BMSC12011 *Medical Microbiology 1*
Term 1 - 2022

Profile information current as at 03/08/2025 06:13 pm

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 1 - 2022

- 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. **Written Assessment**
Weighting: 15%
2. **Practical Assessment**
Weighting: 35%
3. **Online Test**
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 Self-reflection

Feedback
Tutorials would benefit from redevelopment to increase the relevance and overall benefit to students

Recommendation
Tutorials will be be redeveloped to enhance real world relevance and highlight current developments in bacteriology

Feedback from Unit feedback

Feedback
Unit materials were easy to understand and everything was well explained.

Recommendation
Delivery of content will be maintained

Feedback from Unit Feedback and direct feedback

Feedback
The residential school was fantastic. The activities were well paced and allowed time for reflection on the lecture material without too much rushing. The teaching staff were excellent in providing support to students.

Recommendation
Activities within the residential school will be revised slightly to enhance their relevance but the overall format will be maintained.

Unit Learning Outcomes

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

1. Discuss the clinical significance and laboratory detection of bacterial commensal flora, pathogens and opportunistic pathogens of each of the human body systems
2. Appraise the use of molecular techniques for identifying bacteria causing human disease
3. Use practical skills to isolate, identify and test the basic antimicrobial resistance of pathogenic bacteria
4. Discuss the mechanisms of antimicrobial resistance in bacteria
5. Apply appropriate quality control processes for the practice of bacteriology.

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%	•	•		•	

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
3 - Online Test - 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 - Practical Assessment - 35%	•	•	•	•				•		
2 - Written Assessment - 15%			•	•						
3 - Online Test - 50%		•	•	•				•		

Textbooks and Resources

Textbooks

BMSC12011

Prescribed

Bailey and Scott's Diagnostic Microbiology
14th edition (2017)
Authors: Patricia M Tile
Elsevier
St Louis , Missouri , USA
ISBN: 9780323354820
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)

Referencing Style

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

Teaching Contacts

William Deasy Unit Coordinator
w.deasy@cqu.edu.au

Schedule

Week 1 - 07 Mar 2022

Module/Topic	Chapter	Events and Submissions/Topic
Staphylococci/Streptococci	Bailey and Scott's Diagnostic Microbiology Chapters 13 and 14 (15th Ed)	Welcome to the unit and an overview of the subject content , learning materials and assessments

Week 2 - 14 Mar 2022

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 (15th Ed)	Live/recorded Lecture and Zoom Tutorial on week 1 content

Week 3 - 21 Mar 2022

Module/Topic	Chapter	Events and Submissions/Topic
Enterobacteriaceae/Pathogenic Enterobacteriaceae	Bailey and Scott's Diagnostic Microbiology Chapter 19 (15th Ed)	Live/recorded Lecture and Zoom Tutorial on week 2 content

Week 4 - 28 Mar 2022

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 (15th Ed)	Live/recorded Lecture and Zoom Tutorial on week 3 content
Week 5 - 04 Apr 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Gram negative cocci - *Moraxella catarrhalis* and Neisseriaceae/Anaerobes	Bailey and Scott's Diagnostic Microbiology Chapters 39, 40 and 41 (15th Ed)	Live/recorded Lecture and Zoom Tutorial on week 4 content
Vacation Week - 11 Apr 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Individual study time		
Week 6 - 18 Apr 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Mycobacteria/Spirochaetes, Mycoplasmas & Ureaplasma, Chlamydiae and Rickettsiae	Bailey and Scott's Diagnostic MicrobiologyChapters 42, 43, 44, and 45 (15th Ed)	Live/recorded Lecture and Zoom Tutorial on week 5 content
Week 7 - 25 Apr 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Urinary tract infections Antimicrobial therapies and Antibiotic resistance	Bailey and Scott's Diagnostic Microbiology Chapter 72 (15th Ed)	Live/recorded Lecture and Zoom Tutorial on week 6 content
Week 8 - 02 May 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Eye, ear, nose and throat & respiratory tract infections	Bailey and Scott's Diagnostic Microbiology Chapters 68, 69 and 71 (15th Ed)	Live/recorded Lecture and Zoom Tutorial on week 7 content **Rapid Diagnostic Assays in Clinical Microbiology** Due: Week 8 Friday (6 May 2022) 5:00 pm AEST
Week 9 - 09 May 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Skin, soft tissue and wound infections	Bailey and Scott's Diagnostic Microbiology Chapter 75 (15th Ed)	Recorded Lecture and Zoom Tutorial on week 8 content
Week 10 - 16 May 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Genital tract infections and Gastrointestinal tract infections	Bailey and Scott's Diagnostic Microbiology Chapters 73 and 74 (15th Ed)	Live/recorded Lecture and Zoom Tutorial on week 9 content
Week 11 - 23 May 2022		
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 (15th Ed)	Live/recorded Lecture and Zoom Tutorial on week 10 content **Laboratory Practical Assignment** Due: Week 11 Friday (27 May 2022) 5:00 pm AEST
Week 12 - 30 May 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Testing for antimicrobial susceptibility	Bailey and Scott's Diagnostic Microbiology Chapter 11 (15th Ed)	Live/recorded Lecture and Zoom Tutorial on week 11 content
Review/Exam Week - 06 Jun 2022		
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 - 13 Jun 2022

