

BMSC12011 *Clinical Microbiology*

Term 2 - 2019

Profile information current as at 25/04/2026 09:50 am

All details in this unit profile for BMSC12011 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 will provide you with evidence based learning and practice to maximise your diagnostic capabilities for the accurate detection, identification and management of infectious diseases of humans. This unit will provide you with a comprehensive knowledge and understanding of infectious diseases, the laboratory identification of causative pathogens as well as their pathogenicity and epidemiology. The unit will also include provision of the skills necessary to undertake common practical laboratory processes in clinical bacteriology.

Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Prerequisites: MBIO19012 Microbiology 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).

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: 35%

2. Written Assessment

Weighting: 15%

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 Residential School

Feedback

Increase the use of molecular techniques in practical classes

Recommendation

A practical exercise involving a molecular diagnostic technique to diagnose microbial pathogens incorporated into the residential school schedule

Unit Learning Outcomes

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

1. Describe the principal bacterial pathogens, commensal flora and opportunistic pathogens of each of the human body systems
2. Appraise the use of molecular techniques for identifying bacterial pathogens in human disease
3. Use practical skills to isolate, identify and test the basic antimicrobial resistance of pathogenic bacteria
4. Describe the mechanisms of antimicrobial resistance in bacteria
5. Understand and apply appropriate quality control processes for practice in clinical microbiology

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 - Practical Assessment - 35%	●		●	●	●
2 - Written Assessment - 15%	●	●			
3 - Examination - 50%	●	●		●	

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
1 - Communication	●		●		
2 - Problem Solving	●	●	●		●

Graduate Attributes

Learning Outcomes

	1	2	3	4	5
3 - Critical Thinking	•	•	•	•	•
4 - Information Literacy	•	•	•	•	
5 - Team Work					
6 - Information Technology Competence					
7 - Cross Cultural Competence					
8 - Ethical practice					•
9 - Social Innovation					
10 - First Nations Knowledges					
11 - 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	11
1 - Practical Assessment - 35%	•	•	•	•				•			
2 - Written Assessment - 15%			•	•							
3 - Examination - 50%		•	•	•				•			

Textbooks and Resources

Textbooks

BMSC12011

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
Staphylococci/ Streptococci	Bailey and Scott's Diagnostic Microbiology Chapters 13 and 14 (14th Ed)	Rockhampton Lecture and Zoom Tutorial Welcome to the unit and an overview of the subject content , learning materials and assessments

Week 2 - 22 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
Aerobic Gram positive bacilli/ Filamentous Gram positive bacilli	Bailey and Scott's Diagnostic Microbiology Chapters 15,16, 17 and 18 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 1 content

Week 3 - 29 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
Enterobacteriaceae / Pathogenic Enterobacteriaceae	Bailey and Scott's Diagnostic Microbiology Chapter 19 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 3 content

Week 4 - 05 Aug 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Oxidase positive Gram negative bacilli/ Facultative Gram negative bacilli	Bailey and Scott's Diagnostic Microbiology Chapters 20 21, 22, 25, 29, 31, 32, 33, 34, 35, 36, 37 and 38 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 3 content
Week 5 - 12 Aug 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Gram negative cocci - <i>Moraxella</i> <i>catarrhalis</i> and Neisseriaceae/ Anaerobes	Bailey and Scott's Diagnostic Microbiology Chapters 39, 40 and 41 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 4 content
Vacation Week - 19 Aug 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Individual study time		
Week 6 - 26 Aug 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Mycobacteria/ Spirochaetes, Mycoplasmas & Ureaplasma, Chlamydiae and Rickettsiae	Bailey and Scott's Diagnostic Microbiology Chapters 42, 43, 44, and 45 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 5 content
Week 7 - 02 Sep 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Urinary tract infections	Bailey and Scott's Diagnostic Microbiology Chapter 72 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 6 content
Week 8 - 09 Sep 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Eye, ear, nose and throat & respiratory tract infections Compulsory Residential School Wednesday 11th – Friday 13th September 2019	Bailey and Scott's Diagnostic Microbiology Chapters 68, 69 and 71 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 7 content Rapid diagnostic assays in clinical microbiology Assessment Due: Week 8 Monday (9 Sept 2019) 11:45 pm AEST
Week 9 - 16 Sep 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Skin, soft tissue and wound infections	Bailey and Scott's Diagnostic Microbiology Chapter 75 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 8 content Laboratory Practical Assessment Due: Week 9 Friday (20 Sept 2019) 11:45 pm AEST
Week 10 - 23 Sep 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Genital tract infections and Gastrointestinal tract infections	Bailey and Scott's Diagnostic Microbiology Chapters 73 and 74 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 9 content
Week 11 - 30 Sep 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Infections of sterile sites / Automation and molecular testing	Bailey and Scott's Diagnostic Microbiology Chapters 76, 72, 77 and 8 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 10 content
Week 12 - 07 Oct 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Testing for antimicrobial susceptibility	Bailey and Scott's Diagnostic Microbiology Chapter 11 (14th Ed)	Rockhampton Lecture and Zoom Tutorial on week 11 content

Review/Exam Week - 14 Oct 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Revision	Bailey and Scott's Diagnostic Microbiology All Chapters	Zoom tutorial on week 12 content and revision
Exam Week - 21 Oct 2019		
Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

A weekly online Zoom Tutorial will be provided and the day and time will be confirmed. All Zoom tutorials will be recorded and available on Moodle.
The compulsory Residential School for this subject will be held from the 11th to the 13th of September.

