



1. General Course Information

1.1 Course Details

Course Code:	1021SCG
Course Name:	Chemistry 1A
Trimester:	Trimester 1, 2023
Program:	Diploma of Science
Credit Points:	10
Course Coordinator:	Dr Gretel Heber
Document modified:	17/01/2023

Course Description

Chemistry is known as the central science, in that it is important to our understanding interactions that occur in all the other scientific disciplines through the study of matter, its properties, reactions and associated energies. This course introduces the fundamental terminology, concepts and methods of general chemistry. Students will explain chemical concepts and solve problems (quantitative and qualitative) involving stoichiometry, atomic and molecular structure, properties, thermodynamics and equilibrium. Fundamental concepts of matter underpin understanding and problem solving in biomolecular, biological, biotechnical, chemical, environmental, engineering, forensic, materials and medicinal sciences. Consequently, Chemistry 1A is a core course in the study of these fields. Skills that will be developed include academic language/reporting, scientific methodology and approaches, quantitative literacy, critical reasoning (explaining macro phenomena using chemical concepts), laboratory techniques and safe work practices.

Learning will be structured across three modules, as follows:

- Module 1: Basic concepts, terminology and stoichiometry
- Module 2: Atomic and molecular structure
- Module 3: Physical chemistry

Assumed Knowledge

To successfully enrol in this course, you must have completed one of the following courses:

- BRM100 - Essential Mathematics
- CME100 - Core Maths Skills
- CMS100 - Core Maths Skills

1.2 Teaching Team

Your teacher can be contacted via the email system on the portal.

Name	Email
Gretel Heber	Gretel.heber@staff.griffithcollege.edu.au

1.3 Staff Consultation

Your teacher is available each week for consultation outside of normal class times. Times that your teacher will be available for consultation will be given in the first week of learning experience. A list of times and rooms will be published on the Griffith College Portal under the "Support and Services/Teacher Consultation Times" link.

1.4 Timetable

Your timetable is available on the Griffith College Portal at Class Timetable in Student and Services.

1.5 Technical Specifications

All students must have access to a computer or suitable mobile device such as laptop or tablet (mobile phones are not suitable). In addition, up-to-date browser access, a reliable high-speed internet connection with enough upload and download capacity, a webcam and headset including microphone are needed.

2. Aims, Outcomes & Generic Skills

2.1 Course Aims

This course will introduce core concepts, theory and experimental methods of chemistry. Students will solve conceptual, quantitative chemical and experimental problems in the fields of the chemical, physical, biological, environmental, engineering, biomolecular, health and materials sciences. The relationships between chemical and macromolecular properties of substances that we experience will be explored.



2.2 Learning Outcomes

After successfully completing this course you should be able to:

1. Develop understanding of the underlying principles of chemistry and apply these to explain the behaviour and properties of substances and materials in our universe.
2. Demonstrate competence in conducting calculations to solve chemical problems in a range of contexts.
3. Build on research and critical thinking skills to analyse multifaceted problems in the context of an assignment.
4. Perform simple experimental procedures and apply workplace health and safety practices in the chemical laboratory.









2.3 Graduate Capabilities and Employability Skills

For further details on the Graduate Capabilities and Employability Skills please refer to the [Graduate Generic Skills and Capabilities policy](#).

Griffith College is committed to producing graduates who are able to demonstrate progress toward the development of a number of generic skills / capabilities that will allow them to successfully continue their studies at the tertiary level. This set of skills includes employability related skills that will ensure graduates are capable in the workplace of the future.

Studies in this course will give you opportunities to begin to develop the following skills:

Graduate Capabilities and Employability Skills			Focus within this course
Interacting with People	Teamwork		✓
	Communication		✓
	Respect for Culture and Diversity		
Readiness for the Workplace	Problem Solving		✓
	Planning and Organisation		✓
	Creativity and Future Thinking		✓



3. Learning Resources

3.1 Required Learning Resources

Non-programmable scientific calculator.

In trimesters with in-laboratory assignments, safety glasses, lab coat and appropriate footwear are also required for compulsory in laboratory activities. Laboratory safety glasses and lab coats can be purchased from the campus bookshop or safety supply stores.

3.2 Recommended Learning Resources

Brown, Lemay, Bursten et al. (2022) Chemistry: The Central Science (15e, GE), Pearson*.

