



CBMS102

General Chemistry

S1 Day 2013

Chemistry and Biomolecular Sciences

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Disclaimer

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General Information

Unit convenor and teaching staff

Lecturer

Louise Brown

louise.brown@mq.edu.au

Contact via louise.brown@mq.edu.au

Building F7B Room 335

Tuesday to Friday (9am to 4pm) by appointment

Unit Convenor

Danny Wong

danny.wong@mq.edu.au

Contact via danny.wong@mq.edu.au

F7B 235

Credit points

3

Prerequisites

CBMS101 or HSC Chemistry Band 4

Corequisites

Co-badged status

Unit description

Chemistry stands at the forefront of change in the twenty-first century. It is the basis for the development of new medicines, new materials, new ways of monitoring and improving our environment through green technologies, and many other rapidly advancing fields. In this unit students learn the principles of physical, inorganic and general chemistry, gaining insights into the electronic structure of atoms, the properties of molecules and the role of energy in chemical change. The unit also allows students to develop critical skills in solving quantitative problems that serve them well in later studies. The physical properties of solids, liquids and gases; metals, semi-conductors and insulators; electrolyte solutions; synthetic polymers; and biomolecules are discussed. Another important focus of the unit is on the control of chemical reactions through changing the rates of reactions or by altering the concentrations of compounds present at equilibrium. Reactions involving acids, oxidising agents and metal complexes are discussed, and an introduction to thermodynamics and electrochemistry is presented. All of the chemical principles explored in the unit are illustrated by economically, environmentally and biologically important examples from the real world, thereby enhancing students' understanding and allowing them to appreciate the role of chemistry in everyday life.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

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

- To achieve fundamental understanding of general chemical principles applicable to chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences
- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness
- To acquire basic laboratory skills and to familiarise with general laboratory safety issues
- To acquire some interpersonal skills through teamwork and communication during laboratory sessions and tutorials

Assessment Tasks

Name	Weighting	Due
<u>Laboratory Sessions</u>	15%	Week 2,3,4,5,6,7,9,10,11,12,13
<u>PosLaboratory Exercises</u>	0%	One week after a lab session
<u>Computerised Assignments</u>	20%	Week3,4,5,6,7,8,9,10,11,12,13
<u>Mid-Session Test</u>	15%	May 2, 2013
<u>Mid-Year Examination</u>	50%	June 2013

Laboratory Sessions

Due: **Week 2,3,4,5,6,7,9,10,11,12,13**

Weighting: **15%**

On successful completion you will be able to:

- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and

interpretation of chemical data, and acquaintance of information technology to social and environmental awareness

- To acquire basic laboratory skills and to familiarise with general laboratory safety issues
- To acquire some interpersonal skills through teamwork and communication during laboratory sessions and tutorials

PosLaboratory Exercises

Due: **One week after a lab session**

Weighting: **0%**

A 3% bonus mark will be awarded for satisfactory work in completing all 6 sets of post-laboratory exercises.

On successful completion you will be able to:

- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness

Computerised Assignments

Due: **Week3,4,5,6,7,8,9,10,11,12,13**

Weighting: **20%**

On successful completion you will be able to:

- To achieve fundamental understanding of general chemical principles applicable to chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences
- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness

Mid-Session Test

Due: **May 2, 2013**

Weighting: **15%**

On successful completion you will be able to:

- To achieve fundamental understanding of general chemical principles applicable to

chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences

- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness

Mid-Year Examination

Due: **June 2013**

Weighting: **50%**

On successful completion you will be able to:

- To achieve fundamental understanding of general chemical principles applicable to chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences
- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness

Delivery and Resources

Teaching Staff

Dr Danny Wong is the lecturer-in-charge for this unit. All students enrolled in CBMS102 should consult Dr Danny Wong (phone (02) 9850 8300, Room F7B 235, e-mail: Danny.Wong@mq.edu.au) if you have any administrative or organisational problems.

Dr Louise Brown will deliver several topics in CBMS102. Dr Brown's office is located in Room F7B 335 and can be contacted by e-mail (Louise.Brown@mq.edu.au) from Tuesday to Friday inclusive.

It is expected that from time to time students will need individual help with specific questions about the study material or with particular exercises. In the Department of Chemistry and Biomolecular Sciences, we are always willing to make time available to help individual students. The only provisos are that you must first have made a genuine effort to understand the work yourself and that your problems are specific. It is advisable to phone for an appointment in advance. Most staff have voice-mail phone answering, so please leave a message if the person you want is unavailable.

We hope that you find CBMS102 interesting and stimulating.

