



# BMSC13010 Pharmacology

## Term 3 - 2017

Profile information current as at 17/04/2024 07:29 am

All details in this unit profile for BMSC13010 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

This unit enables you to develop an advanced knowledge and understanding of the fundamental principles of basic and clinical pharmacology including the way drugs interact with cells and the body. The mechanism of action of major drug classes used in the treatment of disorders affecting the autonomic nervous system, the gastrointestinal tract, cardiovascular and pulmonary systems and central nervous system will be examined at the drug-receptor level. Pharmacokinetics, receptor selectivity, efficacy and the optimum route of administration of pharmaceuticals will also be studied. You will be required to demonstrate critical analysis of this content and align this with current practice in your respective courses.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Pre-requisite CG93 Medical Science and CG95 Paramedic Science: BMED19003 Clinical Biochemistry OR BMSC12010 Clinical Biochemistry CB77 Bachelor of Science (Chiropractic): BMSC11005 Foundations of Biochemistry AND BMSC12007 Neurological Physiology and Measurement AND MBIO12013 Microbiology for Health Care AND CHIR12002 Neuroanatomy and Systemic Pathology CB86 Bachelor of Podiatry Practice (Honours): ALLH11001, ALLH11005, HLTH11027, PSYC11010, ALLH11004, ALLH12007, ALLH11006 and HLTH12028

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 3 - 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 Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

### Class Timetable

#### [Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

#### [Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

### Assessment Overview

#### 1. **Written Assessment**

Weighting: 10%

#### 2. **Written Assessment**

Weighting: 15%

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

Weighting: 25%

#### 4. **Examination**

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 Unit evaluations

##### Feedback

Assessment feedback return was not timely and not communicated well

##### Recommendation

Improve student assessment feedback return

#### Feedback from Unit evaluation/student emails

##### Feedback

Lecture content was well delivered and explained

##### Recommendation

Maintain and improve this delivery

## Unit Learning Outcomes

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

1. Recognise and describe the differing ways in which drugs and chemicals act quantitatively and qualitatively on living organisms.
2. Recall and explain the basic principles of pharmacology - pharmacodynamics, pharmacokinetics, drug design and clinical trials.
3. Recall and classify the major groups of medicines with respect to pathophysiology, their actions and therapeutic applications for medical science, paramedic science and podiatry practice (including local and general anaesthesia, cardiovascular, CNS, gastrointestinal, antimicrobial, respiratory and endocrine).
4. Understand how pharmacological laboratory experiments are conducted by using computer aided learning modules, and interpret the results from these experiments (tables/graphs).
5. Appraise the scientific literature relating to drugs and medicines and communicate this knowledge to your peers

## 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 - Written Assessment - 10%	•	•	•		•
2 - Written Assessment - 15%		•	•	•	
3 - Written Assessment - 25%	•	•			•
4 - Examination - 50%	•	•	•		

## Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
1 - Communication	•	•	•		•
2 - Problem Solving	•	•	•	•	•
3 - Critical Thinking	•	•	•	•	•
4 - Information Literacy					•
5 - Team Work				•	
6 - Information Technology Competence				•	•
7 - Cross Cultural Competence					•
8 - Ethical practice				•	•
9 - Social Innovation					
10 - Aboriginal and Torres Strait Islander Cultures					

## Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Written Assessment - 10%	•		•	•		•	•			
2 - Written Assessment - 15%		•	•			•				
3 - Written Assessment - 25%	•	•	•	•	•	•	•	•		
4 - Examination - 50%	•	•	•							

## Textbooks and Resources

### Textbooks

BMSC13010

#### Prescribed

#### **Rang & Dale's Pharmacology**

Edition: 8th edn revised (2015)

Authors: Rang, HP, Ritter, JM, Flower, RJ & Henderson, G

Churchill Livingstone - Elsevier

London, UK

ISBN: 9780702053627

Binding: Hardcover

[View textbooks at the CQUniversity Bookshop](#)

### IT Resources

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

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Computer-aided learning modules (CALs)

## Referencing Style

**All submissions for this unit must use the referencing styles below:**

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

For further information, see the Assessment Tasks.