Griffith College 1021SCG Laboratory Manual (in trimesters running laboratories). When laboratory assignments are scheduled at Nathan, hardcopies of these Manual are available from the Campus bookshop (M09) as well as from the course site. The laboratory manual and course notes are available from the Griffith College portal. The textbook should be used in conjunction with content notes and other materials provided in the learning experience sessions and via the course web site as a major source of detailed information about the course material. It provides detailed diagrams, illustrations and problems that should be valuable aids in your learning.

A scientific calculator is recommended for laboratory classes, learning experience and quizzes. **Graphics calculators are not permitted in any quiz or examination.**

BYO device: online quizzes will be run in Pearson and a Windows/Mac device is recommended.

3.3 College Support Services and Learning Resources

The College provides many facilities and support services to assist students in their studies. Links to information about College support resources that are available to students are included below for easy reference.

[Digital Library](#) – Databases to which Griffith College students have access to through the Griffith Library Databases.

MyStudy – there is a dedicated website for this course via MyStudy on the Griffith College Portal.

Griffith College is committed to ensuring academic integrity is understood and maintained by all staff and students. All students learn about academic integrity through engagement with the weighted Epigeum modules within the suite of Academic and Professional Studies courses.

Services and Support provides a range of services to support students throughout their studies including academic advice and assignment help from Student Learning Advisors, and personal and welfare support from Student Counsellors.

[Jobs and Employment](#) in the Student Hub can assist students with career direction, resume and interview preparation, job search tips, and more.

[IT Support](#) provides details of accessing support, information on s numbers and internet access and computer lab rules.

3.4 Other Information about your Learning

Preparation and Participation in Learning

You need to prepare before attending your scheduled Learning Experience (In Class). Work through the Learning Content (Before Class) prepared by your teacher which is found on the course site. Make sure you complete the Learning Activities (After Class) set each week. Active participation in your learning will enhance your success. Ask questions when something is unclear or when you want to bring some issue to your teacher's attention; respond to questions to test your knowledge and engage in discussion to help yourself and others learn.

Attendance

You are expected to actively engage in all learning experiences which underpin the learning content in this course. You are expected to engage with the learning content and learning activities outside of timetabled class times. This requires you to be an active agent of your learning. You are expected to bring all necessary learning resources to class such as the required textbook and /or Workbook. In addition, you are encouraged to BYOD (bring your own device) to class such as a laptop or tablet. This is not a requirement as computer lab facilities are available on campus, however, the use of such devices in the classroom is encouraged with appropriate and considerate use principles being a priority.

Laboratories

All experiments are **COMPULSORY** and satisfactory attendance and performance is required for successful completion of the course. Note that attendance and participation will be recorded.

Consultation Sessions

Teachers offer extra time each week to assist students outside the classroom. This is known as 'consultation time.' You may seek assistance from your teacher on email or in person according to how the teacher has explained this to the class. Attendance during consultation time is optional but you are encouraged to use this extra help to improve your learning outcomes.

Course Learning Materials

Learning materials are made available to you in the course site. The learning materials are arranged in Modules. In each Module you will find Learning Content (Before Class), Learning Experiences (In Class) and Learning Activities (After Class). **Learning Content (Before Class)** will be engaged with prior to the scheduled **Learning Experience (In Class)**. This will ensure you are prepared for the scheduled Learning Experience (In Class) by being aware of the content to be covered and therefore will be able to actively participate in the session. **Learning Activities (After Class)** are accessed after the scheduled session for purposes of review, consolidation of learning, and preparation for the Evidence of Learning Tasks (Assessments) in the course.

In addition, **Missed Class** learning material is provided in the course, providing support, interactive tools and directions for students who occasionally cannot attend the weekly scheduled Learning Experience (In Class, either in person or on Zoom) perhaps due to illness or other commitments. The Missed Class learning material should also be used in conjunction with Learning Content (Before Class) and Learning Activities (After Class) resources.

Self-Directed Learning

You will be expected to learn independently. This means you must organise and engage with the course Learning Content (Before Class) even when you are not specifically asked to do so by your teacher. The weekly guide (below) will be helpful to organise your learning. This involves revising the weekly Learning Content (Before Class) and completing the Learning Activities (After Class). It also means you will need to find additional information to evidence your learning beyond that given to you, and to construct your own response to a question or topic. All of this requires careful planning of your time. Expect to spend, on average, at least 10 hours per week including class time for each of your courses.