Classes

Many aspects of science aim to connect observations, either in the laboratory or in the everyday world, with chemical principles. CBMS102 concentrates on physical, inorganic and general chemistry. *It is suitable for any First Year university students serious in studying science.* CBMS102 students are expected to have already successfully completed HSC chemistry (Band 4 or above) or those who have successfully completed CBMS101.

The unit is designed to help science students gain chemical insight in terms of atoms, molecules and energy, and develop analytical and quantitative skills. In conjunction with CBMS103 in Session 2, this unit provides both a general chemistry background for students majoring in other sciences and a firm foundation for students intending to major in chemistry.

CBMS102 is a 3-credit-point half-year unit, which will require students to invest an average of at least 9 hours of work per week comprising three one-hour lectures a week, one 1-hour tutorial per week and a four-hour laboratory session every second week plus 3 hours per week of private study. Students with weak chemistry backgrounds will probably need to spend significantly more time than this. New material and new concepts are introduced in fast succession. Thus, in order to successfully complete this unit, students will need to work hard, consistently and continuously throughout the session.

Required and Recommended Texts and/or Materials

The prescribed texts are:

A.Blackman, S.Bottle, S.Schmid, M.Mocerino, U.Wille, J.E.Brady, F.Senese, W.H.Brown, T.Poon, J.Olmsted III, G.M.Williams *Chemistry*, John Wiley & Sons Australia, Ltd, 2012. [ISBN: 978 174 246 707 8]

and

G. Aylward and T. Findlay, *SI Chemical Data (6th Ed.)*, John Wiley and Sons, 2008. [ISBN: 978 0 470 81638 7]

You are expected to have a copy of each book. *SI Chemical Data* contains important safety information and must be brought to every laboratory session.

PowerPoint presentations of lectures are of little value without the text. You are also required to download *Laboratory Notes for CBMS102* from the CBMS102 website at <https://ilearn.mq.edu.au>. It is not possible to meet the requirements of the unit without a copy of these notes.

Lecture notes can be viewed or printed from the CBMS102 website at <https://ilearn.mq.edu.au> using any web browser such as Firefox, Internet Explorer or Safari.

If necessary, the following two textbooks are recommended as useful references and they are available in the Library or through the Co-operative Bookshop:

- T.L.Brown, H.E.LeMay, Jr, B.E.Bursten, C.J.Murphy, S.Langford, D.Sagatys, *Chemistry The Central Science: A Broad Perspective*, Pearson Prentice Hall, 2010. [ISBN: 9781 4425 1147 7]

- **M.S.Silberberg**, *Chemistry: The Molecular Nature of Matter and Change*, McGraw Hill, 2009.

Some basic high school level mathematical skills would also be useful in CBMS102. If you need to refresh basic mathematical skills, you may like to obtain a copy of

P.Monk, *Maths for Chemistry, A Chemist's toolkit of calculations*, Oxford University Press, 2006

which is available in the Co-operative Bookshop. Limited copies of this book are available in the Library.

Numeracy Centre

Students, who need help with revision of simple mathematical concepts required in this unit, can receive remedial assistance from the Numeracy Centre on campus. Topics such as simple proportions, logarithms and manipulation of simple equations are examples of topics offered by the Centre. Contact the Numeracy Centre (C5A 225) on 9850 8924.

Macquarie University provides a range of Academic Student Support Services. Some examples are Study Skills Workshops, Writing Gateway, library tours and IT training. Details of these services can be accessed at <http://www.students.mq.edu.au>.

Unit Schedule

Lecture Schedule for CBMS102, Session 1, 2013

	Week Starting	Thursday [10 am, E7B 366]	Thursday [1 pm, E7B 366]	Friday [1 pm, E7B 369]	Laboratory Session [E7B 320]
1	25 February	Introduction / Stoichiometry	Stoichiometry	Stoichiometry	No Session
2	4 March	Thermochemistry	Thermochemistry	Gas Laws	Experiment 1 Stoichiometry
3	11 March	Gas Laws	Kinetics	Kinetics	
4	18 March	Kinetics	Chemical Equilibrium	Chemical Equilibrium	Experiment 2 Kinetics
5	25 March	Chemical Equilibrium	Acid-Base Equilibria	<i>Anzac Day</i> <i>Public Holiday</i>	

