



Course Code:	1021SCG
Course Name:	Chemistry 1A
Trimester:	Trimester 1, 2018
Program:	Diploma of Science
Credit Points:	10
Course Coordinator:	Dr Gretel Heber
Document modified:	14 <sup>th</sup> December 2017

### Teaching Team

Your lecturer/tutor can be contacted via the email system on the portal.

Name	Email
Dr Gretel Heber	<a href="mailto:Gretel.heber@staff.griffithcollege.edu.au">Gretel.heber@staff.griffithcollege.edu.au</a>

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### 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 “myTimetable” link.

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## Prerequisites

Please note: 1021SCG is a prerequisite for 1022SCG. This means that you need to achieve a Pass or above to progress to this course.

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## Brief Course Description

This course introduces the fundamental concepts and methods of general chemistry. Basic skills of laboratory chemical analysis are developed.

Lecture contents include four units:

- [1] Introduction and basic concepts
  - [2] Structure and bonding
  - [3] Thermodynamics and physical processes
  - [4] Chemical equilibrium.
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## Rationale

The purpose of this course is to introduce you to the study of matter and its interactions. The course is designed to provide you the chemical foundation required for further studies in a range of scientific or engineering courses.

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## Aims

Chemistry involves study of the properties and behaviour of matter and energy. Matter is defined as anything that has mass and occupies space. It has been shown that all the matter in our universe arises due the combination of about 100 basic substances called elements, and the elements themselves are made of smaller units called atoms. Energy is a measure of capacity to change and is fundamental to understanding the behaviour of matter. Central themes in the course include how matter and its properties can be described in terms of macroscopic terms and the kinetic-molecular theory of matter. The course provides knowledge fundamental to other courses with chemistry requirements.

The aim of the course is to introduce students to the basic principles and applications of chemistry, as well as basic chemical laboratory skills; to encourage students to apply the knowledge and skills gained to practical situations in practical situations in the chemical, biological and physical sciences; and to provide knowledge and skills fundamental to other courses with chemistry requirements.

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## Learning Outcomes

Upon successful completion of this course students will be able to...

1. Understand the basic principles of chemistry;
  2. Perform simple experimental procedures and apply workplace health and safety practices in the chemical laboratory;
  3. Solve quantitative and conceptual problems in the pure and applied chemical sciences
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#### Texts and Supporting Materials

Blackman, Bottle, Schmid, Mocerino and Wille (2016), Chemistry 3rd ed., John Wiley & Sons, Australia (this text will also be used for Chemistry 1B)

1021SCG Chemistry 1A Laboratory Manual available from Coop bookstore, Mt Gravatt campus.

Lab Coat and Safety Glasses must be purchased (from the Co-op bookshop) and be brought to every laboratory class. Repeated failure to bring laboratory manuals, safety glasses and/or lab coats will result in loss of marks.

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

Content from each week's lecture will be available on the portal.

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#### Organisation and Teaching Strategies

The teaching and assessment portion of the trimester is of 12 weeks duration - inclusive. Classes are usually provided in two three (3) hours block during each of the first twelve (12) weeks of trimester. For each of Weeks 1-12 you are expected to attend the entire teaching session each week.

A) Three [3] hours will be spent during class time each week presenting and discussing concepts and techniques that you need to know to pass the course.

B) Three [3] hours of class time will also be spent each week undertaking chemistry tutorials and workshops.

In weeks 4, 5, 6, 7 and 8, you will have a four [4] hour laboratory class. **It is essential that the first lab is undertaken** in order to proceed to successive labs.

These laboratory sessions will be held on the Nathan campus of Griffith University,

N44\_3.16A - attendance and participation in all 5 laboratory classes is a requirement for achieving a pass in this subject. Further details will be provided during class time.

Where class times conflict with Public Holidays, makeup classes may be organised on a different day. You are advised to make inquiries about these Public Holidays to determine when the relevant class will be held. Further time is made available for individual consultation with teaching staff each week [see myTimetables>Consultation for further details].

#### *Class Contact Summary*

### **Attendance**

Your attendance in class will be marked twice during a three-hour class. To receive full attendance, you must be present in the classroom on both occasions. Therefore, you are encouraged to attend and participate in all classes throughout the trimester.

### **Participation in Class**

You are expected to actively participate in classes each week.

### **Consultant Times**

Attendance during consultation times is optional but you are encouraged to use this extra help to improve your learning outcomes.

### **Course Materials**

Before attending the weekly lectures, you are expected to prepare in advance for each of these classes by pre-reading the lecture notes and the relevant chapters in the textbook.

### **Laboratory Sessions**

You are expected to be fully prepared for the laboratory classes by reading through the relevant chapters in the laboratory manual, familiarising with the laboratory procedures and wearing a **laboratory coat, safety glasses and proper shoes that enclose the whole foot**.

