



CHEM11043 Atoms, Molecules and Matter

Term 1 - 2019

Profile information current as at 20/05/2024 10:42 am

All details in this unit profile for CHEM11043 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

Atoms, Molecules and Matter will provide you with an understanding of the basic principles of chemistry and how they apply to daily life. This unit will present fundamental chemical principles that are central to all sciences, including healthcare, biology, environmental science and agriculture. This unit will provide the foundation for further study in chemistry, biochemistry and molecular sciences. You will learn about matter and atomic structure, chemical bonding and the forces and chemical interactions between molecules. You will be introduced to the chemistry of electrolytes, acids, bases and buffers and enabled to perform calculations relating concentrations to the pH of strong and weak acids and bases and buffers. Understanding the naming and classification of chemical compounds will allow you to communicate effectively and precisely with your colleagues in science and industry. Basic nuclear radiation safety will be presented. On-campus students will attend regular laboratory sessions and there is a compulsory residential school for distance students. These laboratory sessions will emphasise laboratory safety and introduce you to skills relating to preparation of standard solutions and volumetric procedures, titrimetric and spectrophotometric analyses and scientific report writing.

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

Anti-requisite: CHEM11041.

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 - 2019

- Mixed Mode
- 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: 50%

2. **Practical Assessment**

Weighting: Pass/Fail

3. **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](#).

Unit Learning Outcomes

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

1. Describe the structure of the atom including its sub-atomic particles and relate these to the design of the Periodic Table
2. Determine the nature of chemical bonding and intermolecular forces present in molecules and ions
3. Identify types of chemical reactions, and balance and interpret chemical equations
4. Perform chemical calculations relating to reaction equilibrium, yield and the pH of acids, bases and buffers
5. Identify functional groups and use the International Union of Pure and Applied Chemists (IUPAC) nomenclature to name organic molecules and indicate their potential chemical interactions
6. Outline the process of nuclear decay and discuss measures used to ensure safety when working with radiation
7. Work safely in the laboratory to prepare samples and standards and perform titrimetric and spectrophotometric analysis.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes						
	1	2	3	4	5	6	7
1 - Online Quiz(zes) - 50%	•	•	•	•	•	•	
2 - Practical Assessment - 0%							•
3 - Examination - 50%	•	•	•	•	•	•	

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes						
	1	2	3	4	5	6	7
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 6 7

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) - 50%**2 - Practical Assessment - 0%****3 - Examination - 50%****Textbooks and Resources****Textbooks**

CHEM11043

Prescribed**General Organic & Biological Chemistry**

Edition: 4 (2019)

Authors: Janice Gorzynski Smith

McGraw Hill Education

new york , new york , USA

ISBN: 978-1-260-08515-1

Binding: Paperback

CHEM11043

Prescribed**Periodic Table of the Elements**

Edition: 2018 (2018)

Authors: CQUniversity Bookshop

CQUniversity

Rockhampton , Queensland , Australia

Binding: Other

Additional Textbook InformationBoth items are available to purchase at the CQUni Bookshop here: <http://bookshop.cqu.edu.au> (search on the Unit code)[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: [Vancouver](#)
For further information, see the Assessment Tasks.

Teaching Contacts

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Schedule

Week 1 - 11 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic	
Introduction to Chemistry, Matter, Atoms and Bonding	Lecture 1: Matter		
	Chapter 1	Matter and Measurement	
		Section Heading	
	1.1	Chemistry: The Science of Everyday Experience	
	1.2	States of Matter	
	1.3	Classification of Matter	
	Lecture 2: Atomic Structure, Isotopes and the Periodic Table		
	Chapter 2	Atoms and the Periodic Table	
		Section Heading	
	2.1	Elements	
	2.2	Structure of the Atom	
	2.3	Isotopes	
	2.4	The Periodic Table	
	2.5	Electronic Structure	
	2.8	Periodic Trends	
	Lecture 3: Valence Electrons, Ion Formation and Bonding Types		
	Chapter 2	Atoms and the Periodic Table	
		Section Heading	
	2.7	Valence Electrons	
	Chapter 3	Ionic compounds	
	Section heading		
3.1	Introduction to Bonding		
3.2	Ions		
3.3	Ionic Compounds		
Chapter 4	Covalent compounds		
	Section heading		
4.7	Electronegativity and Bond Polarity		