Assessment Tasks

1 Laboratory Practical Assessment

Assessment Type

Practical Assessment

Task Description

The residential school is an opportunity to learn and perform a comprehensive range of bacteriological techniques and compliment the theoretical knowledge of diagnostic microbiology.

Students will undertake analysis of cases in clinical microbiology over three days, designed to mimic true diagnostic microbiology laboratory cases and they will subsequently be required to document their observations and findings in a laboratory manual which will be provided on the Unit Moodle Site. A detailed marking rubric for the laboratory practical assessment will be available on the unit moodle site

Assessment Due Date

Week 9 Friday (20 Sept 2019) 11:45 pm AEST

End of residential school

Return Date to Students

Week 11 Monday (30 Sept 2019)

Marks will be available 2 weeks after residential school. All marked workbooks returned 2 weeks after the second residential school

Weighting

35%

Minimum mark or grade

A passing grade of 50% is required

Assessment Criteria

Students will be assessed on the accuracy and interpretation of their laboratory investigations of the bacterial identification, staining and antimicrobial resistance of the cases provided. This assessment will be performed by use of a workbook for recording laboratory investigations and mock laboratory report for each case.

Weighting

35%

Referencing Style

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

Submission

Offline Online

Submission Instructions

Submit online or at the end of the residential school

Learning Outcomes Assessed

- Describe the principal bacterial pathogens, commensal flora and opportunistic pathogens of each of the human body systems
- Use practical skills to isolate, identify and test the basic antimicrobial resistance of pathogenic bacteria
- Describe the mechanisms of antimicrobial resistance in bacteria
- Understand and apply appropriate quality control processes for practice in clinical microbiology

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Ethical practice

2 Rapid diagnostic assays in clinical microbiology Assessment

Assessment Type

Written Assessment

Task Description

This assessment is an opportunity to research in further detail the application of assays based on the polymerase chain reaction (PCR) and matrix-assisted laser desorption ionization time of flight mass spectrometry (MALDI-TOF-MS) for specific bacterial pathogen detection in terms of diagnostic technology.

The application of these two assays to the clinical microbiology laboratory has revolutionized diagnosis in terms of speed and enhanced specificity. In this assessment you will choose one group of clinically significant bacteria for example, Staphylococci, Streptococci, Salmonella, E.Coli, Pseudomonas (A complete list will be available on the Moodle site) and complete a 1500 to 2000 word literature review on the application of PCR and MALDI-TOF technology in detection of these pathogens.

You will also be required to provide a background on the pathogenicity of your chosen bacterium and on the technical development of PCR and MALDI-TOF.

To achieve this you will need to

- 1: Choose a specific bacterium from a list of clinically relevant bacteria which will be available on the Moodle site. If you are unsure of the suitability of your choice for this assessment, please consult with the unit coordinator. A comprehensive explanation of the defining features of each of the bacteria will be available through the learning materials provided during Week 2.
- 2: Research the literature relevant to your chosen bacterium. Scientific journal articles should form the basis for this literature search.
- 3: Prepare a 1500-2000 literature review summarizing the application of both PCR and MALDI-TOF in detection of the bacterium protein, with appropriate citation to your sources of literature

Assessment Due Date

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

Return Date to Students

Week 10 Monday (23 Sept 2019)

Comments, mark and annotated essay returned via Moodle site/CQU email.

Weighting

15%

Minimum mark or grade

A minimum pass grade of 50% which is equivalent to 50 marks out of 100

Assessment Criteria

The literature review will be evaluated in accordance with the detailed marking rubric available on the unit Moodle site.

A brief overview of the assessment criteria are as follows;

A total of 100 marks will be available for the assessment

1: 40 marks for the scientific content which demonstrates a clear understanding of pathogenicity of the bacterium, the underlying technology behind PCR and MALDI-TOF, and the application of these techniques to clinical diagnosis.

2: 40 marks for a comprehensive discussion of the sensitivities of the two assays , comparing the advantages and disadvantages of each assay

3: 10 marks for overall layout and organisation of the literature review

4: 10 marks for the appropriate use of references and formatting of the reference list. Weighting 15%

Referencing Style

- Harvard (author-date)

Submission

Online

Submission Instructions

Via the moodle site as a mircosoft word document.

Learning Outcomes Assessed

- Describe the principal bacterial pathogens, commensal flora and opportunistic pathogens of each of the human body systems
- Appraise the use of molecular techniques for identifying bacterial pathogens in human disease

Graduate Attributes

- Critical Thinking
- Information Literacy

Examination

Outline

Complete an invigilated examination.

Date

During the examination period at a CQUniversity examination centre.

Weighting

50%

Length

120 minutes

Minimum mark or grade

A 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