



SCIE11022 *Introductory Science*

Term 1 - 2022

Profile information current as at 27/09/2024 10:15 am

All details in this unit profile for SCIE11022 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 successful completion of this unit, you will have a sound understanding of the fundamental principles and concepts of physical and chemical sciences, with particular reference to applied science, health and safety. You will be able to use appropriate scientific units and notation, and explain the chemical principles relating to atoms, molecules, biomolecules, solutions, pH and chemical reactions. You will apply the physical principles associated with the behaviour of gases, electromagnetic radiation, sound, motion and forces to solve problems relevant to the workplace. You will also study aspects of science relevant 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 - 2022

- 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. **Written Assessment**

Weighting: 30%

2. **Online Test**

Weighting: 20%

3. **Online Quiz(zes)**

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

Feedback

Many students noted the unit covers a lot of content and requires a considerable amount of contact and non-contact hours to keep up. Some suggestions were made that this content could be streamlined to improve delivery.

Recommendation

Unit content to be reviewed and updated to see where improvements can be made that remove less-essential content in favour of more time spent on explaining essential content.

Feedback from Moodle In-person feedback

Feedback

As a science unit for students with a traditionally non-science background, some students noted they struggled with the unavoidable mathematics needed to teach much of the content. While they appreciated the new step-by-step approach to the mathematics, they expressed a desire for more of this.

Recommendation

Continue to expand the step-by-step approach to the mathematical aspects of the unit's content, including additional examples and practice problems, where appropriate.

Feedback from Moodle

Feedback

A student noted that they struggled with the requirement to watch and learn from the lectures, instead of being given the answer directly in an email. They also noted that they struggled to find information on the assessment tasks.

Recommendation

Encouraging students to watch and learn from the lectures will not be changed. While assessment information was widely broadcast through the unit profile, Moodle updates, and in-lecture announcements, additional reminders will be sent out during the next offering.

Feedback from Moodle Email

Feedback

Several students noted the time allocated for the final quiz (2 hours) was insufficient for them to demonstrate their learning in the unit.

Recommendation

It is recommended that the final online quiz time limit be extended to 3 hours.

Feedback from Moodle Email In-person

Feedback

Students who consistently engaged with the unit appreciated the frequent additional live tutorial sessions run by the teaching staff, especially close to assessment deadlines.

Recommendation

It is recommended that such additional avenues of contact for the students be maintained as much as staff workload will allow in future offerings.

Unit Learning Outcomes

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

1. Explain the basic chemical principles relating to atoms and molecules, solutions, pH, chemical bonding and reactions with particular reference to applied health
2. Apply the concepts of scientific measurement to the presentation of quantitative data and use appropriate scientific units and scientific and logarithmic notation
3. Explain the basic physical principles associated with the behaviour of gases, electromagnetic radiation and sound with particular reference to applied health
4. Apply the principles of motion and forces in the context of applied health and safety
5. Explain introductory scientific principles pertaining to your area of specialisation with either a physics or environmental focus.

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 - 30%	•	•			
2 - Online Test - 20%			•	•	
3 - Online Quiz(zes) - 50%	•	•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
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					

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
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 - Written Assessment - 30%	•	•	•	•		•				
2 - Online Test - 20%	•	•	•	•		•				
3 - Online Quiz(zes) - 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)

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

Richard Koech Unit Coordinator
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Schedule

Week 1 - 07 Mar 2022

Module/Topic	Chapter	Events and Submissions/Topic
Matter: elements and atomic structure	Module 1	

Week 2 - 14 Mar 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Compounds: molecules and chemical bonds	Module 2	
Week 3 - 21 Mar 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Presenting data: numbers, units and graphs	Module 3	
Week 4 - 28 Mar 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Solutions: composition and concentrations	Module 4	
Week 5 - 04 Apr 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Electrolytes, acids, bases and buffers	Module 5	
Vacation Week - 11 Apr 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Week 6 - 18 Apr 2022		
Module/Topic	Chapter	Events and Submissions/Topic
An introduction to organic chemistry and biomolecules	Module 6	Short Answer Questions Due: Week 6 Monday (18 Apr 2022) 11:45 pm AEST
Week 7 - 25 Apr 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Gases and the respiratory system	Module 7	
Week 8 - 02 May 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Waves, sight and sounds, and nuclear radiation	Module 8	
Week 9 - 09 May 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Motion kinematics	Module 9	
Week 10 - 16 May 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Forces and motion	Module 10	
Week 11 - 23 May 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Option A: Work, energy and momentum Option B: Climate, weather, and the water and carbon cycles	Module 11A or Module 11B	Multiple Choice Quiz Due: Week 11 Friday (27 May 2022) 11:45 pm AEST
Week 12 - 30 May 2022		
Module/Topic	Chapter	Events and Submissions/Topic
Option A: Electricity Option B: Geology and erosion	Module 12A or Module 12B	
Review/Exam Week - 06 Jun 2022		
Module/Topic	Chapter	Events and Submissions/Topic

End-of-term Online Quiz Due:
Review/Exam Week Friday (10 June
2022) 11:45 pm AEST

Exam Week - 13 Jun 2022

Module/Topic

Chapter

Events and Submissions/Topic

Term Specific Information

This unit will introduce you to a broad range of scientific fields to enhance your tertiary-level understanding of such topics. Given the breadth of content covered, there is no prescribed textbook for the unit, but we have instead provided you with summary material in the form of study guides available on Moodle. The final two weeks of the unit offer a choice of content. Students in the Bachelor of Occupational Health and Safety, and the Bachelor of Accident Forensics, are advised to study option A in both weeks. Students in the Bachelor of Public Health are advised to study option B in both weeks. Students in all other programs are advised to choose whichever option they find most relevant to them, but to choose the same option for both weeks so that you will be able to complete the end-of-term quiz.

