CHEM11042 *Fundamentals of Chemistry*
Term 1 - 2023

Profile information current as at 04/05/2024 08:59 am

Corrections

Unit Profile Correction added on 15-02-23
Original unit profile stated:
3 Take Home Exam
Assessment Due Date
The take-home exam will become available for download on a specific day during the university's standard exam period. More details on the due date and time will be provided later via Moodle. This exam will be available for 48 hours ONLY and should be submitted via upload to Moodle NO LATER than **38 hours** after it is made available.
The instructions should read:
3 Take Home Exam
Assessment Due Date
The take-home exam will become available for download on a specific day during the university's standard exam period. More details on the due date and time will be provided later via Moodle. This exam will be available for 48 hours ONLY and should be submitted via upload to Moodle NO LATER than 48 hours after it is made available.

General Information

Overview

This unit will provide you with the fundamental principles of chemistry that underpin the medical sciences and provide a strong foundation on which you can develop an understanding of biochemistry and molecular science. You will gain an appreciation of the nature of matter, classic atomic structure and how energy is involved in bond formation. These concepts will be developed to explain the forces between molecules that govern chemical interaction. You will be introduced to the chemistry of electrolytes, acids, bases and buffers. This study will be supported by simple calculations to assist you in relating to the pH scale. The study of organic chemistry and molecules central to the life sciences will enable you to develop an understanding of the biochemistry and molecular biology relevant to your specific discipline. The naming and classifying of chemical compounds will enable you to be conversant with accepted scientific terms. Tutorials and on-line activities will complement the theoretical knowledge gained in lectures and provide you with the basic mathematical and analytical tools required in the application of chemistry to your specific discipline.

Details

Career Level: *Undergraduate*
Unit Level: *Level 1*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites

There are no requisites for this unit.
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 - 2023

- Online

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: 30%
2. **Written Assessment**
Weighting: 20%
3. **Take Home Exam**
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 SUTE

Feedback
Going into paramedicine, I struggled to understand how a lot of the unit content was relevant, but I appreciated learning the content for a greater understanding of chemistry and healthcare implications. I also appreciated how the content was related back to healthcare settings and scenarios. That helped me understand the theory better. Overall, I enjoyed the unit.

Recommendation
This unit is a prerequisite to many units. It is part of the Science Pathway. It helps to develop student understanding of fundamental concepts required for subsequent study in chemistry and provides a basis for study in a range of majors. The contents of this unit are related to and helpful for other topics studied by paramedic students such as fundamental organic chemistry and general chemistry. The chemistry teaching team will emphasise this relationship at an early stage in the unit and further at relevant times with those students during lectures, tutorial and Q&A sessions.

Feedback from SUTE

Feedback
Really enjoyed the chemistry booklet. It really helped understand topics in depth.

Recommendation
The chemistry teaching team will continue to provide and update the study guide.

Feedback from SUTE

Feedback
Feedback on assessments is outright unacceptable

Recommendation
The chemistry teaching team will work closely with the grading team to provide further explanations with students' assessments feedback files, not just simple as "?" or "incorrect".

Feedback from SUTE

Feedback
I understand we can't get results until everyone submits however getting the score should not be delayed, students get very stressed.

Recommendation
The chemistry teaching team and grading team will consider this feedback. We will continue to aim to release students' results as soon as our marking is complete. We will consider releasing students' results first without feedback files where that can provide better student experience.

Feedback from SUTE

Feedback
A poorly delivered Q & A once a week with a senior student and an hour is not long enough for chemistry Q& A some weeks.

Recommendation
The chemistry teaching team will work closely with the session educator who delivers Q&A sessions to rectify and improve the session for the next offering and request the School to extend the session to two hours.

Feedback from SUTE

Feedback
It was hard to understand the recorded lectures. The lectures were very hard to watch, the content and presentation was not engaging.

Recommendation
The chemistry teaching team will continue to review and redesign the unit lecture content and record all of them again. The teaching team will ensure students understand that they should commit to studying the unit's learning materials for a minimum of 10 hours per week.

Unit Learning Outcomes

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

1. Apply concepts of atomic structure to explain molecular bonding and nuclear reactivity
2. Apply chemical concepts to healthcare situations
3. Identify categories of organic compounds and their potential chemical interactions
4. Perform basic chemical calculations.

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 - Online Quiz(zes) - 30%	•		•	•
2 - Written Assessment - 20%		•		
3 - Take Home Exam - 50%	•		•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
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 - Online Quiz(zes) - 30%		•	•	•		•				
2 - Written Assessment - 20%	•	•	•	•		•				
3 - Take Home Exam - 50%	•	•	•	•						

Textbooks and Resources

Textbooks

There are no required textbooks.

