CHEM11042 *Fundamentals of Chemistry*
Term 2 - 2021

Profile information current as at 14/05/2024 09:10 am

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 2 - 2021

- 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
Students commented that they found the learning resources provided (study guide; recorded lectures and tutorials) were beneficial and helpful towards their learning process.

Recommendation
The teaching team will continue to maintain the standards and quality of the contents based on the study guide that forms the central learning resource for this unit.

Feedback from SUTE

Feedback
Students recommended that a weekly live Q and A session would be highly beneficial for them to engage with the teaching team and towards improving their understanding of chemistry concepts.

Recommendation
The teaching team will implement a live one-hour Q and A session every week for the next offering. This will be conducted as an open-ended session to accommodate any queries or issues students may have. The Q&A sessions will be conducted as drop-in sessions which will not be compulsory but highly recommended.

Feedback from SUTE

Feedback
Students commented that they would prefer additional questions on each topic apart from the concept check questions (and worked examples) already provided in the study guide.

Recommendation
The teaching team will provide supplementary/additional tutorial type questions on a weekly basis for each topic. This is an ongoing improvement that will allow students to engage with additional learning resources.

Feedback from SUTE

Feedback
Students commented that it would be preferable if they are provided with additional URL links to videos etc. on a weekly basis as supplementary information/resources.

Recommendation
This is subjective as the vast resources on the Internet may not appeal to the teaching team and students equally and this can affect learner engagement with the unit. Students, however, will be advised to continue to use the Discussion Forum as intended by sharing links that they find externally as peer learning.

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

CHEM11042

Supplementary

Chemistry
Edition: 4th (2018)
Authors: Allan Blackman / Steven E. Bottle / Siegbert Schmid / Mauro Mocerino / Uta Wille
John Wiley & Sons Australia
Milton , Queensland , Australia
ISBN: 9780730363286
Binding: eBook
CHEM11042

Supplementary

CQUni Laboratory Notebook (includes Periodic Table)
CQUniversity
Binding: Other

Additional Textbook Information
A Study Guide for this unit will be provided via the Moodle site. The Study Guide will be your key reference material for this unit (the recommended E-Text is supplementary/optional).
Both paper and eBook versions of the text can be purchased at the CQUni Bookshop here: http://bookshop.cqu.edu.au (search on the Unit code). The periodic table is now included on the back of the CQUni Lab Notebook.

View textbooks at the CQUniversity Bookshop

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

Penny Comino Unit Coordinator
p.comino@cqu.edu.au

Schedule

Week 1 - 12 Jul 2021

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 - 19 Jul 2021

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

Week 3 - 26 Jul 2021

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 - 02 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Chemical Reactions 1	Chemistry Foundations Study Guide - Topics 10 and 11	**Online Quiz 1** Due: Week 4 Monday (2 Aug 2021) 11:55 pm AEST

Week 5 - 09 Aug 2021

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

Vacation Week - 16 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 23 Aug 2021

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

Week 7 - 30 Aug 2021

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

Week 8 - 06 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Organic Chemistry Saturated Hydrocarbons	Chemistry Foundations Study Guide - Topics 17 and 18	**Written Assessment** Due: Week 8 Monday (6 Sept 2021) 11:55 pm AEST

Week 9 - 13 Sep 2021

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

Week 10 - 20 Sep 2021

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 - 27 Sep 2021

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 - 04 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic

Review	**Online Quiz 2** Due: Week 12 Friday (8 Oct 2021) 11:55 pm AEST

Review/Exam Week - 11 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 18 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

A Study Guide for this unit will be provided via the Moodle site. This Study Guide will be your key reference material for this unit. Please refer to the Textbooks and Resources section of this unit profile for additional recommended textbook requirements.
All the lectures and tutorials will be recorded and posted on the Moodle page.

Assessment Tasks

1 Online Quiz(zes)

Assessment Type
Online Quiz(zes)

Task Description
This assessment is comprised of 2 online quizzes which will assess your understanding of the topics presented in this unit. This assessment requires you to apply the concepts presented in lectures and tutorials to answer a series of multiple-choice questions. All questions in each quiz are of equal value.

- Quiz 1 will contribute 10%
- Quiz 2 will contribute 20%

The two online quizzes will contribute a total of 30% of the assessment for this unit. The quizzes are not timed, and you are allowed two attempts. The highest score of the two attempts will be recorded.
Note that quiz questions are generated randomly and you will receive different questions on subsequent attempts.

Number of Quizzes
2

Frequency of Quizzes
Other

Assessment Due Date

• Online Quiz 1 will be due at 11:55 pm (AEST), Monday August 2, 2021 • Online Quiz 2 will be due at 11:55 pm (AEST), Friday October 8, 2021

Return Date to Students

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%

Assessment Criteria
All questions are of equal weighting. One mark will be awarded for each correct response. Incorrect responses will not incur a penalty.

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 Written Assessment

Assessment Type
Written Assessment

Task Description
This assessment is designed to assess your comprehension of the concepts presented in the unit through their application to answer a series of questions.
Marks will be awarded for each question as indicated in the assessment item (please see the Moodle site for further details).
Explanations for each answer must be provided and if calculations are required all workings must be provided.

Assessment Due Date
Week 8 Monday (6 Sept 2021) 11:55 pm AEST

Return Date to Students
Week 10 Friday (24 Sept 2021)

Weighting
20%

Assessment Criteria
Marks will be awarded for each question as indicated in the assessment item (please see the Moodle site for further details).

Referencing Style

- Vancouver

Submission
Online

Submission Instructions
Upload assessment in WORD FORMAT 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 Take Home Exam

Assessment Type
Take Home Exam

Task Description
Assessment 3 - Take Home Exam, will cover the 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 48-hour time period. Please upload your completed take-home exam via Moodle as a word document.

In completing this assessment, you should note the following:
• Attempt all questions
• All submissions should be typed and saved as a word document
• Show all calculations as required
• Completed assessment is to be submitted via upload on Moodle page.
The breakdown of topics to be covered in the take home exam and associated marks 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 48 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
The assessment marking criteria will be based on the marks allocated for each question in the Take Home Exam.

Referencing Style

- Vancouver

Submission
Online

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