



CHEM11041 Chemistry for the Life Sciences

Term 1 - 2017

Profile information current as at 24/04/2024 11:03 pm

All details in this unit profile for CHEM11041 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 the principles of chemistry that underpin the life sciences and a strong foundation on which students can develop an understanding of biochemistry and molecular biology. Starting with an appreciation of what matter is and classic atomic structure, the learning will progress through how energy is involved in bond formation and provides forces between molecules that govern chemical interaction, to the organic chemistry and molecules central to the life sciences. Understanding the naming and classifying of chemical compounds will allow students to communicate in accepted scientific terms. Tutorials and practical laboratories will re-enforce the theoretical knowledge gained in lectures, and provide the students with the opportunity to use basic mathematics and develop practical analytical skills. There will be a compulsory residential school for distance education students.

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 - 2017

- Bundaberg
- Distance
- 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 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: 10%

2. **Written Assessment**

Weighting: 15%

3. **Practical and Written Assessment**

Weighting: 25%

4. **On-campus Activity**

Weighting: Pass/Fail

5. **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 students and staff

Feedback

timing and size of residential schools

Recommendation

The schedule for the residential school will be reviewed and if possible practicals adjusted so as to allow more time for tutorial sessions for distance students. consideration will be given to offering a second residential school on the Rockhampton campus so as to reduce class size.

Action

Residential schools timetable were adjusted to include additional tutorial sessions for mixed mode students. An additional residential school session was offered in Rockhampton to reduce class numbers and provide the students with an improved learning experience.

Feedback from staff

Feedback

It was difficult to keep track of student registration for residential schools

Recommendation

A choice option will be included in the Moodle site in future offerings. This will clearly indicate to both staff and students, the registration for residential school options.

Action

The choice offering was made available on the Moodle site, this had a limited benefit as the rolling out of the student one system, continued to cause student some issues when enrolling.

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 scientific laws to explain physical and chemical changes to matter.
3. Interpret structural drawings and names of molecules, with particular reference to organic compounds.
4. Develop laboratory skills to obtain, interpret and report experimental data.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Online Quiz(zes) - 10%	•			•
2 - Written Assessment - 15%	•	•		
3 - Practical and Written Assessment - 25%	•	•	•	•

Assessment Tasks	Learning Outcomes			
	1	2	3	4
4 - Examination - 50%	•	•	•	
5 - On-campus Activity - 0%				•

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) - 10%		•	•	•		•				
2 - Written Assessment - 15%	•	•	•	•		•				
3 - Practical and Written Assessment - 25%	•	•	•	•	•	•		•		
4 - Examination - 50%	•	•	•	•						
5 - On-campus Activity - 0%	•	•	•	•						

Textbooks and Resources

Textbooks

CHEM11041

Prescribed

General, Organic, & Biological Chemistry

Edition: 3rd edn (2016)

Authors: Smith, J

McGraw Hill

New York, USA

ISBN: 9781259298424

Binding: Hardcover

Additional Textbook Information

The prescribed text for this course will also be used for BMSC 11004 Introduction to Biochemistry (Term 2) and BMSC 11005 Foundations of Biochemistry (Term 2)

In addition to the prescribed textbook, students are required to have the following items, available from the CQUniversity bookshop

1. CQUniversity Periodic Table of the Elements
2. Scientific calculator (preferred brands Casio FX82 ES or SHARP EL-531XH)

[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: [Turabian](#)
For further information, see the Assessment Tasks.

Teaching Contacts

Aoife Power Unit Coordinator

a.power@cqu.edu.au

Schedule

Week 1 - 06 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 1: Matter and Measurements		All weekly quizzes must be completed by the Wednesday of the following week. i.e. the Week 1 Quiz must be completed by 5 pm on the Wednesday of week 2.

Week 2 - 13 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 2: Atoms, the Mole and the Periodic Table		

Week 3 - 20 Mar 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Topic 3: Ionic Compounds		
Week 4 - 27 Mar 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Topic 4: Molecular Compounds		
Week 5 - 03 Apr 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Topic 5: Chemical Reactions		Assessment 3 Part B - Internal students , Report due April 8 th 2017 11:45 PM AEST
Vacation Week - 10 Apr 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Week 6 - 17 Apr 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Topic 6: Gases, Liquids and Solids Topic 7: Solutions		
Week 7 - 24 Apr 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Topic 8: Acids, Bases and Buffers		Assessment 2: Written Assessment Due: Week 7 Friday (28 Apr 2017) 11:45 pm AEST
Week 8 - 01 May 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Topic 9: Hydrocarbons		Residential school - Rockhampton campus Tues 2 nd - Thurs 4 th May 2017 Residential school - Geraldton Universities Centre campus Sat 6 th - Mon 8 th May 2017
Week 9 - 08 May 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Topic 10: Oxygen Containing Compounds		Assessment 3 Part B - Rockhampton Residential School students , Report due May 14 th 2017 11:45 PM AEST
Week 10 - 15 May 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Topic 11: Amines Topic 12: Aldehydes and Ketones		Residential school - Bundaberg campus Wed 17 th - Fri 19 th May, 2017 Assessment 3 Part B - Geraldton Residential School students , Report due May 18 th 2017 11:45 PM AEST
Week 11 - 22 May 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Topic 13: Carboxylic Acids and their Derivatives		Assessment 3 Part B - Bundaberg Residential School students , Report due May 29 th 2017 11:45 PM AEST

