



LMED28001 Chemical Pathology 1

Term 1 - 2024

Profile information current as at 29/07/2024 03:45 pm

All details in this unit profile for LMED28001 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 evaluate the evidence base for biochemical tests used in the diagnosis and monitoring of diseases in the major organ systems of the body. Problem-solving and decision making skills will be developed through the use of authentic case studies. Skill development in instrument calibration, best practice measurement, interpretation of test results and test quality control monitoring will occur through practical exercises. You will be required to attend a residential school in order to promote the development of unit learning outcomes. The residential school may be scheduled outside of the term of offering of the unit.

Details

Career Level: *Postgraduate*

Unit Level: *Level 8*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Prerequisite Enrolment in Master of Laboratory Medicine.

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 - 2024

- Melbourne
- 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 Postgraduate 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: 20%

2. **Written Assessment**

Weighting: 30%

3. **Laboratory/Practical**

Weighting: Pass/Fail

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 Staff feedback & Self reflection

Feedback

Some students found the unit content challenging.

Recommendation

Review and refine the unit content and delivery approach for future iterations to enhance student learning and engagement.

Feedback from Informal student feedback

Feedback

The Residential School was appreciated by students as it allowed them to put theory into practice.

Recommendation

Investigate the option of scheduling the Residential School earlier to align more effectively with the theoretical delivery of the unit.

Unit Learning Outcomes

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

1. Explain the various processes involved in biochemical method evaluation, interpretation and development
2. Appraise the limitations of laboratory procedures and regulatory aspects including external quality assurance and accreditation bodies
3. Describe the rationale and clinical correlation of specialised biochemical tests used in the detection and monitoring of processes affecting the major organ systems
4. Demonstrate skills in the use of biochemical instrumentation including corrective action as required
5. Evaluate biochemical clinical cases to derive a provisional diagnosis.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Written Assessment - 20%			•		
2 - Written Assessment - 30%		•			•
3 - Laboratory/Practical - 0%				•	
4 - Examination - 50%	•	•	•		•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
1 - Knowledge	○	○	○	○	○
2 - Communication		○	○	○	○
3 - Cognitive, technical and creative skills	○	○	○	○	○
4 - Research					
5 - Self-management					
6 - Ethical and Professional Responsibility				○	
7 - Leadership					
8 - Aboriginal and Torres Strait Islander Cultures					

Textbooks and Resources

Textbooks

LMED28001

Prescribed

Clinical Chemistry: Principles, Techniques, and Correlations

Edition: Ninth (2023)

Authors: Michael L. Bishop, Edward P. Fody, Carleen Van Siclen, James March Mistler, Michelle Moy, Jones and Bartlett Learning

Burlington, Mass, USA

ISBN: 9781284238860

Binding: Hardcover

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Zoom (both microphone and webcam capability)

Referencing Style

All submissions for this unit must use the referencing style: [Vancouver](#)
For further information, see the Assessment Tasks.

Teaching Contacts

Amer Siddiq Unit Coordinator
a.siddiq@cqu.edu.au

Schedule

Week 1 - 04 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
1. Basic principles and practices of Clinical Chemistry	1. Clinical Chemistry, Principles, Techniques and Correlations:1	Zoom tutorial - Introduction

Week 2 - 11 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
1. Analytical techniques 2. Introduction to Automation and Point of Care Testing (POCT)	1. Clinical Chemistry, Principles, Techniques and Correlations: 4 2. Clinical Chemistry, Principles, Techniques and Correlations: 5, 29	Zoom tutorial - covering Week 1

Week 3 - 18 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Renal Function & Electrolytes	Clinical Chemistry, Principles, Techniques and Correlations: 11 & 21	Zoom tutorial - covering Week 2

Week 4 - 25 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
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pH, Buffering systems and Blood Gases	Clinical Chemistry, Principles, Techniques and Correlations: 12	Zoom tutorial - covering Week 3
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Week 5 - 01 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Liver & Pancreatic function	Clinical Chemistry, Principles, Techniques and Correlations: 19 & 22	Zoom tutorial - covering Week 4

Vacation Week - 08 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
No lecture	N/A	No tutorial

