a plan that draws insight from assessment one and considers your recovery needs based on your unique data and working constraints. Your recovery plan must include contemporary strategies specific to shift workers. Your plan must be supported by contemporary evidence.

Physical performance must be optimised by presenting an activity plan that includes physical activities such as sport or exercise, type and duration. Your activity plan can be nonspecific and can include moderate goal setting such as reaching 10000 daily steps or a sporting milestone. However, you must rationalise your activity choice with evidence that supports an increase in physical performance that has a carryover effect on your working environment.

Personal data divulged by you in this assessment is confidential and will adhere to the CQUni Privacy Policy and Procedure. If you have any concerns, please contact the unit coordinator.

#### Part B

In part B, you will be presented with two common critical care dilemmas that can interrupt the flow of a critical care patient encounter and can potentially lead to sub-optimal patient outcomes.

You must develop an immediate action intervention (IAI) to mitigate the effect of the dilemmas on patient outcomes. Your IAI must include the following:

- A strategy for mitigating a physiological stress response in the event of the dilemmas.
- The importance of situational awareness in identifying the dilemmas.
- A check list/s for systematically addressing the dilemmas.
- A communication strategy to mitigate pitfalls and behaviours that could confound the IAI.

The IAI must be supported by contemporary evidence.

### Assessment Due Date

Week 10 Friday (19 May 2023) 11:45 pm AEST

### Return Date to Students

Week 12 Friday (2 June 2023)

### Weighting

50%

### Assessment Criteria

There is a minimum word count of 1500 (+/- 10% **deviation maximum**) words for part A and 1000 (+/- 10% **deviation maximum**) words for part B, excluding references. Your performance optimisation plan must be clear and concise. You will be assessed per the information and rubric on the units Moodle page. Your assignment must be presented in Word format. PDF file formats are not permitted.

The Performance Optimisation plan is worth 50% of your overall unit mark.

### Referencing Style

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

### Submission

Online



## Learning Outcomes Assessed

- Utilise communication strategies to mitigate the incidence of medical error or negligence in complex clinical environments
- Employ techniques to mitigate acute stress responses within complex clinical environments
- Develop, articulate and implement physical and psychological resilience initiatives across an organisation.

## Graduate Attributes

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

## 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