BMSC13010 *Pharmacology*
Term 3 - 2019

Profile information current as at 12/10/2024 07:21 pm

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 pharmacology. The mechanism of action of major drug classes used in the treatment of disorders affecting various body systems 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 professions.

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-requisites CG93 Medical Science, CL10 Medical Laboratory Science and CG95 Paramedic Science: BMSC12010 CB66 Health Science (Allied Health): MBIO12013 and BIOH12008 CB86 Bachelor of Podiatry Practice (Honours): ALLH11001, and BMSC11008 (or ALLH11004), and HLTH11027, and PSYC11010, and BMSC11007 (or ALLH11005), and ALLH11009 (or ALLH12007), and ALLH11006 and HLTH12028CV69 Echocardiography and Cardiac Physiology: ECHO11004
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 - 2019

- 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 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: 25%
2. **Written Assessment**
Weighting: 25%
3. **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 evaluation and student email

Feedback
Engaging delivery methods (examples - lecture content, enthusiasm of the lecturer, diagrams, drawings and examples, assessment help video and exam revision sections were identified to help student learning

Recommendation
Maintain and refine the delivery model

Feedback from Unit evaluation

Feedback
Content heavy with long lecture recordings

Recommendation
Some sections will be turned into smaller blocks of lecture content to maintain engagement

Feedback from Unit evaluation

Feedback
More forum communication required

Recommendation
Increased communication via forum posts by the teaching team

Unit Learning Outcomes

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

1. Explain the basic principles and the applications of pharmacology - pharmacodynamics, pharmacokinetics, drug design and clinical trials
2. Classify the major groups of medicines with respect to use in pathophysiologies, their actions and side effects
3. Interpret and analyse the results from pharmacological experiments and understand the implications arising from these results
4. Critically evaluate the scientific literature relating to pharmacological agents and use this knowledge to explain and justify how pharmaceuticals mediate their effects.

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 - Written Assessment - 25%			•	•
2 - Written Assessment - 25%	•		•	•
3 - Examination - 50%	•	•		

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
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 - 25%	•	•	•	•		•				
2 - Written Assessment - 25%	•	•	•	•		•				
3 - Examination - 50%	•			•						

Textbooks and Resources

Textbooks

BMSC13010

Prescribed

Rang and Dale's Pharmacology
Edition: 9th edn (2019)
Authors: Ritter J, Flower R, Henderson G, Rang H
Elsevier / Churchill Livingstone
London , UK
ISBN: 9780702074486
Binding: Paperback

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

Schedule

Week 1 - 11 Nov 2019

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	Weekly lecture content (live in class and ECHO360 recording)

Week 2 - 18 Nov 2019

Module/Topic	Chapter	Events and Submissions/Topic
Pharmacokinetcs (Lectures 4-5); Clinical Trials (Lecture 6)	Online course material and PowerPoint notes/lecture videos Chapters 8, 9 and 10 from the textbook	Weekly lecture content (live in class and ECHO360 recording)

Week 3 - 25 Nov 2019

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	Weekly lecture content (live in class and ECHO360 recording)

Week 4 - 02 Dec 2019

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	Weekly lecture content (live in class and ECHO360 recording)

Vacation Week - 09 Dec 2019

Module/Topic	Chapter	Events and Submissions/Topic

Week 5 - 16 Dec 2019

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	Weekly lecture content (live in class and ECHO360 recording)

Week 6 - 23 Dec 2019

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	Weekly lecture content (live in class and ECHO360 recording)

Week 7 - 06 Jan 2020

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	Weekly lecture content (live in class and ECHO360 recording) **Simulated drug effects** Due: Week 7 Friday (10 Jan 2020) 11:55 pm AEST

Week 8 - 13 Jan 2020

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	Weekly lecture content (live in class and ECHO360 recording)

Week 9 - 20 Jan 2020

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

Week 10 - 27 Jan 2020

Module/Topic	Chapter	Events and Submissions/Topic
All content delivered - revision		**Complex reasoning - mythical drug review** Due: Week 10 Friday (31 Jan 2020) 11:55 pm AEST

Week 11 - 03 Feb 2020

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

Week 12 - 10 Feb 2020

Module/Topic	Chapter	Events and Submissions/Topic

All content delivered - revision

Exam Week - 17 Feb 2020

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Your teaching team for T3 2019
Your unit coordinator is Dr Andrew Fenning. You can contact me using the forum on the unit's Moodle site, via phone (0749232568) or email (a.fenning@cqu.edu.au).

