



# MBIO12013 Microbiology for Health Care

## Term 2 - 2021

Profile information current as at 30/04/2024 01:43 pm

All details in this unit profile for MBIO12013 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 provides students with essential knowledge on the role of microorganisms and infection control within the context of health care. The unit will also cover host defences and the immune response, including the host-pathogen relationship and the mechanisms of microbial disease. Microbial epidemiology will be examined, with emphasis on worldwide discipline-specific examples.

#### 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

Prereq: BMSC11002 Human Body Systems 2 or BIOH11005 Introductory Anatomy and Physiology or ALLH11004

Anatomy and Physiology for Health Professionals 2. Condition: Be enrolled in any of the following courses: CG95, CC30, CB77, CB29, CB66, CB70, CB86 or CQ23. This unit is incompatible with MBIO19012 Microbiology.

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 - 2021

- Brisbane
- Bundaberg
- Cairns
- Mackay
- Online
- Rockhampton
- Sydney
- Townsville

#### 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. **Online Quiz(zes)**

Weighting: 20%

#### 2. **Written Assessment**

Weighting: 30%

#### 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 Moodle have your say button.

##### Feedback

Students liked the assessments but some were confused by the multiple parts.

##### Recommendation

Assessment parts will be restructured to be less confusing to students.

#### Feedback from Moodle have your say button.

##### Feedback

Assessments were returned late. This was due to lack of marking help.

##### Recommendation

Marking help will be required to ensure timely assessment return to students.

## Unit Learning Outcomes

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

1. Describe the relationship between form and function in the major groups of microorganisms.
2. Discuss the role of microorganisms in relation to human health, with particular reference to the normal microbiota and exogenous microorganisms
3. Describe the mechanisms of microbial diseases, including host-microbe interactions and disease transmission
4. Explain the fundamental principles of innate and adaptive (specific) immunity
5. Describe the major cells and tissues of the immune system and state their function in the immune response
6. Apply the fundamental principles of microbial epidemiology to current issues relating to human health
7. Interpret the principles of sterilisation, disinfection, and infection control in relation to the student's discipline area
8. Interpret the results of laboratory experiments in the context of the underlying microbiological principles.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

| Assessment Tasks             | Learning Outcomes |   |   |   |   |   |   |   |
|------------------------------|-------------------|---|---|---|---|---|---|---|
|                              | 1                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 - Online Quiz(zes) - 20%   |                   | • |   |   |   |   | • | • |
| 2 - Written Assessment - 30% |                   |   | • |   |   | • | • |   |
| 3 - Online Test - 50%        | •                 | • | • | • | • | • | • |   |

### Alignment of Graduate Attributes to Learning Outcomes



## Textbooks and Resources

### Textbooks

MBIO12013

#### Prescribed

##### **Microbiology and infection control for health professionals**

Edition: 6th (2015)

Authors: Lee & Bishop

Pearson

Frenchs Forest, NSW, Australia

ISBN: 9781442549128

Binding: Other

#### **Additional Textbook Information**

Both paper and eBook versions can be purchased at the CQUni Bookshop here: <http://bookshop.cqu.edu.au> (search on the Unit code).

[View textbooks at the CQUniversity Bookshop](#)

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Adobe Acrobat Reader (free download from [www.adobe.com](http://www.adobe.com))

## Referencing Style

**All submissions for this unit must use the referencing styles below:**

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Sandrine Makiela** Unit Coordinator

[s.makiela@cqu.edu.au](mailto:s.makiela@cqu.edu.au)

## Schedule

### **Week 1 - 12 Jul 2021**

| Module/Topic            | Chapter                 | Events and Submissions/Topic |
|-------------------------|-------------------------|------------------------------|
| Introduction, bacteria. | Lee & Bishop, ch 1 & 3. |                              |

### **Week 2 - 19 Jul 2021**

| Module/Topic                     | Chapter             | Events and Submissions/Topic |
|----------------------------------|---------------------|------------------------------|
| Fungi, protozoans and parasites. | Lee & Bishop, ch 6. |                              |

### **Week 3 - 26 Jul 2021**

| Module/Topic | Chapter                 | Events and Submissions/Topic |
|--------------|-------------------------|------------------------------|
| Viruses.     | Lee & Bishop, ch 3 & 5. |                              |

**Week 4 - 02 Aug 2021**

| Module/Topic                                | Chapter               | Events and Submissions/Topic |
|---|-----------------------|------------------------------|
| Microbial growth, replication and genetics. | Lee & Bishop, ch 2-6. |                              |

**Week 5 - 09 Aug 2021**

| Module/Topic | Chapter             | Events and Submissions/Topic   |
|--------------|---------------------|--|
| Immunity.    | Lee & Bishop, ch 9. | Online test 1 due Friday. Test will open at 9am AEST and close in 24h. |

**Vacation Week - 16 Aug 2021**

| Module/Topic | Chapter | Events and Submissions/Topic |
|--------------|---------|------------------------------|
|--------------|---------|------------------------------|