Assessment Tasks

1 Short Answer Questions

Assessment Type

Written Assessment

Task Description

You are required to provide short answers to a series of questions based on the concepts presented in Modules 1 to 5 (Weeks 1 to 5) of this unit. A Word file will be made available to you on Moodle, which you can download, type your answers directly into and resubmit it through the assessment link. You must provide explanations and/or calculations for each of your answers. Your answers do not need to be referenced, but you must ensure that all of the work is your own, in line with University requirements.

Assessment Due Date

Week 6 Monday (18 Apr 2022) 11:45 pm AEST

Submit your work as a Word document (.doc or .docx) via Moodle

Return Date to Students

Week 8 Monday (2 May 2022)

Your marked work will be returned to you via Moodle

Weighting

30%

Minimum mark or grade

50 %

Assessment Criteria

Marks will be awarded for each question as indicated on the assessment item. Explanations for your answers must be provided and/or if questions require calculations, all working must be shown.

Referencing Style

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

Submission

Online

Submission Instructions

Submit your work as a Word document (.doc or .docx) via Moodle

Graduate Attributes

- Communication

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

Learning Outcomes Assessed

- Explain the basic chemical principles relating to atoms and molecules, solutions, pH, chemical bonding and reactions with particular reference to applied health
- Apply the concepts of scientific measurement to the presentation of quantitative data and use appropriate scientific units and scientific and logarithmic notation

2 Multiple Choice Quiz

Assessment Type

Online Test

Task Description

You are required to complete an online quiz comprised of multiple-choice type questions based on the concepts presented in Modules 6 - 10 (Weeks 6 to 10) of this unit. All questions are of equal weighting. Incorrect responses incur no penalty. The quiz will be available online, via the relevant assessment link in Moodle. You will only be allowed one attempt to complete the quiz, so do not click the submit button until you are ready.

Assessment Due Date

Week 11 Friday (27 May 2022) 11:45 pm AEST

Click submit on the Moodle quiz when you are happy with your answers

Return Date to Students

Review/Exam Week Friday (10 June 2022)

Your quiz results will be available on Moodle

Weighting

20%

Minimum mark or grade

50 %

Assessment Criteria

Correctness of answers. Note that incorrect answers do not incur any penalty to your final score.

Referencing Style

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

Submission

Online

Submission Instructions

Click submit on the Moodle quiz when you are happy with your answers

Graduate Attributes

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

Learning Outcomes Assessed

- Explain the basic physical principles associated with the behaviour of gases, electromagnetic radiation and sound with particular reference to applied health
- Apply the principles of motion and forces in the context of applied health and safety

3 End-of-term Online Quiz

Assessment Type

Online Quiz(zes)

Task Description

You are required to complete an end-of-term online quiz that will cover content across the entire unit (Weeks 1 to 12). The quiz will comprise 20 multiple choice questions (each worth 1 mark) and 8 multi-part/longer answer questions (each worth 10 marks). Be sure you choose the quiz that is relevant to your chosen study option from weeks 11 and 12. You will have 3 hours to complete the quiz. The quiz will include some simple calculations which can be completed with a standard scientific calculator. You will only be allowed one attempt at the quiz, and the specific questions you receive will come from a larger bank of questions. Your answers are to be your own individual work and not a result of collaboration with other students. Any identified cases of potential collusion will result in a breach of academic integrity case being raised. Additional information will be made available on the Moodle page throughout term.

Number of Quizzes**Frequency of Quizzes****Assessment Due Date**

Review/Exam Week Friday (10 June 2022) 11:45 pm AEST

Click the submit button on the Moodle link when you are happy with your answers

Return Date to Students

Your quiz will be marked on Moodle and returned within 10 working days after the due date.

Weighting

50%

Minimum mark or grade

50 %

Assessment Criteria

Correctness of answers. Marks will be awarded for each question up to the value indicated in the assessment item. For written answers (i.e. not multiple choice), ensure your explanations are clear and thoroughly convey your thinking.

Referencing Style

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

Submission

Online

Submission Instructions

Click the submit button on the Moodle link when you are happy with your answers

Graduate Attributes

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

Learning Outcomes Assessed

- Explain the basic chemical principles relating to atoms and molecules, solutions, pH, chemical bonding and reactions with particular reference to applied health
- Apply the concepts of scientific measurement to the presentation of quantitative data and use appropriate scientific units and scientific and logarithmic notation
- Explain the basic physical principles associated with the behaviour of gases, electromagnetic radiation and sound with particular reference to applied health
- Apply the principles of motion and forces in the context of applied health and safety
- Explain introductory scientific principles pertaining to your area of specialisation with either a physics or environmental focus.

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