6	1 April	Acid-Base Equilibria	Buffers	Ionic Equilibria	Experiment 3 Acid-Base
7	8 April	Ionic Equilibria	Electrochemistry	Electrochemistry	Dissociation Constants
Mid- Session Break [15 – 26 April]					
8	29 April	Mid-Session Test	Electrochemistry	Atomic Structure	Experiment 4 Solubility and Complex Equilibria
9	6 May	Atomic Structure	Periodic Table	Chemical Bonding	
10	13 May	Chemical Bonding	Molecular Orbitals	Molecular Shape	Experiment 5 Redox Reactions
11	20 May	Liquids and Solids	Coordination Compounds	Coordination Compounds	
12	27 May	Coordination Compounds	Chemical Energy	Chemical Energy	Experiment 6 Coordination Compounds

CBMS102 is a 3-credit-point half-year unit, which will require students to invest an average of at least 9 hours of work per week comprising three one-hour lectures a week, one 1-hour tutorial per week and a four-hour laboratory session every second week plus 3 hours per week of private study. Students with weak chemistry backgrounds will probably need to spend significantly more time than this. New material and new concepts are introduced in fast succession. Thus, in order to successfully complete this unit, students will need to work hard, consistently and continuously throughout the session.

Syllabus

A hardcopy of the syllabus for CBMS102 detailing topics to be covered and textbook sections

to be studied is set out on separate sheets. Consult this syllabus frequently to be sure that you have covered all the required material.

Unit Requirements

In order to complete this unit you must:

- (a) Participate in all laboratory sessions and submit laboratory reports by the designated dates.
- (b) Submit answers to the computer tutorial exercises.
- (c) Attempt the mid-session test at the normal lecture time on Thursday, 2 May 2013.
- (d) Sit a final examination of three hours duration.

Students unable to attend a laboratory class due to illness or misadventure (defined in the 'Student Information' section of the University Undergraduate Studies Handbook) should provide the University with documentation including a medical certificate as soon as possible after any such absence. In special circumstances, it may be possible to attend an alternative laboratory class, but this must be arranged in advance with Dr Danny Wong. If you miss more than one laboratory session through illness or misadventure, you should request withdrawal without penalty. If an absence is anticipated (perhaps for a mandatory religious event, etc), the student must inform teaching staff *in advance* that this will be the case and make alternative arrangements. It is the responsibility of the student to undertake this. Notification *after* the event of an anticipatable absence will not be looked upon favourably. If you miss any laboratory session without adequate evidence of illness or misadventure, you may be awarded an FA grade. A satisfactory level of laboratory work must be achieved to gain an overall pass in CBMS102.

Unit Expectations

In addition to the formal requirements for the unit, there are other actions you should take to have a reasonable chance of success. They are the same things that you need to do in order to demonstrate that you have been performing satisfactorily up to the time of any request for special consideration.

The unit expectations are that you will:

- attend all lectures
- attend all tutorial classes and attempt tutorial exercises from the textbook in addition to computer-based questions
- demonstrate reasonable competence in all laboratory preparation exercises before each class
- demonstrate reasonable competence in the post-laboratory exercises submitted by the due dates
- spend an average of no less than 3 hours per week private study in addition to class contact

If you fail to meet the formal unit requirements, you may be withdrawn from the unit, but if you fail to meet these expectations, the probability of obtaining a passing grade will be greatly reduced.

Lectures

As indicated above, notes to be presented in lectures will be available on the CBMS102 Web pages at <https://ilearn.mq.edu.au/login/MQ/>. You may wish to take printed copies of these transparencies to your lectures so you can spend most of the lecture time listening to the presenter and less on transcribing notes. But be warned! You may be tempted to believe that reading the notes can substitute for attendance at the lectures. *Many PowerPoint presentations make little sense without the accompanying discussion. Moreover, not all PowerPoint presentations used in lectures are necessarily included in the material that is placed on the Web.*

Tutorials

Tutorial work in CBMS102 takes two forms: computer-based exercises (on which assessment is based) and regular tutorial classes (which all students are strongly advised to attend).

A set of 6 computerised assignments aimed at the development of problem solving skills is an important part of the CBMS102 unit. These assignments are available at <http://www.saplinglearning.com>. While working through problems in these assignments, you will receive an immediate indication of whether your answers are right or wrong; and you will be provided with a variety of strategies for finding out where you went wrong.

To prepare for your computerised assignments, you must have already attempted as many as possible of the textbook questions listed on the tutorial sheets to be provided. During each tutorial class you should ask questions about any problem that caused you difficulties, but in the absence of questions, your tutor will ask the class to work through the examples listed on the tutorial sheets. You will get much more benefit from the tutorials if you have prepared in advance.

Laboratory Work

Details of the laboratory work are contained in the notes available on the CBMS102 website. You will be scheduled to complete a total of six experiments.

The Laboratory Notes must be read and some simple preparatory exercises submitted one day *before* you attend the laboratory session. You can do so by submitting your work to Dr Danny Wong's office. The answers to the exercises are to be written on the sheets of the Data Section at the end of each set of Experimental Notes.