**Week 6 - 23 Aug 2021**

| Module/Topic           | Chapter                     | Events and Submissions/Topic  |
|------------------------|-----------------------------|---|
| Principles of disease. | Lee & Bishop, ch 7, 8 & 10. | Practicals and virtual laboratory: Part 1 upload of pictures and data due Monday 23rd August, 5pm AEST. |

**Week 7 - 30 Aug 2021**

| Module/Topic           | Chapter                     | Events and Submissions/Topic                                   |
|------------------------|-----------------------------|--|
| Principles of disease. | Lee & Bishop, ch 7, 8 & 10. | Practicals and virtual laboratory: Part 1 Quiz 1 opens Monday. |

**Week 8 - 06 Sep 2021**

| Module/Topic                          | Chapter                   | Events and Submissions/Topic |
|---------------------------------------|---------------------------|------------------------------|
| Control of growth, infection control. | Lee & Bishop, ch 11 & 12. |                              |

**Week 9 - 13 Sep 2021**

| Module/Topic             | Chapter                   | Events and Submissions/Topic  |
|--------------------------|---------------------------|---|
| Issues in public health. | Lee & Bishop, ch 13 & 14. | Practicals and virtual laboratory: Part 1 Quiz 1 due Monday 13th September, 11:55pm AEST.<br>Practicals and virtual laboratory: Part 2 Quizzes 2-4 open Monday. |

**Week 10 - 20 Sep 2021**

| Module/Topic   | Chapter  | Events and Submissions/Topic   |
|--|--|--|
| Module A <b>or</b> Module B <b>or</b> Module C (see Term Specific Information) | Specific readings for each module will be provided on the Moodle site. | Online test 2 due Friday. Test will open at 9am AEST and close in 24h. |

**Week 11 - 27 Sep 2021**

| Module/Topic             | Chapter | Events and Submissions/Topic  |
|--------------------------|---------|---|
| Continuation of modules. |         | <b>Case Study Analysis</b> Due: Week 11 Monday (27 Sept 2021) 11:55 pm AEST |

**Week 12 - 04 Oct 2021**

| Module/Topic             | Chapter | Events and Submissions/Topic  |
|--------------------------|---------|---|
| Continuation of modules. |         | Practicals and virtual laboratory: Part 2 Quizzes 2-4 due Monday 4th October, 11:55pm AEST. |

**Review/Exam Week - 11 Oct 2021**

| Module/Topic | Chapter | Events and Submissions/Topic                                       |
|--------------|---------|--|
|              |         | Online test 3 due. Date and time TBA on Moodle closer to the date. |

**Exam Week - 18 Oct 2021**

| Module/Topic | Chapter | Events and Submissions/Topic |
|--------------|---------|------------------------------|
|--------------|---------|------------------------------|

## Term Specific Information

### **Assessment 1:**

For part 1 of your Practicals and Virtual Laboratory you will require a Microbiology Kit. These are available free from the CQUniversity Bookshop. You will automatically have one sent to your address as recorded on MyCentre. If you need it sent to a different address, please contact the unit coordinator ASAP. Your kit should arrive by the end of week 3. If not, please contact the CQUniversity Bookshop via email ([bookshop-customerservice@cqu.edu.au](mailto:bookshop-customerservice@cqu.edu.au)) to follow up on your kit.

### **Modules:**

You will notice in the Schedule that there are different module choices in weeks 10-12. Each module has different topics; this is done to make the unit more relevant to your discipline area. Later in the term, you will need to choose which module you want to do using a Choice activity on the Moodle site.

## Assessment Tasks

### 1 Practicals and Virtual Laboratory

#### **Assessment Type**

Online Quiz(zes)

#### **Task Description**

You will be required to complete practical exercises, both in person at home (Part 1) and virtually (Part 2), and complete four online quizzes.

For Part 1, you will need a Microbiology Kit (see Term Specific Information section) and perform a series of tasks (5 in total) followed by a quiz. Details of these tasks, including instructional videos, will be available on the Moodle site. For each task, you will be required to upload pictures of your work and upload your data into Moodle. The unit coordinator will collate the class data, and you will then do an online quiz based on the class data (Quiz 1). The quiz will open on the Monday of Week 7.

For Part 2, you will carry out 3 virtual laboratory exercises on the Moodle site. Assessment of this part will be via 3 online quizzes (Quizzes 2-4). The quizzes consist of multiple choice questions and will open on the Monday of Week 9.

#### **Number of Quizzes**

4

#### **Frequency of Quizzes**

#### **Assessment Due Date**

Part 1 - Upload of pictures and data on the Monday of Week 6 at 5pm AEST, Quiz 1 due Monday of Week 9 at 11:55pm AEST. Part 2 - Quizzes 2-4 due on the Monday of Week 12 at 11:55pm AEST.

#### **Return Date to Students**

Part 1 (pictures and data) at the beginning of Week 8, Part 1 & 2 quizzes: Moodle should return your results within half an hour.