Week 12 - 29 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 14: Nuclear Chemistry Review		Assessment 3 Part A - All students , Post Laboratory Quiz due Monday 31 st May 2017 11:45 PM AEST

Review/Exam Week - 05 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Exam Week - 12 Jun 2017

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

Mixed Mode students: You must register for the residential school of your choice via Student Allocator in MyCQU and clicking on 'Proceed to student centre' and then 'my timetable'.

GUK Students, please register as if attending the Rockhampton Residential School in MyCQU as above, but indicate the Geraldton option on the Moodle site.

Assessment Tasks

1 Assessment 1: Online Quiz

Assessment Type

Online Quiz(zes)

Task Description

This assessment is comprised of weekly on-line quizzes which will aid your comprehension of the concepts presented in each topic of this course. This assessment requires you to study the material in the relevant topics of the Chemistry for the Life Sciences course and apply the concepts presented to answer a series of multiple choice questions.

Each quiz is comprised of 10 multiple-choice questions.

Multiple attempts can be made on each quiz and the highest mark achieved will be recorded.

All quizzes are of equal value.

Number of Quizzes

12

Frequency of Quizzes

Weekly

Assessment Due Date

Each quiz will close at 5 pm on the Wednesday of the following week. i.e. The week 1 quiz will close on the Wednesday of Week 2.

Return Date to Students

Quiz results will be released after the quiz has closed.

Weighting

10%

Minimum mark or grade

40 %

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

- [Turabian](#)

Submission

Online

Learning Outcomes Assessed

- Apply concepts of atomic structure to explain molecular bonding and nuclear reactivity.
- Develop laboratory skills to obtain, interpret and report experimental data.

Graduate Attributes

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

2 Assessment 2: Written Assessment

Assessment Type

Written Assessment

Task Description

This assessment is designed to help you in your comprehension of the concepts presented in topics 5, 6 and 7 of the course. This assessment requires you to apply the concepts studied and to provide short answers to a series of questions. You must provide complete workings for all calculations and use the appropriate units where required. Your response to this assessment must be typed and **should be made in electronic format**, and be submitted through the assessment link in Moodle, by uploading your file following the on-screen instructions. **You must submit the assessment by uploading a single word document (i.e. .doc or .docx)**, through the Moodle site. Mac users should ensure that the file name has '.doc' or '.docx' for word files. This will ensure that you are able to upload into Moodle.

Note: all submissions are processed through the similarity detection software (Turnitin). You must ensure that all of the work is your own, in line with University requirements.

Marks will be awarded for each question as indicated in the assessment item. Explanations for each of your answers must be provided. If questions require calculations all working must be shown. Completion of this assessment will also help in your preparation for the end of term exam.

This assessment task must be completed by **11:45 pm AEST Friday 28th of April 2017**. In the absence of an approved extension, there will be no opportunity to complete the task after this date, and there will be no supplementary exam or assessment offered should you come close to passing the unit but do not meet the criteria for a Pass grade for the unit overall.

Assessment Due Date

Week 7 Friday (28 Apr 2017) 11:45 pm AEST

Return Date to Students

Week 10 Friday (19 May 2017)

Weighting

15%

Minimum mark or grade

40%

Assessment Criteria

All submissions should be typed.

Marks will be awarded for each question as indicated on the assessment item.

Explanations for each of your answers must be provided.

If questions require calculations all working must be shown.

Report your answers to the correct number of significant figures.

Include units in your calculations and answers where applicable

Referencing Style

- [Turabian](#)

Submission

Online

Submission Instructions

You must submit the assessment by uploading a single word document (ie .doc or .docx) through the moodle site. Mac

users should ensure that the file name has '.doc' or '.docx' for word files. This will ensure that you are able to upload into moodle.

Learning Outcomes Assessed

- Apply concepts of atomic structure to explain molecular bonding and nuclear reactivity.
- Apply scientific laws to explain physical and chemical changes to matter.

Graduate Attributes

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

3 Assessment 3: Practical and Written Assessment

Assessment Type

Practical and Written Assessment

Task Description

You are required to attend and participate in all laboratory classes for this unit.

Mixed mode students are required to attend one (1) of the residential schools offered during the term for this unit. You must nominate which residential school you will attend via the student allocator/timetabling system.