Week 6 - 15 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Laboratory Markers of Cardiac Function & Cardiac Damage	Clinical Chemistry, Principles, Techniques and Correlations: 20	Zoom tutorial - covering Week 5 Written Assessment 1 -Case Report Due: Week 6 Monday (15 Apr 2024) 10:00 am AEST

Week 7 - 22 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Carbohydrates & Diabetes	Clinical Chemistry, Principles, Techniques and Correlations: 9	Zoom tutorial - covering Week 6

Week 8 - 29 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
1. Lipids & Lipoproteins	1. Clinical Chemistry, Principles, Techniques and Correlations: 10	Zoom tutorial - covering Week 7

Week 9 - 06 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
1. Analytical process, data interpretation and method evaluation 2. Quality Control and External Quality Assessment	Clinical Chemistry, Principles, Techniques and Correlations: 3	Zoom tutorial - covering Week 8

Week 10 - 13 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
1. Basic Endocrinology 2. Calcium & Bone	1. Clinical Chemistry, Principles, Techniques and Correlations: 13 2. Clinical Chemistry, Principles, Techniques and Correlations: 18	Zoom tutorial - covering Week 9 Written Assessment 2 - Practical Report Due: Week 10 Monday (13 May 2024) 10:00 am AEST

Week 11 - 20 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
1. Tumour Markers & Introduction to Therapeutic Drug Monitoring (TDM)	1. Clinical Chemistry, Principles, Techniques and Correlations: 28 & 25	Zoom tutorial - covering Week 10

Week 12 - 27 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
REVISION	N/A	Zoom tutorial - covering Week 11

Review/Exam Week - 03 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic
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Exam Week - 10 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic
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Term Specific Information

As the name suggests, this unit will provide you with technical and applied knowledge of Chemical Pathology.

LMED28001 Chemical Pathology 1 is a core unit in one course:

CM18 - Master of Laboratory Medicine

The **Unit Coordinator** for this Unit is Dr. Amer Siddiq who can be contacted by e-mail (a.siddiq@cqu.edu.au) or via the Moodle forums.

Lectures will all be pre-recorded and will be posted on the Moodle page.

If scheduled lectures or tutorials fall on a public holiday they will be pre-recorded and posted on the Moodle page

Some of the lectures have been recorded by guest lecturers who are specialists in the field.

There are weekly tutorials that will be linked to Zoom to enable remote attendance and these sessions will also be recorded and posted to the Moodle page. **Please note in each tutorial we will be discussing and applying knowledge gained in the preceding week`s lectures.**

These tutorials will summarise the weekly lecture content and provide an opportunity for you to discuss the lecture content.

I encourage you to engage with the tutorials preferably by attending in person or virtually via Zoom, or if that is not possible, review the video and post any questions on the Q&A Forum. Reminder that, if you are an international student it is a requirement that you should attend in person for a minimum of 70% of your classes.

You will be provided an opportunity to develop your skills in Chemical Pathology in a **compulsory residential school (exact dates to be advised).**

As per Australian educational standards, you are expected to commit 150 hours of engagement to your study of this unit. This is broken down as:

- 2 - 3 hours per week watching recorded lectures and revising the content through study notes
- 3 - 4 hours per week completing the weekly study questions on the unit's Moodle page
- 1 - 2 hours per week attending the weekly tutorial and reflecting on your answers to the weekly study questions
- 3 - 4 hours per week preparing your assessments or studying for your end of term exam

Assessment Tasks

1 Written Assessment 1 -Case Report

Assessment Type

Written Assessment

Task Description

You will be provided with a clinical case study on the Moodle page.

You will be provided with information regarding the clinical presentation, patient history and specific biochemical parameters (provided by an automated analyser) for this clinical case study. You are required to write a report using a case study approach describing the pathophysiology, specific biochemical profile characteristics observed that led to the provisional diagnosis, differential diagnoses and potential treatment options. You may also be recommended further tests that will assist in confirming the diagnosis. Further details on the case, a template and an exemplar will be provided to you on the Moodle site to assist in preparation.

Assessment Due Date

Week 6 Monday (15 Apr 2024) 10:00 am AEST

The practical report should be uploaded into Moodle.