The unit
BMSC13010 Pharmacology fits into your course as a direct follow-on to BMSC12010 (Clinical Biochemistry) incorporating important aspects of your learning journey to date such as physiology, anatomy, pathophysiology, cardiorespiratory physiology and neurophysiology as examples. Successfully completing BMSC13010 allows for important scaffolding to other third level (advanced) units such as Paramedic and Podiatry specific pharmacology units, clinical measurement units and BMSC13009 Immunology. BMSC13010 is a core unit in several courses, including:
• Bachelor of Medical Science (CG93)
• Bachelor of Medical Laboratory Science (CL10)
• Bachelor of Paramedic Sciences (CG95)
• Bachelor of Podiatry (CB86)

And as electives for:
• Bachelor of Science (CU18)
• Bachelor of Health Science (Allied Health) (CB66)

Expectations - boldly go.....(where others have gone before!)
Despite the rumoured tough nature of this unit (yes - the unit contains new content which will be the first major focus you've experienced on how drugs work) the class always raises the bar! This is illustrated by the excellent success rates (92% of students passed) and the percentage of students who achieved a HD (8%), D (21%), C (31%), P (25%) or F (8%) grades during Term 3 2018. In an analysis (EasiConnect data - tracks your interaction with Moodle) of why a student achieved a HD, D or C grade compared to a P or F grade the answer appears to be linked to your meaningful engagement. HD students interact with the material almost 2.5 times as much as a P student (EasiConnect). That is a significant difference in the level of engagement and potential for learning!

Delivery and study commitment
This unit has all of the lecture content presented over the first 8 blocks of the unit schedule/unit Moodle page. This is delivered on topic areas rather than a traditional weekly schedule. These recordings have already been recorded for the Term 3 offering. The 8 blocks/weeks of content delivery will have an associated recorded ECHO360 lecture (and PowerPoint file) and be delivered in a weekly fashion typically of 2.5-3 hours in 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 delivery - 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.

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" the approximate guide for your study per assessment is as follows:
• Assessment item 1 CALs (25%) - 20 hours
• Assessment item 2 Complex reasoning - imaginary drug review (25%) - 40 hours
• Assessment item 3 Examination (50%) - 90 hours

If you consider the lecture content and other activities will total approximately 40 hours, your own study needs to account for the rest (110 hours). Assessment items 1 and 2 have elements which are "time on task" activities to also contribute to the weekly content and hence the generic exam study for this Unit. Use these details as a guide because your study journey and requirements are unique (some students may require less or more hours than suggested to pass).

Brief assessment overview and tips
• Assessment item 1 Simulation - a simulated series of laboratory experiments which allow you to visualise drug-receptor interactions and responses
• Assessment item 2 Mythical drug review - a mini review of your choice of an imaginary drug which requires you to integrate knowledge from the previous assessment items and formulate a mechanism of action and how you would test the drug
• Assessment item 3 Examination - content knowledge and problem solving
Make sure you cite correctly and gather sufficient reference materials for the written assessment item #2 - this was a common feature for a less than optimal grade.

Assessment Tasks

1 Simulated drug effects

Assessment Type
Written Assessment

Task Description
Gaining familiarity on where and how drugs act on tissues is an important experimental and clinical skill used in your future professional and personal lives. This task requires you to complete an online simulated set of activities and submit your responses / answers which are derived from this task. The simulation is a virtual pharmacology experiment, which will enable you to perform drug additions and view the responses without having to step foot into a laboratory. As noted in lectures, drug dosing experiments enable pharmacologists to investigate the physiology and pharmacology of in vitro tissue preparations. The theory behind the simulated experiments is discussed further in the experimental instruction manual which is available on the unit Moodle site under the “essential information” tab, as are the step-by-step instructions for using this online module.

In order to complete this activity, you are required to follow the instructions outlined in the instruction manual and collect experimental data generated from the simulated tissues. Once you have collected your data, you are required to prepare responses, observations, calculations and answer a series of questions which relate to the online module you just completed. The completion of this activity will enable you to further understand concepts relating to agonists, antagonists, EC50s, cumulative concentration responses and will enable you to get an introductory understanding of how pharmacological experiments are conducted. This task may also assist in completion of assessment item 2.