Week 2 - 18 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Module/Topic	Chapter	Section Heading	Events and Submissions/Topic
Molecules, Moles and Lewis Dot Diagrams	Lecture 1: Molecules, Molecular Formula, Molar Mass and the Mole		
	Chapter 5 Chemical reactions		
	Section Heading		
	5.5	The Mole and Avogadro's number	
	5.6A	Molar Mass	
	Lecture 2: Mass-Mole Conversions (Review: Significant Figures and Scientific Notation)		
	Chapter 5 Chemical reactions		
	Section Heading		
	5.6	Mass to Mole Conversions	
	Chapter 1 Matter and Measurement		
	Section Heading		
	1.4	Measurement	
	1.5	Significant Figures	
	1.6	Scientific Notation	
	Lecture 3: Lewis Dot Structures and Polarity of Molecules		
Chapter 4 Covalent compounds			
Section Heading			
4.1	Introduction to Covalent Bonding		
4.2	Lewis Structures		
4.4	Resonance		
4.6	Molecular Shape		
4.8	Polarity of Molecules		
FYI 4.9	FOCUS ON HEALTH AND MEDICINE Covalent Drugs and Medical Products		

Week 3 - 25 Mar 2019

Module/Topic	Chapter	Section Heading	Events and Submissions/Topic
Solutions, Dilutions and Intermolecular Forces	Lecture 1: Chemical Solutions - Terms and Concentration		
	8.1	Mixtures	
	8.3	Solubility - General Features	
	8.4	Solubility - Effects of Temperature and Pressure	
	8.5	Concentration Units - Percent Concentration	
	8.6	Concentration Units - Molarity	
	Lecture 2: Preparing Solutions and Dilutions, Unit conversions		
	Chapter 8 Solutions		
	Section Heading		
	8.5	Concentration Units - Percent Concentration	
	8.6	Concentration Units - Molarity	
	8.7	Dilution	
	Lecture 3: Intermolecular Forces and Colligative Properties		
	Chapter 7 Gases liquids and Solids		
	Section Heading		
7.7	Intermolecular Forces, Boiling Point and Melting Point		
Chapter 8 Solutions			
Section Heading			
8.8	Colligative Properties		

Assessment Item 1 - Online quiz 1
Quiz closes 11:55pm, Sunday 31
March, 2019

Week 4 - 01 Apr 2019

Module/Topic	Chapter	Section Heading	Events and Submissions/Topic
Chemical Equations 1	Lecture 1: Chemical Equations		
	Chapter 5 Chemical Reactions		
	Section Heading		
	5.1	Introduction to Chemical Reactions	
	5.2	Balancing Chemical Equations	
	Lecture 2: Energy in Reactions, Catalysts and Enzymes		
	Chapter 6 Energy changes, Reaction Rates and Equilibrium		
	Section Heading		
	6.1	Energy	
	6.2	Energy Changes in Reactions	
	6.3	Energy Diagrams	
	6.4	Reaction Rates	
	Lecture 3: Chemical Reactions and Stoichiometry		
	Chapter 5 Chemical reactions		
	Section Heading		
5.7	Mole Calculations in Chemical Equations		
5.8	Mass Calculations in Chemical equations		

Week 5 - 08 Apr 2019

Module/Topic	Chapter	Section Heading	Events and Submissions/Topic
Chemical Equations 2	Lecture 1: Yield Calculations, Limiting and Excess Reagents		
	Chapter 5 Chemical Reactions		
	Section Heading		
	5.9	Percent yield	
	5.10	Limiting Reactants	
	Lecture 2: Chemical Equilibrium and Equilibrium Constants		
	Chapter 6 Energy changes, Reaction Rates and Equilibrium		
	Section Heading		
	6.5	Equilibrium	
	Lecture 3: Le Châtelier's Principle		
	Chapter 6 Energy Changes, Reaction Rates and Equilibrium		
	Section Heading		
	6.6	Le Châtelier's Principle	
	6.7	FOCUS ON THE HUMAN BODY: Body Temperature	

Vacation Week - 15 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Week 6 - 22 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic	
Introduction to Acids and Bases	Lecture 1: Introduction to Acids and Bases	Assessment Item 1 - Online quiz 2 Quiz closes 11:55pm, Sunday 28 April, 2019	
	Chapter 9		Acids and Bases
			Section Heading
	9.1		Introduction to Acids and Bases
	9.2		The Reaction of a Brønsted-Lowry Acid with a Brønsted-Lowry Base
	9.3		Acid and Base Strength
	9.4		Equilibrium and Acid Dissociation Constants
	9.5		The Dissociation of Water
			Lecture 2: The pH Scale and pH Calculations for Strong Acids and Bases
	Chapter 6		Acids and Bases
			Section Heading
	9.6		The pH Scale
	9.7		Common Acid-Base Reactions
9.8	The Acidity and Basicity of Salt Solutions		
	Lecture 3: The pH of weak acids and bases		
	No readings from text		