IT Resources

You will need access to the following IT resources:

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

Referencing Style

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

Teaching Contacts

Ty Jones Unit Coordinator
t.h.jones@cqu.edu.au

Schedule

Week 1 - 06 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Chemistry Matter Atoms and Molecules The Periodic Table	Chemistry Foundations Study Guide - Topics 1, 2 and 3	

Week 2 - 13 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
Ion Formation Bonding Intermolecular Forces	Chemistry Foundations Study Guide - Topics 4, 5, 6 and 7	

Week 3 - 20 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic

The Mole Mole-Mass Conversions Solutions and Dilutions	Chemistry Foundations Study Guide - Topics 8 and 9	

Week 4 - 27 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
Chemical Reactions 1	Chemistry Foundations Study Guide - Topics 10 and 11	Assessment 1 Task 1: Quiz 1 - Matter, Atoms, Ions and Molecules. **Assessment Task 1 - Online Quizzes** Due: Week 4 Monday (27 Mar 2023) 11:55 pm AEST

Week 5 - 03 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
Chemical Reactions 2	Chemistry Foundations Study Guide - Topics 11 and 12	

Vacation Week - 10 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 17 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
Electrolytes Acids and Bases	Chemistry Foundations Study Guide - Topics 13 and 14	

Week 7 - 24 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
Buffers Introduction to Nuclear Chemistry	Chemistry Foundations Study Guide - Topics 15 and 16	

Week 8 - 01 May 2023

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Organic Chemistry Saturated Hydrocarbons	Chemistry Foundations Study Guide - Topics 17 and 18	**Assessment Task 2 - Calculation and Short Answer Questions** Due: Week 8 Monday (1 May 2023) 11:55 pm AEST

Week 9 - 08 May 2023

Module/Topic	Chapter	Events and Submissions/Topic
Unsaturated Hydrocarbons Aromatic Compounds	Chemistry Foundations Study Guide - Topics 19 and 20	

Week 10 - 15 May 2023

Module/Topic	Chapter	Events and Submissions/Topic
Alcohols Ethers Alkyl Halides Thiols and Amines	Chemistry Foundations Study Guide - Topics 21, 22 and 23	

Week 11 - 22 May 2023

Module/Topic	Chapter	Events and Submissions/Topic
Aldehydes and Ketones Carboxylic Acids and their Derivatives	Chemistry Foundations Study Guide - Topics 24 and 25	

Week 12 - 29 May 2023

Module/Topic	Chapter	Events and Submissions/Topic

Revision	All resources	Quiz 2 - Introduction to Organic Chemistry ***Part A*** and Quiz 3 - Introduction to Organic Chemistry ***Part B.*** **Assessment Task 1**: *Quiz 2* ***(Part A)*** *and Quiz 3* ***(Part B)*** both due: Week 12, Friday 2 June 2023, 11:55 pm AEST.

Review/Exam Week - 05 Jun 2023

Module/Topic	Chapter	Events and Submissions/Topic
		Assessment Task 3 - Take Home Exam due: This week or next (exact date TBC).

Exam Week - 12 Jun 2023

Module/Topic	Chapter	Events and Submissions/Topic
		Assessment Task 3 - Take Home Exam due: This week or previous (exact date TBC).

Term Specific Information

A "Foundations of Chemistry" Study Guide will be provided for this unit via the Moodle site. This Study Guide will be your key reference material for this unit. For an additional recommended (not prescribed) textbook, please refer to the Textbooks and Resources section of this unit profile. All lectures and tutorials will be pre-recorded and uploaded to Moodle. Live Q&A Zoom sessions will be available during the term.

Assessment Tasks

1 Assessment Task 1 - Online Quizzes

Assessment Type
Online Quiz(zes)

Task Description
This Assessment Task is comprised of 3 online quizzes designed to assess your understanding of topics presented in this unit. This assessment requires you to apply concepts presented in lectures and tutorials to determine the answers for a series of multiple-choice questions.
Quiz 1 - Matter, Atoms, Ions and Molecules.

- Quiz 1 will contribute up to 10% of your final grade - this Quiz relates to Weeks 1 & 2 Lecture and Tutorial content and Study Guide topics 1-7.

Quiz 2 - Introduction to Organic Chemistry Part A and Quiz 3 - Introduction to Organic Chemistry Part B

- Quiz 2 & 3 each contribute up to 10% of your final grade - these Quizzes relate to Weeks 8-11 Lecture and Tutorial content and Study Guide topics 17-25.