## Teaching Contacts

**Andrew Fenning** Unit Coordinator

[a.fenning@cqu.edu.au](mailto:a.fenning@cqu.edu.au)

## Schedule

### Week 1 - 06 Nov 2017

Module/Topic	Chapter	Events and Submissions/Topic
Drug-receptor interactions/Drug targets/Signal transduction (Lectures 1-3)	Online course material and PowerPoint notes/lecture videos Chapters 2 and 3 from the textbook	

### Week 2 - 13 Nov 2017

Module/Topic	Chapter	Events and Submissions/Topic
Pharmacokinetics (Lectures 4-5); Clinical Trials (Lecture 6)	Online course material and PowerPoint notes/lecture videos Chapters 8, 9 and 10 from the textbook	

### Week 3 - 20 Nov 2017

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

Autonomic Pharmacology (Lectures 7-8); Cardiovascular 1 (Lecture 9)  
 Online course material and PowerPoint notes/lecture videos  
 Chapters 12, 13 and 14 from the textbook

**Week 4 - 27 Nov 2017**

Module/Topic	Chapter	Events and Submissions/Topic
Cardiovascular 2-4 (Lectures 10-12)	Online course material and PowerPoint notes/lecture videos Chapters 21, 22 and 23 from the textbook	

**Vacation Week - 04 Dec 2017**

Module/Topic	Chapter	Events and Submissions/Topic

**Week 5 - 11 Dec 2017**

Module/Topic	Chapter	Events and Submissions/Topic
CNS Pharmacology 1-3 (transmitters, depression, psychosis, ageing) (Lectures 13-15)	Online course material and PowerPoint notes/lecture videos Chapters 37, 38, 39, 40, 44, 45, 45, 46 and 47 from the textbook	<b>Written Assessment - Drug Poster</b> Due: Week 5 Monday (11 Dec 2017) 11:45 pm AEST

**Week 6 - 18 Dec 2017**

Module/Topic	Chapter	Events and Submissions/Topic
CNS - drugs of abuse, analgesia and anaesthesia (Lectures 16-18)	Online course material and PowerPoint notes/lecture videos Chapters 41, 42, 43, 48 and 49 from the textbook	

**Week 7 - 01 Jan 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Antibiotics, antifungals and antiseptics (Lectures 19-21)	Online course material and PowerPoint notes/lecture videos Chapters 50, 51 and 53 from the textbook	

**Week 8 - 08 Jan 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Obesity, gastrointestinal, respiratory and endocrine pharmacology (Lectures 22-24)	Online course material and PowerPoint notes/lecture videos Chapters 28, 30, 32 and 35 from the textbook	<b>Written Assessment - Computer-aided learning practicals</b> Due: Week 8 Monday (8 Jan 2018) 11:45 pm AEST

**Week 9 - 15 Jan 2018**

Module/Topic	Chapter	Events and Submissions/Topic
All content delivered - revision		

**Week 10 - 22 Jan 2018**

Module/Topic	Chapter	Events and Submissions/Topic
All content delivered - revision		

**Week 11 - 29 Jan 2018**

Module/Topic	Chapter	Events and Submissions/Topic
All content delivered - revision		<b>Written Assessment - complex reasoning</b> Due: Week 11 Monday (29 Jan 2018) 11:45 pm AEST

**Week 12 - 05 Feb 2018**

Module/Topic	Chapter	Events and Submissions/Topic
All content delivered - revision		

## Exam Week - 12 Feb 2018

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

## Review/Exam Week - 12 Feb 2018

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

## Term Specific Information

This Unit has all of the lecture content delivered over the first 8 weeks of the Unit schedule/Moodle site. These 8 weeks of content delivery will have an associated recorded ECHO360 lecture (and PowerPoint file) typically of 2.5-3 hours of length. The PowerPoint file and lecture content are the primary delivery medium for this unit and will be where the examination questions are drawn from. The final 4 weeks of the Unit schedule have no content - this has been intentionally left free to allow for consolidation and self managed/directed study and completion of any remaining assessment items. As the examination forms an integral component of your tasks during the term, you should use this time to prepare for this item. You still have the same amount of content/contact time as other units - it has just been designed and delivered in a topic format of 8 weeks x 3 hours rather than 12 weeks x 2 hours. All of the 8 weeks of lecture content and associated files will be available in week 1 of term.

As with other Units - the design is such that students are expected to spend on average 10-12.5 hours per week (150 hours total) on associated study activities for this Unit. As a rough "time budget estimate" (approximate) guide for your study as follows:

- Assessment item 1 - 15 hours
- Assessment item 2 - 15 hours
- Assessment item 3 - 30 hours
- Assessment item 4 - 90 hours (average = 11.25 hours per week of own study on the 8 weeks of content)
- 150 hours total

Assessment items 1-3 have elements which are "time on task" activities to also contribute to the weekly content and hence the generic exam study for this Unit.

