



# PMSC20003 Pharmacological Application in the Critical Care Setting

## Term 1 - 2017

Profile information current as at 05/05/2024 09:54 pm

All details in this unit profile for PMSC20003 have been officially approved by CQUUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

### General Information

#### Overview

This unit will provide you with advanced knowledge of all aspects of clinical pharmacology to allow you to function safely within the current and emerging critical care context. You will acquire advanced theoretical knowledge and develop advanced clinical judgement for competent critical care paramedic pharmacology practice.

#### Details

Career Level: *Postgraduate*

Unit Level: *Level 8*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

#### Pre-requisites or Co-requisites

There are no requisites for this unit.

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

#### Offerings For Term 1 - 2017

- Distance

#### 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. **Presentation and Written Assessment**

Weighting: 40%

#### 2. **Portfolio**

Weighting: 30%

#### 3. **Online Test**

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 Course Evaluation Survey

##### Feedback

Possible technical issue with Mac users. One student reported they had to open the PPTs in two separate programs (Keynote and Office) to receive the text and audio. Office would not play the audio portion without Keynote.

##### Recommendation

Investigate to see if there is an issue with the PPTs and recordings on Mac devices

##### Action

Power-points have been developed that contain no advanced features or add-ins. In addition, where time has permitted separate recordings have been made via Camtasia including presentation of the power-point. This practice will continue moving forward to 2018. No further problems were articulated during 2017.

## Unit Learning Outcomes

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

1. Describe the indications, actions, routes of administration, contraindications, side effects and precautions of medications and fluids administered by critical care paramedics, and how you would evaluate the effects of administration
2. Apply theoretical knowledge of pharmacokinetic and pharmacodynamic principles with regard to medications and fluids administered by critical care paramedics
3. Research and justify the most effective pharmacological treatment options in the critical care paramedic context
4. Communicate effectively knowledge of clinical pharmacology, toxicology and toxinology within therapeutic relationships

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Presentation and Written Assessment - 40%	•		•	•
2 - Portfolio - 30%	•	•	•	•
3 - Online Test - 30%		•		

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
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 - Presentation and Written Assessment - 40%	○	○	○	○				
2 - Portfolio - 30%	○	○		○	○			
3 - Online Test - 30%	○							

## Textbooks and Resources

### Textbooks

**There are no required textbooks.**

#### **Additional Textbook Information**

There is not a required textbook for this particular unit. However, that does not mean you cannot purchase a text or should not use one. The key point for a textbook in this unit is that it will be a learning tool for yourself. For example, if you need to review pathophysiology or pharmacokinetics then you need to find a text that helps augment your learning in these areas (such as a generic medicine pharmacology text (see examples below). If you would like more detailed notes on classes of medications and to understand more clinical details, choose a text that focuses on applied concepts (such as RAPID Clinical Pharmacology by Batchelder et al or a reference guide). Otherwise, you may be able to get away with a previous textbook you already own.

#### **Some Recommended Text/Apps**

Bullock, S & Manias, E 2014, Fundamentals of Pharmacology (7th Edition), Pearson, Australia

Bryant, BJ & Knights, KM 2015, Pharmacology for Health Professionals, Elsevier, Australia

Rang, HP, Ritter, JM, Flower, RJ & Henderson, G 2016, Rang & Dale's Pharmacology (8th Edition), Elsevier, Australia

Caffey, M. (2012). Paramedic & Emergency Pharmacology Guidelines, Pearson, Australia

Caffey, M. & Appiwork Pty Ltd. (2015). Emergency Pharmacology Guidelines (Version 1.3) [Mobile application software]. Available on iTunes or Google Play.

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Access to audio files & videos as they appear on the unit Moodle page
- Access to eMIMS through the university library Paramedic Science Resource Guide
- Access to UpToDate through unit Moodle page
- Access to Zoom (session log-in details will be provided)

## Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)  
For further information, see the Assessment Tasks.

## Teaching Contacts

**Kirsty Shearer** Unit Coordinator

[k.shearer@cqu.edu.au](mailto:k.shearer@cqu.edu.au)

## Schedule

### **Week 1 - 06 Mar 2017**

Module/Topic	Chapter	Events and Submissions/Topic
Pharmacology review		

### **Week 2 - 13 Mar 2017**

Module/Topic	Chapter	Events and Submissions/Topic
Analgesia, anaesthetics, sedation & seizure management		

### **Week 3 - 20 Mar 2017**

Module/Topic	Chapter	Events and Submissions/Topic
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Pharmacology for behavioural emergencies

#### Week 4 - 27 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Cardiovascular pharmacology 1		

#### Week 5 - 03 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Cardiovascular pharmacology 2		<b>Presentation &amp; written assessment</b> Due: Week 5 Friday (7 Apr 2017) 11:45 pm AEST