Week 7 - 29 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic	
Acids, Bases, Buffers and Gases	Lecture 1: Common Acid Base Reactions and Buffer Theory		
	Chapter 9		Acids and Bases
			Section Heading
	9.7		Common Acid-Base Reactions
	9.8		The Acidity and Basicity of Salt Solutions
	9.10		Buffers
	9.10A		General Characteristics of a Buffer
	FYI 9.11		FOCUS ON THE HUMAN BODY: Buffers in the Blood
			Lecture 2: Calculating the pH of a Buffer
	Chapter 9		Acids and Bases
			Section heading
	9.10B		Calculating the pH of a Buffer
			Lecture 3: Gas Laws
Chapter 7	Gases, Liquids and Solids		
	Section Heading		
7.2	Gases and Pressure		
7.3	Gas Laws that Relate Pressure, Volume and Temperature		
7.4	Avogadro's Law - How Volume and Moles are Related		
7.5	The Ideal Gas Law		
7.6	Dalton's Law and Partial Pressure		

Week 8 - 06 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Introduction to Organic Chemistry – Carbon, Functional Groups and Alkanes	Lecture 1: Introduction to Organic Chemistry - Carbon and Functional Groups			
	Chapter 11	Introduction to Organic Molecules and Functional Groups		
		Section Heading		
	11.1	Introduction to Organic Chemistry		
	11.2	Characteristic Features of Organic Compounds		
	11.3	Shapes of Organic Molecules		
	11.4	Drawing Organic Molecules		
	11.5	Functional Groups		
	11.6	Properties of Organic Compounds		
	FYI 11.7	FOCUS ON HEALTH & MEDICINE: Vitamins		
		Lecture 2: Alkanes, IUPAC Nomenclature and Classification of Carbon Atoms		
	Chapter 12	Atoms and the Periodic Table		
		Section Heading		
	12.1	Introduction		
	12.2C	Classifying Carbon Atoms		
	12.3	An introduction to Nomenclature		
	12.4	Alkane Nomenclature		
		Lecture 3: Cycloalkanes, Isomers, Chiral Compounds and Properties of Alkanes		
	Chapter 12	Alkanes		
	Section Heading			
12.2	Simple Alkanes			
12.5	Cycloalkanes			
12.7	Physical properties			
12.8	Combustion			
FYI 12.6	FOCUS ON THE ENVIRONMENT: Combustion			
Chapter 15	The Three-Dimensional Shape of Molecules			
	Section Heading			
15.1	Isomers - A Review			
15.2	Looking Glass Chemistry - Molecules and Their Mirror Images			
15.3	Chiral Centres			
FYI 15.5	FOCUS ON HEALTH & MEDICINE: Chiral Drugs			

Week 9 - 13 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
Unsaturated Hydrocarbons and Aromatics	Lecture 1: Alkenes and Alkynes	
	Chapter 13	Unsaturated Hydrocarbons
		Section Heading
	13.1	Alkenes and Alkynes
	13.2	Nomenclature of Alkenes and Alkynes
	13.6	Reactions of Alkenes
	FYI 13.4	Interesting Alkenes in Food and Medicine
	FYI 13.5	FOCUS ON HEALTH & MEDICINE: Oral Contraceptives
	FYI 13.7	Margarine or Butter
		Lecture 2: cis - trans isomerism
	Chapter 13	Unsaturated Hydrocarbons
		Section Heading
	13.3	Cis - Trans Isomers
		Lecture 3: Aromatic Compounds
	Chapter 13	Unsaturated Hydrocarbons
		Section Heading
	13.9	Aromatic Compounds
	13.10	Nomenclature of Benzene derivatives
	FYI 13.11	FOCUS ON HEALTH & MEDICINE: Aromatic Drugs, Sunscreens, and Carcinogens
FYI 13.12	FOCUS ON HEALTH & MEDICINE: Phenols as Antioxidants	
		Assessment Item 1 - Online quiz 3 Quiz closes 11:55pm, Sunday 19 May, 2019