## Assessment Tasks

### 1 Written Assessment - Drug Poster

#### Assessment Type

Written Assessment

#### Task Description

In the first week of term (towards the end), students will be randomly allocated the name of a drug, chemical or substance of abuse. Your task is to thoroughly research your given compound using journal article sources and other reference material to produce a poster summarising your findings. Assistance in the production of the poster is provided in the Unit Moodle site. The poster should be completed in PowerPoint or an alternative poster designing program. Students please note that pharmaceutical company Internet sources should only be used sparingly - you need to research primary literature material for the most recent scientific studies. This item is to be submitted electronically via Moodle. Examples of "typical" posters will be provided on Moodle. Where possible your drug will be allocated to have relevance to your discipline area (not always possible). This task is designed to contextualise and provide directed "time on task" study of the basic concepts in pharmacology using your drug as a focus. The specific areas you should keep in your mind are as follows:

- pharmacodynamics, receptor targets (agonist, antagonist or protein target), pharmacokinetics, clinical response, clinical trials, preclinical testing and side effects
- communicate this information in a concise "research poster" format

#### Assessment Due Date

Week 5 Monday (11 Dec 2017) 11:45 pm AEST

#### Return Date to Students

Week 7 Monday (1 Jan 2018)

#### Weighting

10%

## Minimum mark or grade

50%

## Assessment Criteria

The following criteria and marking scheme will be used to evaluate the poster. These are the elements you should incorporate to achieve the allocated grades:

	<b>Marks</b>	<b>Criteria</b>
Content	30	Information covered should include clinical uses, development and clinical trials, toxicology, cellular mechanisms of action, side effects and interactions, pharmacokinetics and comparisons with other drugs or toxins where appropriate. Information must be concise and easy to comprehend.
Research	20	Intensive information searching outside of the Study Guide and textbook should be evident. Research material used should consist primarily of articles from refereed journals, textbooks and <b>some</b> Internet sources. You should also include interesting or novel findings about your drug/chemical.
Organisation	10	The content of the poster should be concise and separated into defined sections. All posters should have a clear heading/title with the author's name and affiliation underneath in addition to the following sections: Introduction/Pharmacology/Pharmacokinetics/Toxicology/ Conclusions/References
References	10	All sources (including Internet resources) should be listed in a small print at the end of the poster. The reference list should be constructed according to the "Harvard" style as described in the following website: <a href="http://www.cqu.edu.au/referencing">http://www.cqu.edu.au/referencing</a>
Presentation	30	The poster should have high reader impact. Good use of colour schemes and font styles and sizes should be evident. Content should be clearly written with a high quality of English expression (spelling, grammar). Bullet points should be used where appropriate. Abbreviations should be explained when first used. Any diagram must be of good quality and sources must be acknowledged appropriately.
<b>Total</b>	<b>100</b>	

## Referencing Style

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

## Submission

Online

## Learning Outcomes Assessed

- Recognise and describe the differing ways in which drugs and chemicals act quantitatively and qualitatively on living organisms.
- Recall and explain the basic principles of pharmacology - pharmacodynamics, pharmacokinetics, drug design and clinical trials.
- Recall and classify the major groups of medicines with respect to pathophysiology, their actions and therapeutic applications for medical science, paramedic science and podiatry practice (including local and general anaesthesia, cardiovascular, CNS, gastrointestinal, antimicrobial, respiratory and endocrine).
- Appraise the scientific literature relating to drugs and medicines and communicate this knowledge to your peers

## Graduate Attributes

- Communication
- Critical Thinking



- Information Literacy
- Information Technology Competence
- Cross Cultural Competence

## 2 Written Assessment - Computer-aided learning practicals

### Assessment Type

Written Assessment

### Task Description

This task requires the completion of Moodle lessons/Computer-aided learning (CAL) modules and associated questions. This item will help with study of several fundamental aspects of basic pharmacology and provide several simulated laboratory exercises. These should be seen as part of the simulated practical learning component of the course and are linked to background tasks which will enhance completion of Assessment item #3. This item will be available to complete from week 4.

### Assessment Due Date

Week 8 Monday (8 Jan 2018) 11:45 pm AEST

### Return Date to Students

Week 10 Monday (22 Jan 2018)

### Weighting

15%

### Minimum mark or grade

50%

### Assessment Criteria

This task requires completion of the Moodle lessons/CAL modules - these items have questions to be completed and will be marked either correct or incorrect.