You are required to purchase a copy of the laboratory manual, a laboratory coat and safety glasses.

You are also required to complete an online laboratory induction through learning@griffith prior to the first laboratory session.

It is important that you arrive prepared for your laboratory session and are ready to start at the time given in the timetable. If you arrive more than 10 min after the laboratory starting time or if you are wearing incorrect footwear, you may not be permitted to undertake the experiment for that day and if so, will be marked absent for the full 4 hours. Repeated late arrival will result in loss of marks.

### **Independent Learning**

You are also expected to undertake a minimum of 6-7 hours each week (in addition to the 6 hours of contact time) in undertaking learning and project activities related to this course.

## 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].

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## Content Schedule

The following topics will be covered throughout the trimester:

### *Weekly Teaching Schedule*

**PLEASE NOTE: Lab classes for this course will be:**

Tuesdays

9:00am to 1:00pm in room N44\_3.16A (Nathan Campus) in weeks 4, 5, 6, 7, & 8 only

Week	Topic	Activity	Reading
1	<b>Module 1: Matter-matter, atoms and molecules.</b>	<b>Lecture</b>	<b>Textbook Chapter 1-2</b>
	<b>Basic skills for Chemistry</b>	<b>Workshop</b>	
2	<b>Module 1: nomenclature equations, formulae.</b>	<b>Lecture</b>	<b>Textbook chapters 2, 3 12.2</b>
	<b>Matter, atoms and molecules</b>	<b>Tutorial</b>	<b>Tutorial number 1</b>
3	<b>Module 1: Chemical reaction stoichiometry, empirical formulae.</b>	<b>Lecture</b>	<b>Textbook chapter 3</b>
	<b>Nomenclature, equations, formulae.</b>	<b>Tutorial</b>	<b>Tutorial number 2</b>
4	<b>Module 1: Chemical stoichiometry continued,</b>	<b>Lecture</b>	<b>Textbook chapter 3</b>

	<b>including solutions.</b>		
	<b>Chemical nomenclature, equations</b>	<b>Tutorial</b>	<b>Tutorial number 3-4</b>
<b>5</b>	<b>Module 2: atomic structure</b>	<b>Lecture</b>	<b>Textbook chapter 4</b>
	<b>Reactions and stoichiometry</b>	<b>Tutorial</b>	<b>Tutorial number 3-4</b>
	<b>Module 1</b>	<b>Online quiz 1</b>	
<b>6</b>	<b>Module 2: Molecular structure</b>	<b>Lecture</b>	<b>Textbook chapter 5</b>
	<b>Atomic structure</b>	<b>Tutorial</b>	<b>Tutorial number 5</b>
	<b>Module 1</b>	<b>In-class quiz 1</b>	
<b>7</b>	<b>Module 3: gas laws and changes of state</b>	<b>Lecture</b>	<b>Textbook chapter 6, 7</b>
	<b>Molecular structure</b>	<b>Tutorial</b>	<b>Tutorial number 6</b>
	<b>Module 2</b>	<b>Online quiz 2</b>	
<b>8</b>	<b>Module 3: thermodynamics</b>	<b>Lecture</b>	<b>Textbook chapter 8</b>
	<b>Gas laws and changes of state</b>	<b>Tutorial</b>	<b>Tutorial number 7</b>
	<b>Module 2</b>	<b>In-class quiz 2</b>	
<b>9</b>	<b>Module 4: Equilibrium concepts and calculations</b>	<b>Lecture</b>	<b>Textbook chapter 9</b>
	<b>Thermodynamics</b>	<b>Tutorial</b>	<b>Tutorial number 8</b>
	<b>Module 3</b>	<b>Online quiz 3</b>	
<b>10</b>	<b>Module 4: Solution equilibria</b>	<b>Lecture</b>	<b>Textbook chapter 10</b>
	<b>Equilibrium</b>	<b>Tutorial</b>	<b>Tutorial number 9</b>
	<b>Module 3</b>	<b>In-class quiz 3</b>	
<b>11</b>	<b>Module 4: Acids and bases</b>	<b>Lecture</b>	<b>Textbook chapter 11</b>




## Assessment

This section sets out the assessment requirements for this course.

### Summary of Assessment

Item	Assessment Task	Weighting	Relevant Learning Outcomes	Due Date
1	In-classes quizzes, Modules 1-4. (8% for module 1, 4% each for remaining modules)	20%	1,3,4	6, 8, 10, 12
2	Laboratory Reports <i>- Students must pass this assessment with a mark of at least 15 out of 25 to pass the course</i>	25%	2,3,4	Progressive 2-11
3	Online quizzes (4% for module 1, 2% each for remaining modules)	10%	1,3,4	5, 7, 9, 12
4	Final Exam	45%	1,3,4	14



	<i>- Students must pass this assessment with a mark of at least 24 out of 60 (40%) to pass the course</i>			
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#### *Assessment Details*

The assessment for this course consists of four online quizzes, two in-class quizzes, an end of trimester examination and a set of laboratory reports.