Week 10 - 20 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
Alcohols, Thiols and Amines	Lecture 1: Alcohols	
	Chapter 14	Organic Compounds that Contain Oxygen, Halogen or Sulfur
		Section heading
	14.1	Introduction
	14.2	Structure and properties of alcohols
	14.3	Nomenclature of Alcohols
	14.5	Reactions of Alcohols
	FYI 14.4	Interesting Alcohols
	FYI 14.6	FOCUS ON HEALTH & MEDICINE: Ethanol, the Most Widely Abused Drug
		Lecture 2: Ethers, Alkyl Halides and Thiols
	Chapter 14	Organic Compounds that Contain Oxygen, Halogen or Sulfur
		Section Heading
	14.7	Structure and Properties of Ethers
	14.9	Alkyl Halides
	14.10	Organic Compounds that Contain Sulfur
	FYI 14.8	FOCUS ON HEALTH & MEDICINE: Ethers as Anesthetics
		Lecture 3: Amines
	Chapter 18	Amines and Neurotransmitters
		Section Heading
	18.1	Structure and Bonding
	18.2	Nomenclature
18.3	Physical Properties	
FYI 18.4	FOCUS ON HEALTH & MEDICINE: Caffeine and Nicotine	

Week 11 - 27 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
	Lecture 1: Aldehydes and Ketones	
	Chapter 16	Aldehydes and Ketones
		Section Heading
	16.1	Structure and Bonding
	16.2	Nomenclature
	16.3	Physical Properties
	FYI 16.4	FOCUS ON HEALTH & MEDICINE: Interesting Aldehydes and Ketones
	Lecture 2: Carboxylic Acids, Esters and Amides	
	Chapter 17	Carboxylic Acids, Esters, and Amides
		Section Heading
	17.1	Structure and Bonding
	17.2	Nomenclature
	17.3	Physical Properties
	17.4	Interesting Carboxylic Acids in Consumer Products and Medicines
	17.5	Interesting Esters and Amides
	FYI 17.7	FOCUS ON HEALTH & MEDICINE: Aspirin
	Lecture 3: Nuclear Decay and Radiation Safety	
	Chapter 10	Nuclear Chemistry
		Section Heading
	10.1	Introduction
	10.2	Nuclear Reactions
	10.3	Half-life
	10.4 B	FOCUS ON HEALTH & MEDICINE: The Effects of Radioactivity
	10.5	FOCUS ON HEALTH & MEDICINE: Medical Uses of Radioisotopes

Week 12 - 03 Jun 2019

Module/Topic	Chapter	Events and Submissions/Topic
		Assessment Item 1 - Online Quiz 4 Quiz closes 11:55pm, Sunday 9 June, 2019
		Laboratory Quiz 1 - Online Quiz Quiz closes 11:55pm, Sunday 9 June, 2019
		Laboratory Quiz 2 - Online Quiz Quiz closes 11:55pm, Sunday 9 June, 2019

Review/Exam Week - 10 Jun 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Exam Week - 17 Jun 2019

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

Internal weekly lab sessions will only run on Rockhampton North Campus - All other students will be required to attend one (only) of the scheduled residential schools.

Assessment Tasks

1 Online Quizzes

Assessment Type

Online Quiz(zes)

Task Description

This assessment is comprised of 4 online quizzes which will assess your understanding of the topics presented in this unit. Completing these quizzes will give you an indication of your understanding of the concepts presented each week and encourage you to stay on track with your study. This assessment requires you to apply the concepts 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 10%,
- Quiz 3 will contribute 10%, and
- Quiz 4 will contribute 20%,

The 4 online quizzes will contribute a total of 50% 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 questions are generated randomly and you will receive different questions on subsequent attempts.

Number of Quizzes

4

Frequency of Quizzes

Other

Assessment Due Date

The quizzes will be due at 11:55 pm on the Sunday at the end of Weeks 3, 6, 9 and 12.

Return Date to Students

Quiz results will be released after the completion of each attempt. Answers to the quiz questions will be released after the quiz has closed.

Weighting

50%

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 Moodle site.

Learning Outcomes Assessed

- Describe the structure of the atom including its sub-atomic particles and relate these to the design of the Periodic Table
- Determine the nature of chemical bonding and intermolecular forces present in molecules and ions
- Identify types of chemical reactions, and balance and interpret chemical equations
- Perform chemical calculations relating to reaction equilibrium, yield and the pH of acids, bases and buffers
- Identify functional groups and use the International Union of Pure and Applied Chemists (IUPAC) nomenclature to name organic molecules and indicate their potential chemical interactions
- Outline the process of nuclear decay and discuss measures used to ensure safety when working with radiation

Graduate Attributes

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

2 Practical Assessment

Assessment Type

Practical Assessment

Task Description

The practical component of CHEM110043 has been designed to provide and scaffold essential laboratory skills for chemistry for 2nd and 3rd year chemistry units and the workplace. The practical sessions will be undertaken in 2 blocks. Each block has been designed to allow you to develop excellence in laboratory practices and provide a solid foundation for future laboratory work.

