BMSC13003 *Advanced Clinical Microbiology*

Term 2 - 2019

Profile information current as at 28/04/2024 12:27 pm

All details in this unit profile for BMSC13003 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

On completion of this unit, you will be able to identify and discuss the clinical significance of viruses, prions, fungi and parasites causing human disease. You will investigate the morphological characteristics, epidemiology, laboratory identification of these microorganisms and will be able to debate causes of mycological, parasitic and viral infectious diseases. You will discuss the life cycle of important parasites and their relevance to disease control. You will be able to interpret basic serological tests for the detection of human pathogenic viruses.

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

Prerequisite: MBIO19012 Microbiology Prerequisite: BMSC12011 Clinical Microbiology Prerequisite: BIOL12106 Molecular Biology
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 2 - 2019

- Mixed Mode
- 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).

Residential Schools

This unit has a Compulsory Residential School for distance mode students and the details are:
Click here to see your Residential School Timetable.

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. **Practical Assessment**
Weighting: 30%
2. **Written Assessment**
Weighting: 25%
3. **Examination**
Weighting: 45%

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 Residential School

Feedback

Continue to incorporate molecular technologies in practical sessions

Recommendation

Contemporary molecular diagnostic techniques will be included in residential school practical sessions providing knowledge and training to students in current industry practice of laboratory medicine.

Unit Learning Outcomes

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

1. Describe the clinical significance and laboratory detection of the principal viral, prion, fungal, and parasitic diseases of humans.
2. Appraise the use of molecular techniques for identifying viruses, prions, fungi and parasites causing human disease
3. Evaluate and interpret different testing methods used in the detection and monitoring of infectious disease serology.
4. Evaluate microbiological quality control processes in relation to prions, viruses, fungi and parasites causing human disease and institute corrective action as required.

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 - Practical Assessment - 30%	•		•	•
2 - Written Assessment - 25%		•		•
3 - Examination - 45%	•	•	•	

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication	•	•	•	•
2 - Problem Solving	•	•	•	•

Graduate Attributes	Learning Outcomes			
	1	2	3	4
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 - Practical Assessment - 30%		•	•	•	•					
2 - Written Assessment - 25%	•			•		•				
3 - Examination - 45%	•	•	•	•				•		

Textbooks and Resources

Textbooks

BMSC13003

Prescribed

Bailey & Scott's Diagnostic Microbiology
Edition: 14th edn (2016)
Authors: Patricia Tille
Elsevier Mosby
St Louis , Missouri , United States of America
ISBN: 9780323354820
Binding: Hardcover

Additional Textbook Information

View textbooks at the CQUniversity Bookshop

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

Referencing Style

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

Teaching Contacts

Padraig Strappe Unit Coordinator
p.strappe@cqu.edu.au
Wayne Pederick Unit Coordinator
w.pederick@cqu.edu.au

Schedule

Week 1 - 15 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
Host Parasite interactions and Antimicrobial resistance, "superbugs"	Bailey and Scott's Diagnostic Microbiology Chapters 1, 2 and 10 (14th Edition)	Rockhampton Lecture and Zoom tutorial Introduction to the subject content, learning materials and assessments

Week 2 - 22 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
Viruses and anti viral chemotherapy	Bailey and Scott's Diagnostic Microbiology Chapters 64, 65, 66 (14th Edition)	Rockhampton lecture and zoom tutorial on week 1 content

Week 3 - 29 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic

Mycology and Anti Fungal Chemotherapy	Bailey and Scott's Diagnostic Microbiology Chapter 58-63 (14th Edition)	Rockhampton lecture and zoom tutorial on week 2 content
Week 4 - 05 Aug 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Parasites and anti Parasitic therapy	Bailey and Scott's Diagnostic Microbiology Chapters 46-57	Rockhampton lecture and zoom tutorial on week 3 content
Week 5 - 12 Aug 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Respiratory Tract Infections	Bailey and Scott's Diagnostic Microbiology Chapters 68 and 69 (14th Edition)	Rockhampton lecture and zoom tutorial on week 4 content
Vacation Week - 19 Aug 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Independent study week		
Week 6 - 26 Aug 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Sexually Transmitted Diseases (STDs)	Bailey and Scott's Diagnostic Microbiology Chapters 73 (14th Edition)	Rockhampton lecture and zoom tutorial on week 5 content
Week 7 - 02 Sep 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Obstetric and Gynaecologocical infections	Bailey and Scott's Diagnostic Microbiology Chapters 72	Rockhampton lecture and zoom tutorial on week 6 content
Week 8 - 09 Sep 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Infections of the Central Nervous System	Bailey and Scott's Diagnostic Microbiology Chapter 70 (14th Edition)	Rockhampton lecture and zoom tutorial on week 7 content **Laboratory Diagnostic Assay Review** Due: Week 8 Monday (9 Sept 2019) 11:45 pm AEST
Week 9 - 16 Sep 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Gastrointestinal Tract Infections	Bailey and Scott's Diagnostic Microbiology Chapter 74	Rockhampton lecture and zoom tutorial on week 8 content
Week 10 - 23 Sep 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Infections of Skin and Soft Tissue	Bailey and Scott's Diagnostic Microbiology Chapter 75 (14th Edition)	Rockhampton lecture and zoom tutorial on week 9 content
Week 11 - 30 Sep 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Vector Borne Infections and Zoonoses **Compulsary Residential School 4th October to 6th October**	Bailey and Scott's Diagnostic Microbiology (14th Edition) Chapters 57, 65, 67	Rockhampton lecture and zoom tutorial on week 10 content
Week 12 - 07 Oct 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Revision		**Laboratory Practical Assessment** Due: Week 12 Monday (7 Oct 2019) 11:45 pm AEST

Review/Exam Week - 14 Oct 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Revision	Bailey and Scott's Diagnostic Microbiology (14th Edition) All Chapters listed	Rockhampton lecture and zoom tutorial

Exam Week - 21 Oct 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**

Term Specific Information

Weekly online zoom tutorials will be available starting in week 2, the day and time will be confirmed, all Zoom tutorials will be recorded and available on Moodle.
The compulsory Residential School will be from Oct 4th to Oct 6th.