Assessment Due Date
Week 7 Friday (10 Jan 2020) 11:55 pm AEST

Return Date to Students
Week 9 Friday (24 Jan 2020)

Weighting
25%

Minimum mark or grade
50%

Assessment Criteria
This task requires the submission of observations, data, graphs and responses generated as a result of completing the simulated experiments. The data tables and graphs you submit will be assessed for your ability to interpret and present the generated data in a professional manner. The written responses you submit each contain weighted marks as outlined in the instruction manual and will be marked either correct or incorrect based upon your understanding of key concepts and the interpretation of the results you develop.

Referencing Style

- Harvard (author-date)
- Vancouver

Submission
Online

assessmentOutcome

- Interpret and analyse the results from pharmacological experiments and understand the implications arising from these results
- Critically evaluate the scientific literature relating to pharmacological agents and use this knowledge to explain

and justify how pharmaceuticals mediate their effects.

assessmentGradAttribute

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

2 Complex reasoning - mythical drug review

Assessment Type
Written Assessment

Task Description
This task requires you to establish the potential mechanism of action and outline a series of experiments you could use to verify the pharmacological actions of an imaginary drug. Communication, problem solving and applying knowledge to a variety of scenarios will be part of your everyday future in health care. This fictitious drug task will require you to apply your understanding of pharmacological principles to postulate a mythical drug's cellular target(s), mechanism of action and physiological effects. In a real world context, pharmacologists are required to test new chemical compounds and work to identify the physiological effects they have within the body (for example, does a new compound increase heart rate?). Once the physiological effects for new compounds have been identified, pharmacologists must then work to identify the mechanism through which the observed effects are mediated (for example, what receptors are activated or blocked, what proteins undergo phosphorylation, what genes are turned off and on).

In this assessment item you are given the observations/effects for four imaginary drugs. ***You are to choose one of the four options to report on***. Once you have made your choice you are to describe how the drug works and a series of experiments you could use to test the mechanism/s through which the imaginary drug is mediating its effects.

Imaginary drugs you can choose from -

- ***Clotopress*** - miraculous drug which inhibits clot formation and lowers blood pressure
- ***Psychcalm*** - fantastical drug which is a new antipsychotic medication
- ***Destrobac*** - revolutionary antibacterial agent which shows no antibiotic resistance
- ***Wildzombie*** - originally designed for antiemetic and pain relieving properties, however the side effects of seizures, euphoria, analgesia, facial grimaces and aggressive zombie-like behaviour has seen recreational use become apparent

As a guide, you may like to consider how experimental techniques we have covered in simulation could be used, clinical trials, along with any other methods you have identified during your literature search to determine the mechanism of action for your imaginary drug. It would be advantageous to position your proposed experiments with a discussion on existing compounds that may have similar properties. The use of peer-review journal articles as information sources is expected (a minimum of 10 primary references are required for this assessment item), whilst the use of internet / pharmaceutical company websites is discouraged. Word limit for this assessment item is 2500 words. By completing this task it is hoped you will gain a greater understanding of receptor targets and how drugs work, demonstrate basic knowledge of preclinical tissue bath testing and clinical trials, and demonstrate creative written expression and advanced literature review and integration.

Assessment Due Date
Week 10 Friday (31 Jan 2020) 11:55 pm AEST

Return Date to Students
Week 12 Friday (14 Feb 2020)

Weighting
25%

Minimum mark or grade
50%

Assessment Criteria
A detailed marking rubric criteria sheet can be found on the unit Moodle page, however assessment will be based on the knowledge of theory, rationalization and justification of your arguments/ideas/proposed experiments, quality and quantity of information sources used, presentation of references, presentation and formatting the content (including images, figures, or tables), spelling and grammar.

Marking criteria:

Fundamental content - 15 marks establishing a mechanism of action

Positioning of your arguments - 15 marks logical and critical evaluation of the literature and techniques

Writing style/overall presentation - 10 marks excellent grammar and proofing

Referencing - 10 marks correct citation and referencing used

Total = 50 marks

Referencing Style

- Harvard (author-date)
- Vancouver

Submission
Online

assessmentOutcome

- Explain the basic principles and the applications of pharmacology - pharmacodynamics, pharmacokinetics, drug design and clinical trials
- Interpret and analyse the results from pharmacological experiments and understand the implications arising from these results
- Critically evaluate the scientific literature relating to pharmacological agents and use this knowledge to explain and justify how pharmaceuticals mediate their effects.

assessmentGradAttribute

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

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).
Calculator - non-programmable, no text retrieval, silent only

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assessmentOutcome

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assessmentGradAttribute

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