### Referencing Style

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

### Submission

Online

### Learning Outcomes Assessed

- Recall and explain the basic principles of pharmacology - pharmacodynamics, pharmacokinetics, drug design and clinical trials.
- Recall and classify the major groups of medicines with respect to pathophysiology, their actions and therapeutic applications for medical science, paramedic science and podiatry practice (including local and general anaesthesia, cardiovascular, CNS, gastrointestinal, antimicrobial, respiratory and endocrine).
- Understand how pharmacological laboratory experiments are conducted by using computer aided learning modules, and interpret the results from these experiments (tables/graphs).

### Graduate Attributes

- Problem Solving
- Critical Thinking
- Information Technology Competence

## 3 Written Assessment - complex reasoning

### Assessment Type

Written Assessment

### Task Description

#### Practical literature review

This is a single assessment task worth a total of 25%. This assignment encourages the synthesis of literature sources and current scientific information on significant areas of human system functioning and subsequent pharmacological intervention together with sound mechanistic knowledge from the CAL modules. This is an imaginary drug to base your written assessment item on and should build on the knowledge from the CAL modules.

**Students only need to pick ONE of the following imaginary drugs to complete this assessment item.**

Our old friend Dr Magoo has turned his hand to science rather than medicine following his recent legal liability case from

Peter Notsowell in BMSC12010. Dr Magoo has just designed three new drugs - **Anginablast, Intestocalm and Surgysleep**.

- **Anginablast** is thought to cause long lasting coronary and other artery dilation
- **Intestocalm** is a revolutionary new antispasmodic agent for the intestine which stops GIT muscle contractions
- **Surgysleep** is a wonder anaesthetic and analgesic with few side effects (minimal respiratory depression with almost immediate recovery)

Your task is to help Dr Magoo figure out how this drug might be working (mechanism(s) of action) by describing a series of experiments you could use to test this compound. A good place to start would be experimental techniques we have covered in the CALs. It would be advantageous to discuss existing compounds that might have similar properties.

What is this task hoping to achieve?

- gaining a greater understanding of receptor targets and how drugs might work
- demonstrating basic knowledge of preclinical tissue bath testing and clinical trials
- creative written expression and advanced literature integration and review

A passing mark would require at least 10 primary references and students should consider their own positioning on the topic chosen. This means that the reader should be able to understand from your perspective the theoretic and practical basis of this compound. The **word limit** for this task is approximately **3000 but is flexible on the higher side. This item requires the student to hypothesize about the possible implications and mechanisms of action.**

#### **Assessment Due Date**

Week 11 Monday (29 Jan 2018) 11:45 pm AEST

#### **Return Date to Students**

Review/Exam Week Monday (12 Feb 2018)

#### **Weighting**

25%

#### **Minimum mark or grade**

50%

#### **Assessment Criteria**

The following criteria and marking scheme will be used to evaluate the review:

#### **Topic/Title/Content (/30):**

The review should state clearly the topic/intervention to be reviewed together with sufficient supporting evidence (references). Statements should be appropriately referenced and ideas should flow in a logical manner. Examination of simulated experiments should be included.

#### **Referencing (/10):**

All articles referred to in the review need to be listed in this section. Referencing style should follow the "Harvard" style as described in the website listed in the assignments section of this Course Profile. It is estimated that a **minimum** of 10 journal articles will be required. Currency of the journals articles is important.

#### **Positioning of review/Discussion (/30):**

The implications of the drug should be discussed - how do you think it may work? Your own judgment should also be included.

#### **Writing style/Presentation (/30):**

The document should be word processed and printed on a good quality printer. Reviews should be clearly written in full sentences (not points) using correct spelling and grammar. Abbreviations should be explained when first used.

#### **Total /100**

#### **Referencing Style**

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

#### **Submission**

Online

## **Learning Outcomes Assessed**

- Recognise and describe the differing ways in which drugs and chemicals act quantitatively and qualitatively on living organisms.
- Recall and explain the basic principles of pharmacology - pharmacodynamics, pharmacokinetics, drug design and clinical trials.
- Appraise the scientific literature relating to drugs and medicines and communicate this knowledge to your peers

## **Graduate Attributes**

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

## **Examination**

### **Outline**

Complete an invigilated examination.

### **Date**

During the examination period at a CQUniversity examination centre.

### **Weighting**

50%

### **Length**

180 minutes

### **Minimum mark or grade**

50%

### **Exam Conditions**

Closed Book.

### **Materials**

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

## 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