#### **Weighting**

20%

#### **Minimum mark or grade**

50%

#### **Assessment Criteria**

This assessment piece is worth 20% of the total unit marks, with 10% allocated to each part.

Part 1 (10%) consists of 5 separate tasks and a quiz. For each task, you must upload one picture of your work and the required data. Marks will be awarded for the reporting of valid data (including the photo) and successful completion of the task (1% each for a total of 5%). The quiz on the class data is worth the other 5%.

Part 2 (10%) is assessed via online quiz questions, and the final mark is the total of the three quiz marks.

#### **Referencing Style**

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

#### **Submission**

Online

### Learning Outcomes Assessed

- Discuss the role of microorganisms in relation to human health, with particular reference to the normal microbiota and exogenous microorganisms
- Interpret the principles of sterilisation, disinfection, and infection control in relation to the student's discipline area
- Interpret the results of laboratory experiments in the context of the underlying microbiological principles.

### Graduate Attributes

- Information Technology Competence

## 2 Case Study Analysis

### Assessment Type

Written Assessment

### Task Description

You will be provided with video footage of a workplace situation relevant to a health care future workplace. There will be videos in several discipline areas for you to choose from (available from the unit Moodle site) and you will each need to choose one video only for this assessment. The videos will depict typical workplace occurrences but with flaws in infection control procedures. Using Moodle forums, chat rooms, or other means, you may discuss the footage with other students and identify the flaws in infection control procedures.

The case study analysis (report) will be done individually. You will be limited to a maximum of 5 incidents in your reports. Since there will be more than 5 incidents on the videos, you will be asked to report on those which you believe are the most important, and will be asked to justify your decision. The report will need to discuss how each incident may transmit and cause disease, and reflect on the infection control measures needed to rectify the situation. This will need to be substantiated with evidence from the literature.

After the 5 incidents, you will need to critically evaluate information from the literature on the spread of infection in your future workplace. For example, you would include any reported disease outbreaks and your future workplace's current infection control policies and procedures. This information, as well as the infection control measures suggested from the 5 incidents, will then be used to formulate a final recommendation for the report.

As this assessment will commence at the beginning of term, you will be encouraged to revisit the video as more unit material is covered in lectures. Detailed guidelines for this task will be available from the unit Moodle site.

Suggested length: 2000 - 2500 words.

### Assessment Due Date

Week 11 Monday (27 Sept 2021) 11:55 pm AEST

### Return Date to Students

Review/Exam Week Monday (11 Oct 2021)

### Weighting

30%

### Minimum mark or grade

50%

### Assessment Criteria

The complete assessment marking rubrics will be available on the Moodle site and will be based on the following criteria:

- Identification of problems (15%)
- Discussion of disease potential (10%)
- Recommended infection control solution and relevance to future workplace (25%)
- Application of critical analysis (20%)
- Presentation (10%)
- Clarity of expression (10%)
- Referencing (10%)

### Referencing Style

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

### Submission

Online

### Learning Outcomes Assessed

- Describe the mechanisms of microbial diseases, including host-microbe interactions and disease transmission



- Apply the fundamental principles of microbial epidemiology to current issues relating to human health
- Interpret the principles of sterilisation, disinfection, and infection control in relation to the student's discipline area

#### **Graduate Attributes**

- Problem Solving
- Critical Thinking
- Information Literacy

### **3 Online tests**

#### **Assessment Type**

Online Test

#### **Task Description**

An understanding of fundamental microbiological concepts is essential in many health professions. Your knowledge of the content and concepts will be examined by three online tests held at irregular intervals throughout the term. The first online test will be in week 5, and will cover the content of weeks 1-4. The second will be in week 10, and cover the content of weeks 5-9. The third will be during the examination period, and will cover the content of weeks 10-12. These online tests will be done as quizzes in Moodle. Exact dates and times will be found on the unit Moodle page. The quizzes consist of both multiple choice and short answer questions.

#### **Assessment Due Date**

First test on the Friday of week 5, second test on the Friday of week 10, third test in the examination period.

#### **Return Date to Students**

Marks will be available after each quiz (online test) closes, within 10 working days.

#### **Weighting**

50%

#### **Minimum mark or grade**

50%

#### **Assessment Criteria**

Each MCQ in each online test will be marked automatically by Moodle; short answer questions will be marked manually. Your total mark for this assessment will be the sum of all three online test marks.

#### **Referencing Style**

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

#### **Submission**

Online

#### **Learning Outcomes Assessed**

- Describe the relationship between form and function in the major groups of microorganisms.
- Discuss the role of microorganisms in relation to human health, with particular reference to the normal microbiota and exogenous microorganisms
- Describe the mechanisms of microbial diseases, including host-microbe interactions and disease transmission
- Explain the fundamental principles of innate and adaptive (specific) immunity
- Describe the major cells and tissues of the immune system and state their function in the immune response
- Apply the fundamental principles of microbial epidemiology to current issues relating to human health
- Interpret the principles of sterilisation, disinfection, and infection control in relation to the student's discipline area

#### **Graduate Attributes**

- Communication

## 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