**The online quizzes** will be held in weeks 5, 7, 9 and 121 and will be based on the previous module content content. Each will be of ~60 minutes duration and will utilise the Wileyplus system.

**The in-class quizzes** will be a mixture of multiple choice and short answer questions totally 15-30 marks and of 25-50 mins duration each.

The in-class quizzes and end of trimester examination will be in the form of closed book written examinations. A non-programmable calculator is essential. Laboratory reports consist of completing relevant sections in the laboratory manual.

**End of trimester examinations and in-class quizzes** will test your understanding of the relevant course materials and problem-solving skills. The questions will be marked against standard solutions.

The end of trimester examination will cover course material from weeks 1-11. Students are required to gain a mark of 40% or greater in this exam to pass the course.

**Laboratory reports** will develop your scientific reporting skills and will contain questions that test your understanding of chemistry principles and laboratory skills of the practicals.  
**ATTENDANCE AND ADEQUATE PERFORMANCE AT EACH LABORATORY CLASS IS ESSENTIAL TO PASS THE COURSE.**

The laboratory component is graded by continuous assessment of the laboratory experiments and contributes 25% to the final mark. All experiments are compulsory and satisfactory attendance and performance is required for successful completion of the course.

#### *Submission and Return of Assessment Items*

Examination papers will not be returned. Marked laboratory reports will be distributed in the laboratory classes.

#### **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.

#### *Extensions*

To apply for an extension of time for an assessment item you must submit a written request to your lecturer via the Student Website at least 24 hours before the date the assessment item 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. medical certificate]. Please refer to the Griffith College website - Policy Library - for guidelines regarding extensions and deferred assessment.

## **Penalties for late submission without an approved extension**

Penalties apply to assignments that are submitted after the due date without an approved extension. Assessment submitted after the due date will be penalised 10% of the TOTAL marks available for assessment (not the mark awarded) for each day the assessment is late. Assessment submitted more than five days late will be awarded a mark of zero (0) For example:

- > 5 minutes and <= 24 hours 10%
- > 24 hours and <= 48 hours 20%
- > 48 hours and <= 72 hours 30%
- > 72 hours and <= 96 hours 40%
- > 96 hours and <= 120 hours 50%
- > 120 hours 100%

Note:

- Two-day weekends will count as one day in the calculation of a penalty for late submission.
- When a public holiday falls immediately before or after a weekend, the three days will count as one day in the calculation of a penalty for late submission.
- When two public holidays (e.g. Easter), fall immediately before or after, or one day either side of a weekend, the four days will count as two days in calculating the penalty for late submission.
- When a single public holiday falls mid-week, the day will not be counted towards the calculation of a penalty.

Please refer to the Griffith College website - Policy Library > Assessment Policy for guidelines and penalties for late submission.

*Assessment Feedback*

Marks awarded for assessment items will also be available on the on-line grades system on the Student Website within fourteen [14] days of the due date.

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## Generic Skills

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
Written Communication	Yes	Yes	Yes
Oral Communication		Yes	
Information Literacy	Yes	Yes	Yes
Secondary Research			
Critical and Innovative Thinking			
Academic Integrity	Yes	Yes	Yes
Self Directed Learning			
Team Work	Yes	Yes	Yes
Cultural Intelligence			
English Language Proficiency			

### *Additional Course Generic Skills*

Specific Skills	Taught	Practised	Assessed
Chemical laboratory skills	Yes	Yes	Yes

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### Additional Course Information

In addition to formal contact hours, you are provided with extra support through individual consultation with lecturers, English language support, and self-access computer laboratories.

### **Teacher and Course Evaluations**

Students commented that the assessment items, tutorial activity and teacher's approach were positive in supporting their learning. Students particularly appreciate the examples given during lectures and the opportunity to practice calculation problems. This practice will continue to be advanced with more examples and opportunity for students to participate in lectures.

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 online evaluation tool whenever these are available.

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## 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 any allegation of academic misconduct 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 Academic Integrity Policy on the Griffith College website – Policy Library.

This course follows Griffith College and Griffith University Workplace Health and Safety Laboratory guidelines.

The aim of workplace health and safety is to make sure that people do not get sick or injured at the workplace. The legislation dealing with this in Queensland is called the Workplace Health and Safety Act, 1995. Anyone who can affect workplace health and safety has an obligation under this Act.

As a student, you have an obligation to yourself and others to undertake activities in a safe manner. you must follow instructions which are provided for safety. You must not put yourself or anyone else at risk. Care especially needs to be taken when you are performing activities which can affect others.

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