Program Progression

You are reminded that satisfactory Program Progression requires that attendance in classes is maintained at equal to or greater than 80%, students are engaged in their learning and that GPA is maintained at equal to or greater than 3.5 [please see Griffith College Policy Library - [Program Progression Policy](#) - for more information].






Teacher and Course Evaluation

Your feedback is respected and valued by your teachers. You are encouraged to provide your thoughts on the course and teaching, both positive and critical, directly to your teacher or by completing course and teacher evaluations via Griffith College's evaluation tool whenever these are available.



4. Weekly Guide: Learning Content, Learning Experiences and Learning Activities

The information below lays out how your learning will be organised throughout the trimester:

Week	Learning Content (Before Class)	Learning Experiences (In Class)	Learning Activities (After Class)	Evidence of Learning (Assessment)	Learning Outcome
					
Module 1					
1	Matter, terminology and nomenclature	Team problem solving questions, Lab 1, build an atom, Online mini lessons and associated activities, Lab 1	Textbook Chapter 1-2, Homework, Maths support, Lab 1,	Module 1 Assignments, quiz and EOT exam	1
2	Conservation of mass, introduction to chemical quantitation (equations and the mole)	Practice problem solving questions, team work, mole carnival, online mini lessons and associated activities, Lab 2	Textbook chapters 2, 3, Formative concept check, Homework,	Module 1 Assignments, quiz and EOT exam	1, 2
3	Stoichiometry, empirical formulae, solutions.	Online mini lessons; Practice problem solving, PhEt cheese sandwich, Lab 3	Textbook chapters 3, 4, Homework,	Module 1 Assignments, quiz and EOT exam	1-3
4	Solution stoichiometry, special reaction equations.	Practice problem solving, peer teaching, PhEt molarity, Peer presentation, quiz, Lab 4	Textbook chapters 3, 4, Homework, online mini lessons and associated activities	Module 1 Assignments, quiz and EOT exam	1-3
Module 2					
5	Atomic structure (electronic structure of atoms), periodic properties	Practice ChemTube3D, falstad atom viewer, Kahoot	Textbook chapter 6,7, Homework, online mini lessons and associated activities	Module 2 quiz and EOT exam	1, 2
6	Periodic properties, bonding and Lewis structures	Practice problem solving, online mini lessons and associated activities, Kahoot	Textbook chapters 7, 8, Homework	Module 2 quiz and EOT exam	1, 2
7	Molecular structures and intermolecular forces	Practice problem solving, molview, online mini lessons	Textbook chapter 8,9, Homework, online mini	Textbook chapter 6,7, Homework, online mini	

		and associated activities, Kahoot	lessons and associated activities	lessons and associated activities	
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<i>Module 3</i>					
8	Gases and intermolecular forces	Practice problem solving, online mini lessons and associated activities, Gases sim, Kahoot	Textbook chapters 10, 11, Homework	Module 3 assignment, quiz and EOT exam	1-3
9	Thermodynamics	Practice problem solving, heat capacity sim, hot and cold packs, Greenhouse effect online mini lessons and associated activities, Lab 5	Textbook chapter 14, homework	Module 3 assignment, quiz and EOT exam	1-4
10	Introduction to equilibrium	Practice problem solving, equilibrium sim, Kahoot, online mini lessons and associated activities	Textbook chapter 16, Homework	Module 3 assignment, quiz and EOT exam	1-3
11	Solutions, acids and bases	Practice problem solving, acids and bases sim, online mini lessons and associated activities	Textbook chapter 12, 17, 18, Homework	Module 3 assignment, quiz and EOT exam	1-3
12	Revision	Exam preparation, exam strategies, Practice exam	Practice exam	Exam	1-4



5. Evidence of Learning (Assessment)

5.1 Evidence of Learning Summary

Please note that web applications such as ChatGPT, Google, Google Translate, Grammarly and Youdao (or equivalent services) are not permitted for assessment creation, translation, or extensive language assistance purposes. Wikipedia, and Baidu, Weibo and WeTalk are not permitted to be used.