Module/Topic	Chapter	Events and Submissions/Topic
		Date and time are placeholders. Date and time will be confirmed during the term. **End of term test** Due: Exam Week Friday (17 June 2022) 5:00 pm AEST

Term Specific Information

Your unit coordinator for BMSC12011 is Dr William Deasy. You can contact me using the forum on the unit's Moodle site or alternatively through email (w.deasy@cqu.edu.au) or on 07 4930 6365. The forum for this unit is continuously monitored and you can expect a response within 24 hours of posting your question.

Assessment Tasks

1 Rapid Diagnostic Assays in Clinical Microbiology

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 2500 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 2500 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 Friday (6 May 2022) 5:00 pm AEST

Please submit via the assessment dropbox.

Return Date to Students
Week 10 Friday (20 May 2022)

Return will be online via feedback studio

Weighting
15%

Minimum mark or grade
50%

Assessment Criteria
You will prepare a 2500 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 2500 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.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Discuss the clinical significance and laboratory detection of bacterial commensal flora, pathogens and opportunistic pathogens of each of the human body systems
- Appraise the use of molecular techniques for identifying bacteria causing human disease
- Discuss the mechanisms of antimicrobial resistance in bacteria

Graduate Attributes

- Critical Thinking
- Information Literacy

2 Laboratory Practical Assignment

Assessment Type
Practical Assessment

Task Description
Students will undertake analysis of case studies in clinical microbiology, designed to mimic true diagnostic microbiology laboratory cases. Students will be required to document their observations and findings in a laboratory manual which will be provided on the Unit Moodle Site. Information for the laboratory practical assessment will be available on the unit Moodle site.

Assessment Due Date
Week 11 Friday (27 May 2022) 5:00 pm AEST

Online submission via assessment dropbox.

Return Date to Students
Week 12 Friday (3 June 2022)

Return will be online via feedback studio.

Weighting
35%

Minimum mark or grade
50%

Assessment Criteria
Students will be assessed on their practicals skills including staining, biochemical testing and rapid testing techniques.

Referencing Style

- Harvard (author-date)

Submission
Offline Online

Submission Instructions
Submit via assessment dropbox.

Learning Outcomes Assessed

- Use practical skills to isolate, identify and test the basic antimicrobial resistance of pathogenic bacteria
- Apply appropriate quality control processes for the practice of bacteriology.

Graduate Attributes

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

3 End of term test

Assessment Type
Online Test

Task Description
No Assessment Task Description

Assessment Due Date
Exam Week Friday (17 June 2022) 5:00 pm AEST

Date and time are placeholders. Date and time will be confirmed during the term.

Return Date to Students

At certification of grades (6 July 2022)

Weighting
50%

Minimum mark or grade
50%

Assessment Criteria
No Assessment Criteria

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Discuss the clinical significance and laboratory detection of bacterial commensal flora, pathogens and opportunistic pathogens of each of the human body systems
- Appraise the use of molecular techniques for identifying bacteria causing human disease
- Discuss the mechanisms of antimicrobial resistance in bacteria

Graduate Attributes

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

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