Return Date to Students

Week 8 Monday (29 Apr 2024)

Feedback will be provided within two (2) weeks of submission

Weighting

20%

Assessment Criteria

The assessment task is marked according to how well you have met the specific requirements and in accordance with the criteria outlined below:

Presentation: The report is presented in the provided template with clarity of purpose and coherence of expression (spelling, grammar, syntax) in a clear and organised manner.

Abstract: Provides a clear overview and overall summary of the case study.

Introduction: Provides necessary background information and pathophysiology of the case. Does not discuss the final

diagnosis rather supports the intended diagnosis via arguments.

Materials and Methods: Briefly describes all the methods used to aid in diagnosis. Discusses further tests to be employed in order to confirm the diagnosis.

Results: All data presented clearly with reference ranges. Layout is clear with further tests and expected results discussed.

Discussion: Clear discussion of the results with supporting arguments and reasoning for arriving at the final diagnosis.

References: Relevant and correct referencing system used with appropriate in-text references

Referencing Style

- [Vancouver](#)

Submission

Online

Submission Instructions

The documents are to be uploaded into Moodle

Learning Outcomes Assessed

- Describe the rationale and clinical correlation of specialised biochemical tests used in the detection and monitoring of processes affecting the major organ systems

2 Written Assessment 2 - Practical Report

Assessment Type

Written Assessment

Task Description

You will be required to write a report in basic scientific journal format from given data. Scientific journal format typically contains the following elements:

Abstract

Introduction

Methods

Results

Discussion/conclusions

Limitations/future directions

This task requires you to complete a similar yet abbreviated format that only requires IMRAD (introduction, methods, results and discussion/limitations).

Assessment Due Date

Week 10 Monday (13 May 2024) 10:00 am AEST

The practical report should be uploaded into Moodle.

Return Date to Students

Week 12 Monday (27 May 2024)

To be marked and returned 2 weeks after submission deadline.

Weighting

30%

Assessment Criteria

Clarity of expression (spelling and grammar), the inclusion of key facts, accurate research, correct and relevant referencing, and clear diagrams will be important general criteria for performing well in this assessment item. The use of information contained solely within the study notes/practical support information will result in the awarding of a passing grade at best. To obtain higher marks information from other sources will be required. Students who use relevant information from other sources in their reports will be successful. As a guide, between 8 to 10 journal articles should be used! The failure to cite references in your assignments will result in you not achieving full value for your efforts.

Referencing Style

- [Vancouver](#)

Submission

Online

Submission Instructions

Report are to be uploaded into Moodle.

Learning Outcomes Assessed

- Appraise the limitations of laboratory procedures and regulatory aspects including external quality assurance and accreditation bodies
- Evaluate biochemical clinical cases to derive a provisional diagnosis.

3 Laboratory Workbook

Assessment Type

Laboratory/Practical

Task Description

Attendance at the Residential School / Laboratory is mandatory to pass the unit. Dates and times will be notified when scheduled.

You will be provided with a laboratory workbook on the Moodle page. This workbook will contain all the tasks that need to be completed during the residential school block. It will also contain a series of short questions and patient reports to be completed in relation to the authentic cases provided. Group experimental activities during the residential school will foster team work and provide hands-on experience of the biochemical techniques used in pathology laboratories. Completion of the workbook will evidence student engagement and understanding of the principles behind the Biochemical tests. Laboratory staff or demonstrators will assess your individual experimental capability during residential school to ensure your understanding of the learning outcomes.

Assessment Due Date

Due to be handed in at the completion of the chemical pathology practical at residential school

Return Date to Students

Due to be marked within two weeks following the residential school.

Weighting

Pass/Fail

Minimum mark or grade

50%

Assessment Criteria

Residential school Workbook component:

Each section will have respective assigned marks as indicated on the provided workbook.

The Workbook is a PASS/FAIL Assessment.

The laboratory staff will provide immediate verbal feedback to you on the practical hands-on aspect of this assessment item.

The laboratory workbook template will contain the weighting of marks associated with the tasks and subsequent questions/reports to be completed and submitted.

Referencing Style

- [Vancouver](#)

Submission

Online

Submission Instructions

A scanned version of the laboratory workbook is to be submitted on the Moodle page

Learning Outcomes Assessed

- Demonstrate skills in the use of biochemical instrumentation including corrective action as required

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).

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