The first block will focus on UV visible spectroscopy and will develop skills in the following:

- Working safely in the laboratory
- Correctly using top pan and analytical balances

- Sample preparation including quantitative transfers
- Correctly using pipettes and volumetric flasks
- Preparing dilution series for spectroscopic analysis
- Using a spectrophotometer
- Manual and excel graphing techniques with consideration of interpolation and extrapolation
- Performing relevant calculations to process data from spectroscopic analysis
- Maintaining data records

The second block will focus on titration and will develop skills in the following:

- Working safely in the laboratory
- Correctly using a burette
- Calibrating a pH meter
- Choosing an appropriate indicator for a neutralisation reaction titration
- Conducting titrations with good technique and accuracy
- Performing relevant calculations to process titration data
- Maintaining data records

As the practical component is a Pass/Fail grade it is essential that you pass all aspects of the assessment. The individual aspects for assessment are:

1. Laboratory notebook records of laboratory data, calculations and completion of discussion questions. Notebooks will be inspected randomly throughout the term.
2. Two online practical theory tests which will relate to associated theory and techniques used in the spectrophotometric and titration practical sessions. You will have unlimited attempts at each quiz, but you are required to achieve 90% on each quiz to pass.
3. Competency in specified laboratory skills assessed during the laboratory sessions, including: correct use of burettes, volumetric flasks, pipettes, balances, titration skills, pH meters, and use of spectrophotometer.
4. Completion of two practical tests where you will be required to conduct experiments to demonstrate your competency in spectrophotometric and titrimetric analyses. To be awarded a Pass grade for each practical test, your results must be within a given range of the actual results. Should your result be outside of this range, you will be required to show cause or provide evidence from previous sessions that you are competent in the skills being assessed.

Assessment Due Date

The laboratory component will be completed during term as per schedules for on campus and Mixed mode students. The online laboratory quizzes must be submitted by the 11.55 pm on the Sunday at the end of week 12.

Return Date to Students

Feedback on laboratory competencies will be given throughout the term during the laboratory sessions. Quiz results will be released after the completion of each attempt. Answers to the quiz questions will be released after the quiz has closed. A Pass/Fail grade will be recorded for this assessment following completion of the Residential School or weekly laboratory sessions and the online quizzes.

Weighting

Pass/Fail

Minimum mark or grade

90% on the online quizzes. All other components Pass/Fail. It is a requirement to achieve a Pass grade for the practical component to be eligible to pass CHEM11043.

Assessment Criteria

Mixed mode students are required to attend and participate in all laboratory exercises scheduled for a four day residential school.

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

Specific assessment criteria for components of this task are:

1. Laboratory notebook must show records of laboratory data, calculations and completion of discussion questions. Notebooks will be inspected randomly throughout the term.
2. Two online practical theory tests must be completed. The quizzes will relate to associated theory and techniques used in the spectrophotometric and titration practical sessions. You will have unlimited attempts at each quiz, but you are required to achieve 90% to pass.
3. Competency in specified laboratory skills must be demonstrated. Competency in the correct use of burettes, volumetric flasks, pipettes, balances, pH meters, will be assessed during the laboratory sessions:

4. Completion of two practical tests where you will be required to conduct experiments to demonstrate your competency in spectrophotometric and titrimetric analyses. To be awarded a Pass grade for each practical test, your results must be within a given range of the actual results. Should your result be outside of this range, you will be required to show cause or provide evidence from previous sessions that you are competent in the skills being assessed.

Referencing Style

- [Vancouver](#)

Submission

No submission method provided.

Submission Instructions

Rockhampton Internal students must attend all laboratory sessions held throughout the term. Mixed mode students must select to attend only one of the available 4 day Residential schools offered. Your selection can be made through the student allocator / timetable system on MyCQU. Each of the 2 quizzes must be completed online. All other laboratory skills assessment will be completed and assessed during the laboratory sessions.

Learning Outcomes Assessed

- Work safely in the laboratory to prepare samples and standards and perform titrimetric and spectrophotometric analysis.

Graduate Attributes

- Critical Thinking
- Team Work
- Information Technology Competence

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

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

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

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

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