



1. General Course Information

1.1 Course Details

Course Code:	1021SCG
Course Name:	Chemistry 1A
Trimester:	Trimester 1, 2020
Program:	Diploma of Science
	In Person
	Mt Gravatt
Credit Points:	10
Course Coordinator:	Dr. Gretel Heber
Document modified:	29 th January

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.

The course will be structured in three modules:

Module 1: Introduction to chemical concepts and reactions. Topics include atomic notation, the periodic table, the mole, chemical reactions and stoichiometry.

Module 2: Atomic and molecular structure and properties. Topics include quantum numbers, electron structure, periodic properties, bonding, Lewis diagrams, VSEPR, VBT and MOT.

Module 3: Physical chemistry. Topics include gas laws, intermolecular forces, the first and second laws of thermodynamics, colligative properties and equilibria.

Assumed Knowledge

BRM100 Essential Mathematics is a prerequisite for this course and must be completed successfully before you can be eligible to undertake this course.

1.2 Teaching Team

Your lecturer/tutor 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 lecturer/tutor is available each week for consultation outside of normal class times. Times that your lecturer/tutor will be available for consultation will be given in the first week of lectures. 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.

2. Aims, Outcomes & Generic Skills

2.1 Course Aims

1. Introduce core concepts, theory and experimental methods of chemistry;
2. Encourage and equip students to solve conceptual, quantitative chemical and experimental problems in the fields of the chemical, physical, biological, environmental, engineering, biomolecular, health and materials sciences;
3. Demonstrate how chemical properties influence the macromolecular properties of substances that we experience; and
4. Provide fundamental chemical knowledge and skills required in studies of science and related fields.
5. Engage students in chemistry, chemical problem solving and applications.

2.2 Learning Outcomes

After successfully completing this course you should be able to:

1. Explain chemical concepts, properties, reactions and relationships (macro-molecular) in a variety of written and oral modes.
2. Apply chemical laboratory techniques and safe working practices in the laboratory.
3. Demonstrate effective communication, collaboration and critical analysis skills in a range of problem solving contexts.
4. Prepare quality solutions to a variety of qualitative and quantitative chemical problems involving chemical data in a range of contexts.
5. Evaluate how your learning competencies and skills may be utilised in your future studies and career in the context of eportfolio production.

6. Work independently and in teams, to analyse chemical and scientific problems in the laboratory and classroom.

2.3 Generic skills

For further details on the Generic Skills please refer to the Graduate Generic Skills and Capabilities policy.

Griffith College aims to develop graduates who have an open and critical approach to learning and a capacity for lifelong learning. Through engagement in their studies, students are provided with opportunities to begin the development of these and other generic skills.

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

Generic Skills	Taught	Practised	Assessed
Knowledge and skills with critical judgement	✓	✓	✓
Communication and collaboration skills	✓	✓	✓
Self-directed and active learning skills	✓	✓	✓
Creative and future thinking skills	✓	✓	✓
Social responsibility and ethical awareness	✓	✓	
Cultural competence and awareness in a culturally diverse environment		✓	

3. Learning Resources

3.1 Required Resources

Brown, Lemay, Bursten et al. (2014) Chemistry: The Central Science (3e), Pearson.

Griffith College 1021SCG Laboratory Manual.

Hardcopies of these resources are available from the Campus bookshop (M09). The laboratory manual and course notes are available from the Griffith College portal. The textbook should be used in conjunction with lecture notes and other materials provided in lectures 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.

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

3.2 Recommended Resources

A scientific calculator is recommended for laboratory classes, workshops, workshop quizzes, tutorials and exams. **Graphics calculators are not permitted in any workshop quiz or examination.**

BYOD: Android/Apple device with Socrative student app installed or PC.

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.

[Academic Integrity Tutorial](#) - this tutorial helps students to understand what academic integrity is and why it matters. You will be able to identify types of breaches of academic integrity, understand what skills you will need in order to maintain academic integrity, and learn about the processes of referencing styles.

Services and Support provides a range of services to support students throughout their studies including personal support such as Counselling; Academic support; and Welfare support.

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 Learning Information

Attendance

You are expected to attend all lectures and tutorials and to actively engage in learning during these sessions. You are expected to bring all necessary learning resources to class such as the required textbook and /or Workbook. In addition, you may 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.