Internal students are required to attend laboratory classes during term according to the laboratory schedule available on Moodle.

This assessment is designed to develop laboratory skills, in addition to observational, data collection, communication and written skills. A laboratory workbook should be completed as the laboratory procedures are undertaken.

Part A of this assessment requires you to complete a short online quiz. The quiz will require you to reflect on workbook entries and the practical procedures undertaken.

Part B of this assessment requires you to complete a scientific report for a nominated experiment. The scientific report must be written using the guidelines provided in the Laboratory information, workbook and report guidelines document available through Moodle. Your response to this assessment must be typed and should be made in electronic format, and be submitted through the assessment link in Moodle, by uploading your file following the on-screen instructions. You must submit the assessment by uploading a single word document (i.e. .doc or .docx), through the Moodle site. Mac users should ensure that the file name has '.doc' or '.docx' for word files. This will ensure that you are able to upload into Moodle. Submissions should be uploaded into Moodle according to the due dates indicated in the schedule for the different student groups, (i.e. internal students, mixed mode students attending the residential school).

Due dates for submission

Internal students, Report due 8th April 2017 11:45 PM AEST

Rockhampton Residential School students, Report due 14th May 2017 11:45 PM AEST

Geraldton Residential School students, Report due 18th May 2017 11:45 PM AEST

Bundaberg Residential School students, Report due 29th May 2017 11:45 PM AEST

Assessment Due Date

The scientific report is to be submitted according to the due dates indicated in the schedule for the different student groups. The post laboratory quiz must be completed by Monday of week 12 (Monday May 30 11:45 AEST).

Return Date to Students

All marks for this assessment will be finalised and reports returned to students before exam week. Please note that reports cannot be returned to students until after the submission due date for students attending final residential school option.

Weighting

25%

Minimum mark or grade

40%

Assessment Criteria

This assessment has a total weighting of 25%, comprised of Attendance and Participation (pass/fail)

A pass/fail grade will be awarded for attendance and participation at the residential school/laboratory sessions.

Completion and submission of the scientific report (15%)

The scientific report must be written using the guidelines provided in the Laboratory information, workbook and report

guidelines document.

The report should demonstrate:

- effective communication skills and adherence to report guidelines provided
- accurate recording of experimental data
- evidence of critical thinking and problem solving skills with application to data interpretation and calculations
- appreciation of significant figures and demonstrated competency in chemical calculations
- correct presentation of structures, diagrams, equations and nomenclature
- drawing and labeling of graphs and the ability to interpolate and extrapolate off graphs (if appropriate to task)
- accuracy of results
- ability to discuss chemical principles and experimental results.

Completion of Post Laboratory Quiz (10%).

The post laboratory quiz will consist of multiple choice or short answer questions. All questions are of equal weighting. One mark will be awarded for each correct response. Incorrect responses will not incur penalty.

Referencing Style

- [Turabian](#)

Submission

Online

Submission Instructions

The scientific report is to be submitted as a single Word document via Moodle.

Learning Outcomes Assessed

- Apply concepts of atomic structure to explain molecular bonding and nuclear reactivity.
- Apply scientific laws to explain physical and chemical changes to matter.
- Interpret structural drawings and names of molecules, with particular reference to organic compounds.
- Develop laboratory skills to obtain, interpret and report experimental data.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence
- Ethical practice

4 On-campus Activity

Assessment Type

On-campus Activity

Task Description

Internal students must attend all laboratory sessions held throughout the term.

Mixed mode students are required to attend a 3 day residential school for this course. Mixed mode students must select to attend **only one** of the available Residential schools offered on either Rockhampton or Bundaberg campuses. Your selection can be made through the student allocator / timetable system on MyCQU.

Assessment Due Date

As per designated dates of laboratory sessions or residential school.

Return Date to Students

A Pass/Fail grade will be recorded for this assessment following attendance at the Residential School or weekly laboratory sessions.

Weighting

Pass/Fail

Minimum mark or grade

Pass

Assessment Criteria

Mixed mode students are required to attend and participate in all laboratory exercises scheduled for a three day

residential school. Sessions each day commence at 8:30 am and conclude with the completion of the practical exercises scheduled for the day (approximately 5pm).

Internal students are required to attend and participate in all scheduled laboratory sessions as per laboratory schedule available on course Moodle site.

Referencing Style

- [Turabian](#)

Submission

Offline

Submission Instructions

Student attendance at the Residential School / laboratory sessions will be confirmed through daily roll calls.

Learning Outcomes Assessed

- Develop laboratory skills to obtain, interpret and report experimental data.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

Examination

Outline

Complete an invigilated examination.

Date

During the examination period at a CQUniversity examination centre.

Weighting

50%

Length

120 minutes

Minimum mark or grade

40%

Exam Conditions

Closed Book.

Materials

Calculator - all non-communicable calculators, including scientific, programmable and graphics calculators are authorised

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