The laboratory work must be completed and handed in one-week after your laboratory session. Post-laboratory exercises are provided for you to gain bonus marks, and they should be submitted together with your main reports. Again, you can drop your work at Dr Danny Wong's office. While comments may be provided for your guidance, your bonus mark out of 0.5 will reflect the quality of your answers.

Computer Tutorial Exercises

You are expected to undertake web-based exercises at regular intervals during the course of CBMS102. These exercises are to be performed on-line *via* the website <http://www.saplinglearning.com>. The questions you will be answering are randomly generated and are unique to you. While it is possible to print out your assignments to work on them off-line, ultimately you need to enter the answers to your questions online, therefore you will need to have access to a computer with internet access.

The exercises are divided into six assignments, each covering approximately two weeks of work. The problems are divided into different levels of difficulty. Pay attention to the due dates and times for submitting the exercises on the same website. Note that 10% of mark will be deducted for every one late day past the due date.

It is expected that from time to time students will need individual help with specific questions about the study material or with particular exercises. In the Department of Chemistry and Biomolecular Sciences, we are always willing to make time available to help individual students. The only provisos are that you must first have made a genuine effort to understand the work yourself and that your problems are specific. It is advisable to phone for an appointment in advance. Most staff have voice-mail phone answering, so please leave a message if the person you want is unavailable.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://www.mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy <http://www.mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://www.mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://www.mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Special Consideration Policy http://www.mq.edu.au/policy/docs/special_consideration/policy.html

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

Student Support

Macquarie University provides a range of Academic Student Support Services. Details of these services can be accessed at: <http://students.mq.edu.au/support/>

UniWISE provides:

- Online learning resources and academic skills workshops http://www.students.mq.edu.au/support/learning_skills/
- Personal assistance with your learning & study related questions.

- The Learning Help Desk is located in the Library foyer (level 2).
- Online and on-campus orientation events run by Mentors@Macquarie.

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

Details of these services can be accessed at <http://www.student.mq.edu.au/ses/>.

IT Help

If you wish to receive IT help, we would be glad to assist you at <http://informatics.mq.edu.au/help/>.

When using the university's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students and it outlines what can be done.

Graduate Capabilities

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- To achieve fundamental understanding of general chemical principles applicable to chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences
- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness
- To acquire basic laboratory skills and to familiarise with general laboratory safety issues
- To acquire some interpersonal skills through teamwork and communication during laboratory sessions and tutorials

Assessment tasks

- Laboratory Sessions

- PosLaboratory Exercises
- Computerised Assignments
- Mid-Session Test
- Mid-Year Examination

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcomes

- To achieve fundamental understanding of general chemical principles applicable to chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences
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- Mid-Session Test
- Mid-Year Examination

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- To achieve fundamental understanding of general chemical principles applicable to

chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences

- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness
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Assessment tasks

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- PostLaboratory Exercises
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- Mid-Session Test
- Mid-Year Examination

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- To achieve fundamental understanding of general chemical principles applicable to chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences
- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness
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Assessment tasks

- Laboratory Sessions
- PosLaboratory Exercises
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Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- To achieve fundamental understanding of general chemical principles applicable to chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences
- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness
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Assessment tasks

- Laboratory Sessions
- PosLaboratory Exercises
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Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess,

write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- To achieve fundamental understanding of general chemical principles applicable to chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences
- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness
- To acquire basic laboratory skills and to familiarise with general laboratory safety issues
- To acquire some interpersonal skills through teamwork and communication during laboratory sessions and tutorials

Assessment task

- Laboratory Sessions

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcomes

- To achieve fundamental understanding of general chemical principles applicable to chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences
- To acquire basic laboratory skills and to familiarise with general laboratory safety issues
- To acquire some interpersonal skills through teamwork and communication during laboratory sessions and tutorials

Assessment tasks

- Laboratory Sessions
- PosLaboratory Exercises

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Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcomes

- To achieve fundamental understanding of general chemical principles applicable to chemistry and other science disciplines, particularly the role of chemistry in modern society relating to current issues such as global warming and everyday life experiences
- To foster the development of graduate capabilities ranging from chemistry specific skills including the analytical capability in solving chemical problems, processing and interpretation of chemical data, and acquaintance of information technology to social and environmental awareness
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Assessment tasks

- Laboratory Sessions
- PosLaboratory Exercises
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- Mid-Year Examination

Changes since Last Offering

The textbook for 2013 has been changed

from

T.L.Brown, H.E.LeMay, Jr, B.E.Bursten, C.J.Murphy, S.Langford, D.Sagatys, *Chemistry The Central Science: A Broad Perspective*, Pearson Prentice Hall, 2010

to

A.Blackman, S.Bottle, S.Schmid, M.Mocerino, U.Wille, J.E.Brady, F.Senese, W.H.Brown, T.Poon,

J.Olmsted III, G.M.Williams *Chemistry*, John Wiley & Sons Australia, Ltd, 2012. .

