PMSC20003 *Pharmacological Application in the Critical Care Setting*
Term 1 - 2018

Profile information current as at 27/04/2024 02:13 am

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
Co-requisites PMSC20001 Advanced clinical assessment and decision making
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 - 2018

- 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 Informal direct student feedback.

Feedback
Need for recorded lectures.

Recommendation
Now that content has been reviewed & redeveloped, record lectures in preparation for 2018.

Feedback from Informal direct student feedback.

Feedback
Allow greater scope of drug choice/remove restrictions on research article number associated with written paper assessment task.

Recommendation
Review the written assessment question to allow greater scope of research.

Feedback from Self-reflection.

Feedback
Written assessment task rubric needs greater differential between segment scores.

Recommendation
Review & improve written assessment task rubric.

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

— N/A Level • Introductory Level • Intermediate Level • Graduate Level ◦ Professional Level ◦ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

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

Assessment Tasks	Learning Outcomes			
	1	2	3	4
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

PMSC20003

Supplementary

Australian Medicines Handbook 2015
Edition: 2015 (2015)
Authors: AMH
Australian Medicines Handbook Pty Ltd
Adelaide , SA , Australia
ISBN: 9780987550156

Binding: Other
PMSC20003

Supplementary

Fundamentals of Pharmacology
8th edition (2016)
Authors: Bullock, S & Manias, E
Pearson Australia
Sydney , NSW , Australia
ISBN: 9781488610028
Binding: Other
PMSC20003

Supplementary

Paramedic & Emergency Pharmacology Guidelines
Edition: 1st edn (2012)
Authors: Caffey, M
Pearson Australia
Sydney , NSW , Australia
ISBN: 9781486006205
Binding: Paperback
PMSC20003

Supplementary

Pharmacology for Health Professionals
Edition: 4th edn (2014)
Authors: Bryant, BJ & Knights, KM
Elsevier Australia
Sydney , NSW , Australia
ISBN: 9780729541701
Binding: Paperback
PMSC20003

Supplementary

Rang & Dale's Pharmacology
Edition: 8th edn (2015)
Authors: Ritter, JM, Flower, RJ & Henderson, G
Elsevier Australia
Sydney , NSW , Australia
ISBN: 9780702053627
Binding: Paperback

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 texts/apps: Australian Medicines Handbook; Bullock, S & Manias, E 2014, Fundamentals of Pharmacology (8th 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

View textbooks at the CQUniversity Bookshop

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

Schedule

Week 1 - 05 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Pharmacology review		

Week 2 - 12 Mar 2018

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

Week 3 - 19 Mar 2018

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

Week 4 - 26 Mar 2018

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

Week 5 - 02 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Cardiovascular pharmacology 2		**Presentation & written assessment** Due: Week 5 Friday (6 Apr 2018) 11:45 pm AEST

Vacation Week - 09 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 16 Apr 2018

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

Week 7 - 23 Apr 2018

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

Week 8 - 30 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Respiratory pharmacology		

Week 9 - 07 May 2018

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

Week 10 - 14 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Pharmacology for infectious diseases & sepsis		**Portfolio** Due: Week 10 Friday (18 May 2018) 11:45 pm AEST

Week 11 - 21 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Obstetric pharmacology		

Week 12 - 28 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Toxicology		**Online quiz** Due: Week 12 Friday (1 June 2018) 11:45 pm AEST

Review/Exam Week - 04 Jun 2018

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 11 Jun 2018

Module/Topic	Chapter	Events and Submissions/Topic

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 Therapeutic Goods Administration (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 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 research 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 Part one is 2000 words.
Using information you obtain from the recent research you will combine the information, critique the literature and your report should include:
Introduction - your report aim
Review of research & discussion - identify the research designs, the study participants and describe how the data was collected for each study; what conclusions can be drawn from the studies? What are the patent benefits in recommending this drug? 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?
Reference List
Drug therapy protocol – presented in suitable format (include references)
Part two - 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 (6 Apr 2018) 11:45 pm AEST

Return Date to Students
Week 7 Friday (27 Apr 2018)
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 - 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 – 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
This assessment task is worth 40% of your overall unit mark. The assessment rubric used in marking this assessment task can be found on the unit Moodle page.

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. As such, selection of cases offering you the ability to demonstrate this knowledge is paramount.

Assessment Due Date
Week 10 Friday (18 May 2018) 11:45 pm AEST

Return Date to Students
Week 12 Monday (28 May 2018)
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.
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 (1 June 2018) 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 (15 June 2018)
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. **This quiz is worth 30% of your overall unit mark. This assessment task must be completed by 2345hrs on the Friday of Week 12. 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.**

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