Preparation and Participation in Class

In order to enhance learning, prepare before lectures and tutorials. Read the relevant section of your text book before a lecture, and for a tutorial read both the textbook and the relevant lecture notes. If you have been given tutorial exercises, make sure you complete them. Active participation in lectures and tutorials will improve your learning. Ask questions when something is unclear or when you want to bring some issue to your lecturer or tutor's attention; respond to questions to test your knowledge and engage in discussion to help yourself and others learn.

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 Materials

Lecture notes will be made available to you in MyStudy on the Griffith College Portal and you are advised to either print these out and bring them to each class so that extra notes can be added or BYOD (bring your own device) and add extra notes digitally.

Self-Directed Learning

You will be expected to learn independently. This means you must organise and learn the course content even when you are not specifically asked to do so by your lecturer or tutor. This involves revising the weekly course material. It also means you will need to find additional information for some assessment items beyond that given to you in textbooks and lecture notes, 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%, 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 lecturers and tutors. You are encouraged to provide your thoughts on the course and teaching, both positive and critical, directly to your lecturer and tutor or by completing course and lecturer evaluations via Griffith College's evaluation tool whenever these are available.

4. Learning and Teaching Activities

4.1 Weekly Learning Activities

Week	Topic	Activity	Readings	Learning Outcomes
1	Module 1: Matter, atoms and molecules (basic structure and terminology)	Lecture	Textbook Chapter 1-2	1, 3, 4, 6
	Numeric skills for Chemistry	Workshop		1, 3, 4, 6
2	Module 1: nomenclature, equations, the mole.	Lecture	Textbook chapters 2, 3	1, 3, 4, 6
	Matter, atoms and molecules	Tutorial	Tutorial number 1	1, 3, 4, 6
3	Module 1: Chemical reaction stoichiometry, empirical formulae, solutions.	Lecture	Textbook chapters 3, 4	1, 3, 4, 6
	Nomenclature, equations, formulae, the mole.	Tutorial	Tutorial number 2	1, 3, 4, 6
4	Module 1: Chemical stoichiometry, special reaction equations.	Lecture	Textbook chapters 3, 4	1, 3, 4, 6
	Stoichiometry	Tutorial	Tutorial number 3	1, 3, 4, 6
	Module 1	In-class quiz 1		1, 3, 4, 6
5	Module 2: atomic structure (electronic structure of atoms), periodic properties	Lecture	Textbook chapter 6,7	1, 3, 4, 6
	Reactions and stoichiometry	Tutorial	Tutorial number 4	1, 3, 4, 6
6	Module 2: Bonding and molecular structure (VSEPR, VBT, MOT)	Lecture	Textbook chapters 8, 9	1, 3, 4, 6
	Atomic structure	Tutorial	Tutorial number 5	1, 3, 4, 6
7	Module 3: Thermodynamics I (the first law)	Lecture	Textbook chapter 14	1, 3, 4, 6
	Molecular structure	Tutorial	Tutorial number 6	1, 3, 4, 6
8	Module 3: Thermodynamics II (the second law)	Lecture	Textbook chapters 14	1, 3, 4, 6
	Thermodynamics I	Tutorial	Tutorial number 7	1, 3, 4, 6
	Module 1/2/3 In-class quiz	In-class quiz 2		1, 3, 4, 6
9	Module 3: gases and intermolecular forces	Lecture	Textbook chapter 10, 11	1, 3, 4, 6
	Thermodynamics II	Tutorial	Tutorial number 8	1, 3, 4, 6
10	Module 3: Introduction to equilibrium	Lecture	Textbook chapter 16	1, 3, 4, 6
	Gases and intermolecular forces	Tutorial	Tutorial number 9	1, 3, 4, 6

Week	Topic	Activity	Readings	Learning Outcomes
11	Module 3: Solutions and colligative properties	Lecture	Textbook chapter 12	1, 3, 4, 6
	Equilibrium	Tutorial	Tutorial number 10	1, 3, 4, 6
	Module 3 In-class quiz	In-class quiz 3		1, 3, 4, 6
12	Revision	Lecture		1, 3, 4, 6
	Solutions, colligative properties	Tutorial	Tutorial number 11	1, 3, 4, 6