Assessment Tasks

1 Laboratory Practical Assessment

Assessment Type
Practical Assessment

Task Description
The residential School is an opportunity to learn and perform clinical diagnostic procedures in Virology, Mycology and parasitology and compliment the theoretical knowledge of diagnostic microbiology. The residential school will provide valuable practical experience in techniques currently performed in diagnostic clinical microbiology laboratories.
The laboratory practical assessment will comprise of laboratory based exercises which will be completed during the two (2) day Residential School in Week 11. Theses exercises will be described in the subject laboratory manual and will involve completion of laboratory exercises, calculation and presentation of results. A detailed rubric of assessment criteria for laboratory manual will be available on the unit moodle site
Competed laboratory manuals will be submitted in hard copy by hand on the final day of the Residential School.

Weighting
30%

Assessment Due Date
Week 12 Monday (7 Oct 2019) 11:45 pm AEST
Submit at end of Residential School

Return Date to Students
Week 12 Friday (11 Oct 2019)

Weighting
30%

Minimum mark or grade
A passing grade of 50%

Assessment Criteria
Assessment of the laboratory manual will be based on presentation of results of laboratory exercises and calculations where indicated. Descriptive answers and associated labelled diagrams will also be assessed where exercises involving microscopy are required. Answers provided in the laboratory manual must be clearly presented and legible

Referencing Style

- Harvard (author-date)

Submission
Offline

Submission Instructions
The completed laboratory manual will be submitted on the final day of the Residential School

Learning Outcomes Assessed

- Describe the clinical significance and laboratory detection of the principal viral, prion, fungal, and parasitic diseases of humans.
- Evaluate and interpret different testing methods used in the detection and monitoring of infectious disease serology.
- Evaluate microbiological quality control processes in relation to prions, viruses, fungi and parasites causing human disease and institute corrective action as required.

Graduate Attributes

- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work

2 Laboratory Diagnostic Assay Review

Assessment Type
Written Assessment

Task Description
Laboratory Diagnostic Assay Review
The laboratory diagnostic assay review is an opportunity to explore in more detail current laboratory techniques for detection of viral, prion, parasite or fungal pathogens together with a synopsis of their life cycle, diagnosis and treatment and provide an up to date review through literature searching.
In this written assessment you will be required to compare and contrast two pathogens which infect a similar tissue or organ in terms of the laboratory techniques used for their detection together with a description of transmission, pathogenesis and treatment of these pathogens
You must choose two different pathogen types, for example a virus and a parasite, a fungus and a parasite, or a prion and a virus. You are not limited to these combinations.
Examples of a target tissue or organ could be the respiratory tract, gastrointestinal tract, central nervous system
You will be required to give an introductory background to both of the pathogens and then write in a comparative style as to how the pathogens are diagnosed in particular recent advances in molecular based diagnostic techniques. The written assessment should between 1500 and 2000 word in length.
In order to achieve this you will need to.
1: Identify two suitable pathogens which infect the same tissue type or organ. If you are unsure on the suitability of your choice please consult the unit coordinator for guidance. A comprehensive explanation as to how to approach this assignment will also be available through learning materials provided in week 2
2: Research the literature on current diagnostic techniques and advances in diagnosis using molecular techniques and also provide information on the pathogenesis and treatment of the chosen pathogen.
3: You will be required to reference at least 20 scientific journal articles.

Assessment Due Date
Week 8 Monday (9 Sept 2019) 11:45 pm AEST

Return Date to Students
Week 10 Monday (23 Sept 2019)

Weighting
25%

Minimum mark or grade
A pass grade of 50% must be achieved which is equivalent to 50 marks out of 100

Assessment Criteria
The assessment will be evaluated according to a detailed marking rubric available on the unit moodle site, A total maximum mark of 100 is available for this assessment and a brief overview of the assessment criteria are as follows
Introduction (15 marks): Describe the transmission of the two chosen pathogens and spectrum of disease caused in the target tissue or organ.
Diagnostic Laboratory assays (60 marks): In this section you must describe 3 separate laboratory tests for each of the two pathogens and this must include a Molecular based test (2 x 10 marks), a Serology based Test (2 x 10 marks) and a microscopy based test (2 x 10 marks).

Treatment (15 marks): In this section you must describe current treatment strategies for each of the two pathogens with reference to efficacy, emergence of resistance and side effects.
References (10 marks): Appropriate use of references and formatting of the reference list.
Weighting
25%

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Assessment will be submitted online (through Moodle)

Learning Outcomes Assessed

- Appraise the use of molecular techniques for identifying viruses, prions, fungi and parasites causing human disease
- Evaluate microbiological quality control processes in relation to prions, viruses, fungi and parasites causing human disease and institute corrective action as required.

Graduate Attributes

- Communication
- Information Literacy
- Information Technology Competence

Examination

Outline
Complete an invigilated examination.

Date
During the examination period at a CQUniversity examination centre.

Weighting
45%

Length
120 minutes

Minimum mark or grade
Minimum passing grade of 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

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