



Queensland, Australia

<b>Course Code:</b>	<b>1021SCG</b>
<b>Course Name:</b>	<b>Chemistry 1A</b>
<b>Semester:</b>	<b>Semester 1, 2016</b>
<b>Program:</b>	Diploma of Biosciences
	Diploma of Engineering
<b>Credit Points:</b>	10
<b>Course Coordinator:</b>	Dr Carolyn Munce
<b>Document modified:</b>	10 Feb 2016 09:57:49

#### Teaching Team

Your lecturer/tutor can be contacted via the email system on the portal.	
<b>Name</b>	<b>Email</b>
Dr Carolyn Munce	<a href="mailto:carolyn.munce@staff.griffithcollege.edu.au">carolyn.munce@staff.griffithcollege.edu.au</a>

#### 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.

#### Prerequisites

Please note: 1021SCG is a prerequisite for courses 1014BPS and 1022SCG. This means that you need to achieve a Pass or above to progress to these courses.

#### 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] Molecular structure and bonding
- [3] Energy and physical processes
- [4] Kinetics and equilibrium.

#### 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.

#### 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 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 problems in the pure and applied chemical sciences
  4. Undertake other courses at University that require an understanding of chemistry.
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### Texts and Supporting Materials

Blackman, Bottle, Schmid, Mocerino and Wille (2012), Chemistry 2nd ed., John Wiley & Sons, Australia (this text will also be used for Chemistry B)

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

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 semester is of 14 weeks duration - inclusive. Classes are usually provided in one (2) hour block and one three (3) hour block during each of the first thirteen (13) weeks of semester. For each of Weeks 1-13 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) Two [2] hours of class time will also be spent each week undertaking chemistry tutorials.

In weeks 2, 4, 6, 10 & 11, you will have a four [4] hour laboratory class

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 four 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 semester.

#### 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](mailto: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.

#### Independent Learning

You are also expected to undertake a minimum of 6-7 hours each week (in addition to the 4 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 semester:

#### Weekly Teaching Schedule

Week	Topic	Activity	Readings
1	Course introduction. Basic Concepts: Matter- atoms molecules, and ions.	Lecture	Textbook Chapter 1-2.1
	Basic skills for Chemistry	Workshop	
2	Basic Concepts: The language of chemistry, measurement, chemical equations.	Lecture	Textbook chapter 2.1-3.2
	Matter, atoms and molecules	Tutorial	Tutorial number 1
		Laboratory	
3	Basic Concepts: Chemical reactions and stoichiometry	Lecture	Textbook chapter 3.3-3.5
	Chemical nomenclature, balancing chemical equations	Tutorial	Tutorial number 2
4	Basic concepts: Aqueous reactions and solution stoichiometry, redox reactions	Lecture	Textbook chapter 3.6, 12 (12.1 – 12.2)
	Stoichiometry	Tutorial	Tutorial number 3
		Laboratory	
5	Molecular Structure and Bonding: Electronic structure of atoms.	Lecture	Textbook chapter 4
	Aqueous reactions and solution stoichiometry	Tutorial	Tutorial number 4
6	Molecular Structure and Bonding: Basic concepts of chemical bonding and molecular structure	Lecture	Textbook chapter 5
	Electronic structure of atoms	Tutorial	Tutorial number 5
		Laboratory	
7	Energy and Physical Processes: Energy and Thermochemistry	Lecture	Textbook chapter 8.1-8.4
	Basic concepts of chemical bonding	Tutorial	Tutorial number 6
	Mid-semester exam	Examination	
8	Energy and Physical Processes: Gases, liquids and solids	Lecture	Textbook chapter 6, 7
	Energy and thermochemistry	Tutorial	Tutorial number 7
9	Energy and Physical Processes: Solutions and solubility	Lecture	Textbook chapter 10
	Gases, liquids and solids	Tutorial	Tutorial number 8
10	Kinetics and Chemical Equilibria: Chemical equilibria	Lecture	Textbook chapter 9
	Solutions and solubility	Tutorial	Tutorial number 9
		Laboratory	
11	Kinetics and Chemical Equilibria: Acids and bases	Lecture	Textbook chapter 11
	Chemical equilibria	Tutorial	Tutorial number 10
		Laboratory	
12	Equilibrium and solutions: reaction kinetics	Lecture	Textbook chapter 15
	Acids and bases	Tutorial	Tutorial number 11
13	Reaction kinetics	Tutorial	Tutorial number 12
	Course revision	Workshop	

## Assessment

This section sets out the assessment requirements for this course.

### Summary of Assessment

Item	Assessment Task	Weighting	Relevant Learning Outcomes	Due Date
1	Md Semester Exam	20%	1,3,4	7
2	Laboratory Reports - Students must pass this assessment with a mark of at least 17 out of 25 to pass the course	25%	2,3,4	Progressive 2-11
3	Weekly Quizzes	10%	1,3,4	2-12

4	Final Exam - Students must pass this assessment with a mark of at least 30 out of 75 to pass the course	45%	1,3,4	14
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### Assessment Details

The assessment for this course consists of weekly in-class tests, two examinations and a set of laboratory reports.

The weekly in-class tests will be held each week starting in week 2 and will be based on the previous week's content. Marks from only five (5) of the weekly tests will be included in the final grade.

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

**Examinations** will test your understanding of the relevant course materials and problem solving skills. The questions will be marked against standard solutions. The mid-semester examination will cover course material from weeks 1-6.

The final examination will cover course material from weeks 1-13, but there will be an emphasis on weeks 7-13.

**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 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 Medical Certificate]. Please refer to the Griffith College website - Policy Library - for guidelines regarding extensions and deferred assessment.

### 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.

### 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

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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.

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.

### **Risk Assessment Statement**

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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