Instruction for Computerised Assignments

If you have purchased a copy of the textbook, please refer to instructions for access Sapling Learning given in an attached activation card.

Otherwise, please follow the instructions below.

1. Go to <http://saplinglearning.com>

2a. If you have Facebook account, you can use it to quickly create a SaplingLearning account. Click the blue button with the Facebook symbol on it (just to the left of the username field). The form will auto-fill with information from your Facebook account (you may need to log into Facebook in the popup window first). Choose a password and timezone, accept the site policy agreement, and click "Create my new account". You can then skip to step 3.

2b. Otherwise, click "create account". Supply the requested information and click "Create my new account". Check your email (and spam filter) for a message from Sapling Learning and click on the link provided in that email.

3. Find your unit (CBMS102) in the list (you may need to expand the subject and term categories) and click the link.

4. Select a payment option and follow the remaining instructions. Once you have registered and enrolled, you can log in at any time to complete or review your assignments.

During sign up - and throughout the session - if you have any technical problems or grading issues, send an email to support@saplinglearning.com explaining the issue. The Sapling support team is almost always more able (and faster) to resolve issues than your lecturer.

Some Suggested Study Methods

"General Chemistry" is considered by many students to be a demanding unit. When you look at the syllabus, you will probably conclude that there is a lot of work assigned, perhaps significantly more than that assigned in some of your other units. Such a conclusion is correct! This unit will most likely be considerably more demanding than many of your other units. We expect that you will spend an average of at least 3 hours of private study per week in this unit. If you do your work in a timely and conscientious way, perhaps following the study methods suggested below, you should do fine.

Your success will depend primarily on your being able to LOGICALLY analyse the wording on the chemical problems in tutorial exercises, online assignments and examinations, and relate the problems to basic concepts and mathematical expressions. For most students, the best way to learn the material is to work on the tutorial exercises independently. Good analytical skills and problem solving techniques must be acquired in order to pass the examinations that consist solely of problems - rote memorisation of the book will NOT allow you to pass the unit. Memorise by learning, but do not learn by memorising. Chemistry is a cumulative subject where one principle builds upon another. This unit in general chemistry moves along at a fast pace and you need to stay on top of the materials at all times. Experience shows us

that students who fall far behind encounter severe difficulties and rarely catch up again.

If, despite the stellar performances of the lecturers and others and even after careful and extensive studying on your own, you do realise that some difficulties remain with understanding the unit material, then seek help early! It is often beneficial to study with a friend in the unit. Dr Danny Wong and Dr Louise Brown are always happy to assist you as long as you take the initiative.

Some suggested guides in studying CBMS102 are listed below.

- Read up the relevant sections in the textbook before the lecture on a particular topic. Check for important learning objectives and key concepts at the end of the chapter.
- Re-read the relevant sections after lecture, focussing on points emphasised in the lecture and in those sections, if any, that you did not understand completely.
- Do the assigned tutorial problems. Check your answer to each problem to make sure you have done the problem correctly. Do not spend an inordinate amount of time struggling with a problem you cannot do. Seek help with the problem! Once you have found out the way to solve a particular problem, put the solution away and make sure you can do the problem on your own. It is extremely important that you make certain you can do the problem yourself - just understanding it is not enough. The most common trap that diligent (and not so diligent) students fall into is thinking that just because they understand (or think they understand) the solution to the problem, they will be able to do a similar problem in an examination. Note that in your online assignments and examinations, you are alone without any solution.
- If, after doing all the tutorial problems, you feel in need of more drill, do some of the unassigned problems. You will find some drills, discussions, animations and reviews of the concepts and the mathematics about each chapter at <http://www.saplinglearning.com>. Make use of them!

Do not hesitate to seek help from Dr Danny Wong or Dr Louise Brown with any material that you cannot master on your own. Studying with one or more friends often proves beneficial to everyone involved if the work is shared and everyone participates actively in the study group.

Technology Used

It is important that you have a scientific calculator as hand-held calculators will be used in laboratory sessions, for assignments, and in the final examination. Note that calculators with text retrieving, memory and graphing capabilities are not allowed in the final examination.

The University provides general-use computers, but it would be advantageous to have your own computer and internet access.