BMSC13010 *Pharmacology*

Term 1 - 2018

Profile information current as at 02/05/2024 01:37 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 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 1 - 2018

- Distance
- Rockhampton

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 priciples 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

— 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	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 and Dale's Pharmacology
8th Edition (2015)
Authors: Ritter J, Flower R, Henderson G, Rang H
Elsevier / Churchill Livingstone
London , United Kingdom
ISBN: 9780702053627
Binding: Other

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 style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Rebecca Vella Unit Coordinator
r.vella@cqu.edu.au

Schedule

Week 1 - 05 Mar 2018

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 - 12 Mar 2018

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	

Week 3 - 19 Mar 2018

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 - 26 Mar 2018

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	**Written Assessment - Drug Poster** Due: Week 4 Friday (30 Mar 2018) 11:45 pm AEST

Week 5 - 02 Apr 2018

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	

Vacation Week - 09 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 16 Apr 2018

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	**Written Assessment - Computer-aided learning practical** Due: Week 6 Friday (20 Apr 2018) 11:45 pm AEST

Week 7 - 23 Apr 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 - 30 Apr 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	

Week 9 - 07 May 2018

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

Week 10 - 14 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
All content delivered - revision		**Written Assessment - complex reasoning** Due: Week 10 Friday (18 May 2018) 5:00 pm AEST

Week 11 - 21 May 2018

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

Week 12 - 28 May 2018

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

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 Written Assessment - Drug Poster

Assessment Type
Written Assessment

Task Description
This assignment is centred on one of the following drugs – Simvastatin, perindopril, salbutamol, propofol, morphine, tacrolimus, risperidone, paroxetine, cocaine or cannabis.

Before commencing your research, you are to nominate which drug you wish to report on via the unit moodle site using the survey located under the “essential information” tab. Please note the survey has been designed so that a maximum of 5 people can nominate to report on any one drug. Once 5 people have selected any one drug it will no longer allow others to record this option, in which case you will be required to select any of the remaining choices. Assignment submissions will not be accepted unless you have nominated which drug you will report on in the survey, this prevents students from submitting assessments on topics which have already exhausted the maximum allocation. The survey will be open from 9:00am AEST Monday the 19th of February 2018 (two weeks prior to the commencement of term). There is no scheduled closing date for the survey, but as noted above you are required to complete this task in order for your assignment submission to be accepted.

Once you have nominated your drug, you must create an electronic poster presentation using powerpoint. Posters are a great way to succinctly present information and are often used at scientific conferences to deliver content. To give you an idea of how scientific posters are formatted for presentation some examples will be uploaded to the unit moodle site.

On your poster you will be required to outline the following information as it relates to your compound – Pharmacodynamics, receptor targets (agonist, antagonist or protein target), pharmacokinetics, clinical responses, clinical trials, preclinical testing and side effects.

When researching information you are advised to use peer-review sources. The use of internet pages and information released by the pharmaceutical company which produce the drug you are reporting on is discouraged. In text referencing and a reference list must be included on your poster.

In addition to examining the pharmacological content on your poster, you will also be assessed on the quality of information sources used, overall format and layout, and spelling and grammar. You may use any dimensions you want for your poster provided they do not exceed 85cm wide and 100cm high. When formatting your poster it is advisable to select complimentary colours for the background and writing, the font should be a suitable size in comparison to the dimensions of your presentation and you should avoid having blank spaces. Whilst you may use images in your presentation, any you do incorporate must contain appropriate titles, be referenced in text and when necessary include a reference. Whilst not compulsory, it is advisable to include subheadings as these often help to improve readability.

Assessment Due Date
Week 4 Friday (30 Mar 2018) 11:45 pm AEST

Return Date to Students
Week 6 Monday (16 Apr 2018)

Weighting
10%

Assessment Criteria

A detailed criteria sheet can be found on the unit moodle page, however assessment will be based on

the accuracy in presenting pharmacological concepts as they relate to your drug of choice, quality of information sources used, presentation of references, presentation and formatting the content (including images, figures, or tables), and spelling and grammar.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Your submission is to be in powerpoint format.

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 priciples 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 practical

Assessment Type
Written Assessment

Task Description
This task requires you to complete an online Computer-aided learning (CAL) module and submit your responses / answers which are derived from this activity.

The CAL is a virtual pharmacology experiment, which will enable you to perform the organ bath technique without having to step foot into a laboratory. As noted in lectures, organ bath experiments enable pharmacologists to investigate the physiology and pharmacology of *in vitro* tissue preparations. The theory behind the organ bath technique is discussed further in the CAL 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 CAL software. Once you have collected your data you are required to prepare cumulative concentration response curves 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 3.

Assessment Due Date
Week 6 Friday (20 Apr 2018) 11:45 pm AEST

Return Date to Students
Week 8 Friday (4 May 2018)

Weighting
15%

Minimum mark or grade
50%

Assessment Criteria
This task requires the submission of data, graphs and responses generated as a result of completing a CAL module. The data tables and graphs you submit will be assessed for 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 CAL instruction manual and will be marked either correct or incorrect based upon your understanding of key concepts and the interpretation of the results you gain.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Recall and explain the basic priciples 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
This task requires you to outline a series of experiments you could use to verify the pharmacological actions of an imaginary drug.

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 you are given the physiological effects for three imaginary drugs. You are to choose one of the three options to report on. Once you have made your choice you are to describe 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 -
· Anginablast – thought causes long lasting coronary and other artery dilation
· Intestocalm – revolutionary new antispasmodic agent for the intestine which stops GIT muscle

contractions
· Surgysleep – new anaesthetic and analgesic agent that has few side effects (minimal respiratory depression and almost immediate recovery)

As a guide, you may like to consider how experimental techniques we have covered in CALs could be used, 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 2000 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 (18 May 2018) 5:00 pm AEST

Return Date to Students
Review/Exam Week Friday (8 June 2018)

Weighting
25%

Minimum mark or grade
50%

Assessment Criteria
A detailed 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) and spelling and grammar.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Your submission should be in word format

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 priciples 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).
No calculators permitted

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