	Evidence of Learning (Assessment)	Weighting	Learning Outcome	Due Date
1	Laboratory assignments, (lab work/reports: 20 marks, pre-lab assignments 5 marks). <u>Students must pass this assessment with a mark of at least 12.5 out of 25 to pass the course.</u>	25%	1, 2, 3, 4	Progressive weeks 1-12
2	Module 1 Assignment A Module 1 Assignment B Module 1 quiz	5% 10% 5%	1 - 3	Week 3 Week 5 Week 6
3	Module 2 quiz	5%	1 - 3	Week 8
4	Module 3 assignment Module 3 quiz	5% 5%	1 - 3	Week 10 Week 12
5	EOT exam	40%	1-3	Week 13

5.2 Evidence of Learning Task Detail

1.Evidence of Learning Task 1: Laboratory Reports (25%)

Task Type: Practical Assignment – Written Assignment

Due Date: Progressive week 1-12

Weight: 25%, Marked out of: 25

Assessment type: f2f in the lab, practical and written, no reattempt.

Length: 20 hours

Task Description: Students undertake practical work and write a lab report. Pre-lab questions

Criteria and Marking: Students are assessed on their work, calculations and ability to analyse their results

Submission: during practical laboratories

2.Evidence of Learning Task 2: Module 1 Assessment (20% in total)

Task Type: Assignment A/B – Written Assignments (A 5%, B 10%), Quiz (5%)– short answer

Due Date: weeks 3, 5 and 6.

Weight: 20%, Marked out of 20

Length: Untimed assignments (approximately 5-10 hours in total), Quiz – timed 1 hour.

Task Description: Short answer questions and calculations (quiz, Assignment A), presentation to a peer and written submission (Assignment B), no reattempts.

Criteria and Marking: Students are assessed on the accuracy of their calculations and answers,

assessed against a rubric for the Assignment.

Submission: Pearson Mastering online (Assignment A and quiz) and Turnitin (Assignment B).

3.Evidence of Learning Task 3: Module 2 quiz (5%)

Task Type: Quiz

Due Date: week 8

Weight: 5% quiz, Marked out of 20 (quiz)

Length: 40 mins

Quiz type: closed book, invigilated, 1 attempt.

Task Description: Students analyse assigned atomic and molecular structures.

Criteria and Marking: Students are assessed on their ability to solve structure problems.

Quiz Format: Online Pearson quiz

4.Evidence of Learning Task 4: Module 3 Assessment (10% total)

Task Type: Assignment (5%) – Online written assignment; Quiz (5%) – online quiz

Due Date: weeks 10 and 12

Weight: 10%, Marked out of: 10

Length: Untimed Assignment, Quiz – timed 1 hour.

Task Description: Students demonstrate proficiency in thermochemical and equilibrium calculations and link water structure to its properties in regulating climate, 1 attempt at each.

Criteria and Marking: Students are assessed on their understanding of concepts and ability to undertake correct calculations. Ability to extrapolate learning to world problems.

Submission: Online Pearson assignment and quiz

8.Evidence of Learning Task 7: EOT exam (40%)

Task Type: Exam

Due Date: week 13

Weight: 40%, Marked out of: 60

Length: 120 mins

Exam type: closed book, invigilated, 1 attempt.

Task Description: EOT exam will consist of a mixture of multiple choice and short answer questions across the three modules. Hurdled at 40% (i.e. students must achieve 24 out of 60 to be eligible to pass Chemistry 1A)

Criteria and Marking: Understanding of concepts and quantitative literacy.

Exam format: On Campus

Module 1 Assignment: Students will develop a multimedia resource on stoichiometry procedures and conduct peer teaching (online or f2f) in the context of their experience (e.g. baking) or field of study (e.g. treatment of arsenic-containing drinking water for environmental). Their peer audience will contribute toward their mark using an appropriate rubric.

Module 3 Assignment: Students will be given systems to analyse and categorise from the viewpoint of spontaneity in the Pearson Mastering system. They will then go on to analyse the molecule water and its role in climate function from the viewpoint of molecular structure and intermolecular forces and how these relate to enthalpy and entropy.

In trimesters with in-laboratory assignments, reports are pro-forma type reports in the laboratory manual, and are due before the end of the assigned laboratory session. You are required to achieve 12.5/25 in the laboratory assignments. All experiments are compulsory and satisfactory attendance and performance is required for successful completion of the course.

EOT exam: Will test understanding and stoichiometric calculations across all three modules. It will consist of 40 marks MC and 20 marks short answer. Sample EOT exams will be available for practice and self-assessment.