#### Vacation Week - 10 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
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#### Week 6 - 17 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Drugs affecting clotting		

#### Week 7 - 24 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Blood products, fluids & tranexamic acid		

#### Week 8 - 01 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Respiratory pharmacology		

#### Week 9 - 08 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Metabolic & endocrine pharmacology		

#### Week 10 - 15 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Pharmacology for infectious diseases & sepsis		<b>Portfolio</b> Due: Week 10 Friday (19 May 2017) 11:45 pm AEST

#### Week 11 - 22 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Obstetric pharmacology		

#### Week 12 - 29 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Toxicology		<b>Online quiz</b> Due: Week 12 Friday (2 June 2017) 11:45 pm AEST

#### Review/Exam Week - 05 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
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#### Exam Week - 12 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
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## Assessment Tasks

# 1 Presentation & written assessment

## Assessment Type

Presentation and Written Assessment

## Task Description

### Preamble

Historically, ambulance services followed a medical model for determining future clinical direction, often deferring to a medical advisory board or medical director to determine new skills, procedures or pharmacology. More recently, there has been a shift in thinking towards paramedics researching and determining their own destiny in a clinical sense. It is therefore becoming an important skill for paramedics to be able to look at current research and new trends, and to analyse the evidence base to determine whether a new skill, procedure or pharmacology should be adopted (or not).

### Task Description

You have been tasked by a medical advisory board to review the introduction of either a new drug (**approved by the TGA**) or another service's drug (not currently used by your chosen service) into the already extensive armament of drugs on offer in your chosen ambulance service. Please note that simply altering the indications for a current drug or the route of administration of a current drug is not sufficient for this task. The medical advisory board would like for you to report on the introduction of this drug into the ambulance service and therefore require 2 parts to this proposal.

**Part one (20%) will require you to develop a paper including a review of the literature on your drug of choice. You will be required to review recent (no greater than 5 years) research articles (aim for 5 articles) in relation to this drug of choice. It is preferred that the literature review is in narrative form (that is, explain the research in your own words). The word limit for this section is 1500 words.**

Using information you obtain from the journals you will combine the information, critique the literature and your report should include:

Introduction - your report aim

Research articles - identify the research designs, the study participants and describe how the data was collected for each study

Discussion - What conclusions can be drawn from the studies? Discuss the implications of introducing this drug into paramedic practice, for example, do you need to cease the use of one drug for the introduction of another? Are there any cost/equipment implications?

Conclusion - what are your recommendations (drug therapy protocol to be developed here or as an appendix - either way it is included in your word count)

Reference List

**Part two (20%) - using the information collected in part one, you will be required to develop a scientific poster.**

There is no specific word limit here, as you will be using the information gained in Part 1. Remember to summarise your information for presentation.

## Assessment Due Date

Week 5 Friday (7 Apr 2017) 11:45 pm AEST

## Return Date to Students

Week 7 Friday (28 Apr 2017)

Returned to students within 2 week turnaround

## Weighting

40%

## Minimum mark or grade

A minimum mark of 50% must be achieved on this assessment to pass the unit

## Assessment Criteria

**Part one (20%) - The paper will be assessed on:**

Presentation and layout: information presented in a clear & logical sequence; content clearly written; appropriate word count; abbreviations & diagrams used appropriately

Questions: selected drug meets criteria; most current literature used; introduction; discussion of research design & data; implications of introducing the drug; recommendations

Drug therapy protocol: developed appropriately; all information included; effective layout; sources acknowledged

Referencing: use of Harvard referencing; all sources referenced appropriately; reference list

**Part Two (20%) - The poster will be assessed on:**

Required content: looking at the main points covered & content

Presentation: looking at visual engagement; use of visual elements; graphics & overall presentation

Mechanics: looking at grammar & spelling & referencing

**The assessment rubric used in marking this assessment task can be found on the unit Moodle page.**

**All assessments must be completed to pass this unit.**

## Referencing Style

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

## Submission

Online

## Submission Instructions

Files are to be uploaded through Moodle

## Learning Outcomes Assessed

- Describe the indications, actions, routes of administration, contraindications, side effects and precautions of medications and fluids administered by critical care paramedics, and how you would evaluate the effects of administration
- Research and justify the most effective pharmacological treatment options in the critical care paramedic context
- Communicate effectively knowledge of clinical pharmacology, toxicology and toxinology within therapeutic relationships

## Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research

# 2 Portfolio

## Assessment Type

Portfolio

## Task Description

You will need to complete a clinical portfolio of a minimum of three (3) patients you have assessed and treated during your recent work as a paramedic. The format of your portfolio can be self-determined, however it **must** include:

- a review of patient presentation, including chief complaint, history and physical examination. The history should include a review of the patient's own medications, including detail on each medication's indication, potential side-effects and interactions, and how these medications may impact upon the patients' current condition and chief complaint
- a summary of your non-pharmacological treatment of the patient
- a detailed assessment of the real and potential pharmacological treatment of this patient, including:
  - core paramedic drugs used & why
  - potential critical care medications to be used with a focus on:
    - relating the drug/s mechanism of action to the patient's condition & associated pathophysiology (that is, why the drug/s is/are indicated)
    - situations where the drug/s would be contraindicated
    - potential side effects & explanation of why they occur
    - potential interactions with the patient's current medications

You will need to demonstrate an ability to understand the foundations of critical care pharmacology using clinical decision making and applying the theoretical principles of pharmacokinetics, pharmacodynamics & reviewing concepts such as side-effects & interactions. In addition, you will need to demonstrate an understanding of complex medications and their interactions with the delivery of pharmacology in the critical care context.

## Assessment Due Date

Week 10 Friday (19 May 2017) 11:45 pm AEST

## Return Date to Students

Week 12 Friday (2 June 2017)

Returned to students within 2 week turnaround

## Weighting

30%

## Minimum mark or grade

A minimum mark of 50% must be achieved on this assessment to pass the unit

## Assessment Criteria

While there is no prescribed word limit for your portfolio, it is expected that each case presentation will be concise. The portfolio will be assessed in accordance with the rubric provided on the unit Moodle page. This portfolio is worth 30% of your overall unit mark. All assessments must be completed to pass this unit.



Criteria include:

overall presentation

- o organisation of presentation/layout
- o writing mechanics
- o formatting
- o referencing

content

- o thoroughness of history
- o thoroughness of physical examination
- o treatment administered
- o discussion of current pharmacology
- o recommendations regarding real or potential pharmacological treatment

### Referencing Style

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

### Submission

Online

### Submission Instructions

Portfolios are to be submitted electronically through Moodle

### Learning Outcomes Assessed

- Describe the indications, actions, routes of administration, contraindications, side effects and precautions of medications and fluids administered by critical care paramedics, and how you would evaluate the effects of administration
- Apply theoretical knowledge of pharmacokinetic and pharmacodynamic principles with regard to medications and fluids administered by critical care paramedics
- Research and justify the most effective pharmacological treatment options in the critical care paramedic context
- Communicate effectively knowledge of clinical pharmacology, toxicology and toxinology within therapeutic relationships

### Graduate Attributes

- Knowledge
- Communication
- Research
- Self-management

## 3 Online quiz

### Assessment Type

Online Test

### Task Description

You will be required to complete this online quiz by the end of Week 12, this quiz will become available in Week 11 and will have a specific time limit imposed to complete the quiz.

The quiz will be made up of multiple choice questions exploring content explored in the unit (including lecture materials, online modules, links & required readings). The quiz will assess your ability to identify & apply the foundations of critical care paramedic pharmacology including pharmacokinetics, pharmacodynamics, mechanism of action, indications, interactions, contraindications & side effects. In addition, some questions in the quiz will explore your ability to demonstrate clinical decision-making for the use of pharmacology in the critical care context. This is an individual assessment with no collaboration allowed.

### Assessment Due Date

Week 12 Friday (2 June 2017) 11:45 pm AEST

The quiz will open 0800hrs on Monday of Week 11 and closes at 2345hrs AEST (Australian Eastern Standard Time) on Friday of Week 12.

### Return Date to Students

Exam Week Friday (16 June 2017)

The quiz will be marked and returned to students after every student has completed the test, within 2 weeks of close of the quiz.

### Weighting

30%

**Minimum mark or grade**

A minimum mark of 50% must be achieved on this assessment to pass the unit

**Assessment Criteria**

You will be required to answer each question to receive the full marks allocated to that question. Non-attempts will score a zero mark. There will be no negative marking (that is, you will not lose a mark for an incorrect response). **This assessment task must be completed by 2345hrs on the Friday of Week 12 (2 June 2017). In the absence of an approved extension, there will be no opportunity to complete the task after this date, and there will be no opportunity to apply a late penalty of five percent per day. This quiz is worth 20% of your overall mark. All assessments must be completed to pass this unit.**

**Referencing Style**

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

**Submission**

Online

**Submission Instructions**

You will be required to complete this task in an allocated time, there will be no option to save your answers and to go back to the quiz later.

**Learning Outcomes Assessed**

- Apply theoretical knowledge of pharmacokinetic and pharmacodynamic principles with regard to medications and fluids administered by critical care paramedics

**Graduate Attributes**

- Knowledge

## 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