



# SCIE11022 *Introductory Science*

## Term 1 - 2024

Profile information current as at 19/05/2024 07:31 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 - 2024

- 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 SUTE

##### Feedback

Link content to real-world applications

##### Recommendation

Continue to provide relevant examples of real-world applications of concepts covered in lectures and tutorials. This should go hand in hand with continuous review and update of content.

#### Feedback from SUTE

##### Feedback

The structure of the assessment items enhanced and scaffolded the learning of the unit.

##### Recommendation

A similar assessment structure and design are to be maintained. The weekly live 3-hour lecture/tutorial sessions will be maintained to support students in their learning and assessments.

## 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
<b>1 - Written Assessment - 30%</b>	•	•			
<b>2 - Online Test - 20%</b>			•	•	
<b>3 - Online Quiz(zes) - 50%</b>	•	•	•	•	•

## 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					
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.**

#### Additional Textbook Information

None

### 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  
[r.koech@cqu.edu.au](mailto:r.koech@cqu.edu.au)

## Schedule

### Week 1 - 04 Mar 2024

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

### Week 2 - 11 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Compounds: molecules and chemical bonds	Module 2	

### Week 3 - 18 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Presenting data: numbers, units and graphs	Module 3	

### Week 4 - 25 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Solutions: composition and concentrations	Module 4	

### Week 5 - 01 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Electrolytes, acids, bases and buffers	Module 5	

### Vacation Week - 08 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
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### Week 6 - 15 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
An introduction to organic chemistry and biomolecules	Module 6	<b>Short Answer Questions</b> Due: Week 6 Monday (15 Apr 2024) 11:45 pm AEST

### Week 7 - 22 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Gases and the respiratory system	Module 7	

### Week 8 - 29 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Waves, sight and sounds, and nuclear radiation	Module 8	

Week 9 - 06 May 2024		
Module/Topic	Chapter	Events and Submissions/Topic
Motion kinematics	Module 9	
Week 10 - 13 May 2024		
Module/Topic	Chapter	Events and Submissions/Topic
Forces and motion	Module 10	
Week 11 - 20 May 2024		
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	<b>Multiple Choice Quiz</b> Due: Week 11 Friday (24 May 2024) 11:45 pm AEST
Week 12 - 27 May 2024		
Module/Topic	Chapter	Events and Submissions/Topic
Option A: Electricity Option B: Geology and erosion	Module 12A or Module 12B	
Review/Exam Week - 03 Jun 2024		
Module/Topic	Chapter	Events and Submissions/Topic
		<b>End-of-term Online Quiz</b> Due: Review/Exam Week Wednesday (5 June 2024) 11:45 pm AEST
Exam Week - 10 Jun 2024		
Module/Topic	Chapter	Events and Submissions/Topic

## Term Specific Information

Please note that in Weeks 11 and 12 of term, you will be required to select a module that best aligns with the specific course you are enrolled in. You will thus be required to choose between Study Option A and Study Option B. You must choose the same option for both Weeks 11 and 12. For example, if you choose Study Option A in Week 11, you must do Study Option A in Week 12. Advice on which option to select will be provided in Moodle.

## 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's requirements.

#### Assessment Due Date

Week 6 Monday (15 Apr 2024) 11:45 pm AEST

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

#### Return Date to Students

Week 8 Monday (29 Apr 2024)

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

**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

**Graduate Attributes**

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

## 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 (24 May 2024) 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 (7 June 2024)

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

**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

### Graduate Attributes

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

## 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 Wednesday (5 June 2024) 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

### 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.



## Graduate Attributes

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

## 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