5. Assessment Plan

5.1 Assessment Summary

Item	Assessment Task	Weighting	Learning Outcomes	Due Date
1	Laboratory Reports, including Pebble Pad reflections (lab reports: 20 marks; Pebble Pad reflections: 5 marks). <u>Students must pass this assessment with a mark of at least 15 out of 25 (60%) to pass the course.</u>	25%	1, 2, 3, 4, 5, 6	Progressive 1-12
2	Online quiz homework (1% each)	11%	1, 3, 4, 6	Progressive, weekly 2-12
3	In-class quiz 1.	4%	1, 3, 4, 6	4
4	In-class quizzes 2 and 3 (5.5% each).	11%	1, 3, 4, 6	8 and 11
5	Eportfolio (Pebble Pad) assignment	4%	1, 2, 3, 4, 5, 6	Week 11
6	End of Trimester Exam: <u>Students must pass this assessment with a mark of at least 40%.</u>	45%	1, 3, 4, 6	TBA

5.2 Assessment Detail

The assessment for this course consists of weekly online homework quizzes, three in-class quizzes, an end of trimester examination and a set of laboratory assignments.

Online quiz homework will be conducted weekly throughout trimester and will be based on the preceding weeks' content. Each will be of ~30 minutes duration.

In-class quizzes will be closed book, consisting of a mix of multiple choice and short answer questions. In-class quiz 1 will cover material from weeks 1-3 and in-class quizzes 2 and 3 will cover material from the preceding 4 weeks material (i.e. weeks 4-7 and 8-11, respectively). Appendices containing critical equations, data and a periodic table will be provided.

Laboratory reports are pro-forma type reports in the laboratory manual, and are due before the end of the assigned laboratory session. The demonstrator must sign your lab manual at completion of marking. Laboratory reports are marked during the assigned laboratory session and handed back to the student. Pre-lab activities are worth 10% of your lab mark. Laboratory activities cannot be deferred and you are required to achieve 15/25 in the laboratory assignments and Pebble Pad reflections. All experiments are compulsory and satisfactory attendance and performance is required for successful completion of the course.

Pebble Pad reflections will be completed in the week following the respective laboratory using the provided Pebble Pad resource workbook. The Pebble Pad reflections themselves will be worth 5% of the total grade.

The **eportfolio (Pebble Pad) assignment** will be undertaken at the completion of the laboratory program, students will produce a response to a job selection criterion/graduate attribute supporting this with a specific example from their laboratory experience in Chemistry 1A. Marking rubrics and examples are available on the Student Portal.

The **end of trimester examination** will be in the form of closed book written examinations, consisting of a mixture of multiple choice and short answer styles questions. The end of trimester examination will cover material from the entire course and a mark of 40% (24/60) is required in order to pass the course, irrespective of aggregate score. A non-programmable calculator is essential. Appendices containing critical equations, data and a periodic table will be provided.

End of trimester examinations and in-class quizzes will test your understanding of the relevant course materials and problem-solving skills. The format will be a mix of multiple choice and short answer questions, which will be marked against standard solutions. Sample assessment items are available on the student portal.

5.3 Late Submission

An assessment item submitted after the due date, without an approved extension from the Course Coordinator, will be penalised. The standard penalty is the reduction of the mark allocated to the assessment item by 5% of the maximum mark applicable for the assessment item, for each working day or part working day that the item is late. Assessment items submitted more than five working 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 Assessment Information

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 assignment, 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 Assessment Items

1. Marks awarded for in-trimester assessment 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 assessment 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 exam papers after student grades have been published (see relevant Griffith College Fact Sheet for allocated times at Support> Factsheets). Review of exam papers will not be permitted after the final date to enrol.
3. Marks for **all** assessment 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 overall assessment 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 Sitting, Medical Certificates, Academic Integrity, Finalisation of Results, Review of Marks, Moderation of Assessment, Turn-it-in Software Use. These policies can be accessed using the 'Document Search' feature 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 lecturers, tutors 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 using the Document Search' feature with 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.

Copyright © - Griffith College

Note: For all Diploma level programs, Griffith College acknowledges content derived from Griffith University.