Requirements to pass this course:

students must:

1. **attend and attempt all assessment items; AND**
2. **meet all the laboratory requirements, AND**
3. **obtain at least 40% on the EOT exam, AND**

4. **achieve an overall course result (sum of all assessments) of at least 50%**

5.3 Late Submission

An Evidence of Learning Task submitted after the due date, without an approved extension from the teacher, will be penalised. The standard penalty is the reduction of the mark allocated to the Evidence of Learning Task by 5% of the maximum mark applicable for the Evidence of Learning Task, for each calendar day that the task is late. Evidence of learning tasks submitted more than seven calendar days after the due date are awarded zero marks.

Please refer to the Griffith College website - Policy Library > [Assessment Policy](#) for guidelines and penalties for late submission.

5.4 Other Information about Evidence of Learning

Retention of Originals

You must be able to produce a copy of all work submitted if so requested. Copies should be retained until after the release of final results for the course.

Requests for extension

To apply for an extension of time for an evidence of learning item, you must submit an [Application for Extension of Assignment](#) form to your teacher at least 24 hours before the date the assignment is due. Grounds for extensions are usually: serious illness, accident, disability, bereavement or other compassionate circumstances and must be able to be substantiated with relevant documentation [e.g. [Griffith College Student Medical Certificate](#)]. Please refer to the Griffith College website - [Policy Library](#) - for guidelines regarding extensions and deferred assessment.

Return of Evidence of Learning Items

1. Marks awarded for in-trimester evidence of learning items, except those being moderated externally with Griffith University, will be available on the Student Portal within fourteen [14] days of the due date. This does not apply to the final evidence of learning item in this course (marks for this item will be provided with the final course result).
2. Students will be advised of their final grade through the Student Portal. Students can review their final exam papers after student grades have been published. Review of final exam papers will not be permitted after the final date to enrol.
3. Marks for **all** evidence of learning items including the final exam (if applicable) will be recorded in the Moodle Course Site and made available to students through the Moodle Course Site.

The sum of your marks of evidence of learning items in this course does not necessarily imply your final grade for the course. Standard grade cut off scores can be varied for particular courses, so you need to wait for the official release of grades to be sure of your grade for this course.

6. Policies & Guidelines

Griffith College assessment-related policies can be found in the [Griffith College Policy Library](#) which include the following policies:

[Assessment Policy](#), [Special Consideration](#), [Deferred Assessment](#), [Alternate Exam Sitings](#), [Medical Certificates](#), [Academic Integrity](#), [Finalisation of Results](#), [Review of Marks](#), [Moderation of Assessment](#), [Turn-it-in Software Use](#). These policies can be accessed within the [Policy Library](#)

Academic Integrity Griffith College is committed to maintaining high academic standards to protect the value of its qualifications. Academic integrity means acting with the values of honesty, trust, fairness, respect and responsibility in learning, teaching and research. It is important for students, teachers, researchers and all staff to act in an honest way, be responsible for their actions, and show fairness in every part of their work. Academic integrity is important for an individual's and the College's reputation.

All staff and students of the College are responsible for academic integrity. As a student, you are expected to conduct your studies honestly, ethically and in accordance with accepted standards of academic conduct. Any form of academic conduct that is contrary to these standards is considered a breach of academic integrity and is unacceptable.

Some students deliberately breach academic integrity standards with intent to deceive. This conscious, pre-meditated form of cheating is considered to be one of the most serious forms of fraudulent academic behaviour, for which the College has zero tolerance and for which penalties, including exclusion from the College, will be applied.

However, Griffith College also recognises many students breach academic integrity standards without intent to deceive. In these cases, students may be required to undertake additional educational activities to remediate their behaviour and may also be provided appropriate advice by academic staff.

As you undertake your studies at Griffith College, your teachers and academic advisors will provide you with guidance to understand and maintain academic integrity; however, it is also your responsibility to seek out guidance if and when you are unsure about appropriate academic conduct.

In the case of an allegation of a breach of academic integrity being made against a student he or she may request the guidance and support of a Griffith College Student Learning Advisor or Student Counsellor.

Please ensure that you are familiar with the Griffith College Academic Integrity Policy; this policy provides an overview of some of the behaviours that are considered breaches of academic integrity, as well as the penalties and processes involved when a breach is identified.

For further information please refer to the Griffith College website - Policy Library > [Academic Integrity Policy](#)

Reasonable Adjustments for Assessment – The Disability Services policy

The [Disability Services policy](#) (accessed within the [Policy Library](#)) outlines the principles and processes that guide the College in making reasonable adjustments to assessment for students with disabilities while maintaining academic robustness of its programs.

Risk Assessment Statement

There are no out of the ordinary risks associated with this course.

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