Overall, Assessment Task 1 - Online Quizzes comprises 30% of the total grade for this unit.
The quizzes are not timed, and you are allowed two attempts per quiz. The highest score of the two attempts will be recorded.
Note: quiz questions are generated randomly, and you will receive different questions on subsequent attempts.

Number of Quizzes
3

Frequency of Quizzes
Other

Assessment Due Date
Week 4 Monday (27 Mar 2023) 11:55 pm AEST
• Quiz 1 is due by 11:55 pm (AEST), Monday 27 March 2023 • Quiz 2 and Quiz 3 are both due by Week 12, 11:55 pm (AEST), Friday 2 Jun 2023

Return Date to Students
Week 5 Friday (7 Apr 2023)
Marks will be released after the completion of each attempt. Answers to the quiz questions will be released after each quiz has closed.

Weighting
30%

Minimum mark or grade
50% (Of the total marks for Assessment Task 1)

Assessment Criteria
One mark will be awarded for each correct response.

Referencing Style

- Vancouver

Submission
Online

Submission Instructions
Complete each quiz by following the link on the CHEM11042 Moodle site.

Learning Outcomes Assessed

- Apply concepts of atomic structure to explain molecular bonding and nuclear reactivity
- Identify categories of organic compounds and their potential chemical interactions
- Perform basic chemical calculations.

Graduate Attributes

- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

2 Assessment Task 2 - Calculation and Short Answer Questions

Assessment Type
Written Assessment

Task Description
Assessment Task 2 - Calculations and Short Answer Questions, has been designed to assess your comprehension of the concepts presented in the unit through their application to answer a series of questions.
This assessment relates to Weeks 3-6 Lecture and Tutorial content and Study Guide topics 8-14.
All workings must be provided for answers to calculation questions.
Inclusion of correct concentration units and chemical notation is expected.
Short answer questions may require you to explain, reason, describe, analyse, or evaluate information and provide an appropriately detailed written response.
Marks will be awarded for each question as indicated in the Assessment Task 2 - Task Sheet (that will be available on the CHEM11042 Moodle site).

Assessment Due Date
Week 8 Monday (1 May 2023) 11:55 pm AEST

Return Date to Students
Week 10 Friday (19 May 2023)

Weighting
20%

Minimum mark or grade
50%

Assessment Criteria
Maximum marks available for each question will be indicated in the Assessment Task 2 - Task Sheet that will become available on the CHEM11042 Moodle site.

Referencing Style

- Vancouver

Submission
Online

Submission Instructions
Please upload your submission as a Microsoft Word document by following the instructions on the Moodle site for CHEM11042

Learning Outcomes Assessed

- Apply chemical concepts to healthcare situations

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

3 Assessment Task 3 - Take Home Exam

Assessment Type
Take Home Exam

Task Description
Assessment Task 3 - Take Home Exam, will cover content you have studied this term. This assessment will be in the form of a written assessment that will be made available via Moodle during the university's standard exam period. The assessment must be attempted and submitted within the 38 -hour time period. Please upload your completed Take Home Exam via Moodle as a Microsoft Word document.
In completing this assessment, you should note the following:
• Attempt all questions
• All submissions should be typed and saved as a Microsoft Word document
• Show all calculations and detailed workings as required
• Completed assessment is to be submitted via upload on Moodle page.
The breakdown of topics to be covered in Assessment Task 3 will be made available on Moodle prior to the Take Home Exam date.

Assessment Due Date

The take-home exam will become available for download on a specific day during the university's standard exam period. More details on the due date and time will be provided later via Moodle. This exam will be available for 48 hours ONLY and should be submitted via upload to Moodle NO LATER than 38 hours after it is made available.

Return Date to Students

Marks will be returned via Moodle, 7-14 days after the Take-Home Exam is submitted.

Weighting
50%

Minimum mark or grade
50%

Assessment Criteria
Maximum marks available for each question will be indicated in the Assessment Task 3 - Take Home Exam paper that will become available on the CHEM11042 Moodle site.

Referencing Style

- Vancouver

Submission
Online

Submission Instructions
Please upload your submission as a Microsoft Word document or PDF file by following the instructions on the Moodle site for CHEM11042

Learning Outcomes Assessed

- Apply concepts of atomic structure to explain molecular bonding and nuclear reactivity
- Identify categories of organic compounds and their potential chemical interactions
- Perform basic chemical calculations.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

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