



The University of Southern Queensland

Course Specification

Description: Chemistry 1

Subject	Cat-Nbr	Class	Term	Mode	Units	Campus
CHE	1110	10334	1, 2002	ONC	1.00	TWMBBA

Academic Group:	FOSCI
Academic Org:	FOS002
HECS Band:	2
ASCED Code:	010599

STAFFING

Examiner: Tania Van Den Ancker

Moderator: Ray Marshall

RATIONALE

This course introduces the student to the fundamentals of Chemistry. It is designed to provide basic knowledge and understanding for students who are training in disciplines that require the support of Chemistry or its applications.

SYNOPSIS

Topics include atomic theory, formulae, valency, bonding, chemical equations, periodic table, chemical bonding and structure, chemical calculations, chemical reactions, acids and bases, pH and redox reactions.

OBJECTIVES

On successful completion of this course students will be able to:

- demonstrate an understanding of the chemical and physical principles involved in the application of chemistry in the laboratory, in the community and in industry;
- demonstrate the basic knowledge of chemistry and associated calculations which are needed for higher level units in chemistry as well as other related discipline areas;
- demonstrate manipulative skills associated with the effective and safe use of chemical substances, associated chemical laboratory apparatus and equipment;
- demonstrate ability to solve practical problems associated with the laboratory classes; and
- be aware of aspects associated with safe laboratory procedures and activities.

TOPICS

Description	Weighting (%)
1. Calculations - SI units, significant figures - Moles, percentage composition, empirical formula - Concentration, density	20.00
2. Atomic Structure - Electronic structure of the atom; shells; subshells; orbitals - Electronic configuration, Pauli exclusion principle, Hund's rule - The periodic table; properties and trends - Stoichiometry, valency, oxidation states and formulae - Bonding; ionic-, hydrogen-, covalent-, and metallic compounds, naming, properties and structure - Lewis dot structure and VSEPR theory	20.00
3. Chemical change - Chemical reactions - ppt - acid/base - oxidation, reduction, redox - equilibria - acid/base dissociation, pH, buffers - electrochemistry; displacement of metals, electrode potential, cell notation, Nernst equation	40.00
4. Laboratory The practical exercises are designed to illustrate many of the above items associated with the lectures, and develop manipulative skills and safe work practices. At the conclusion of the practicals the students will: - understand the need for safety in the laboratory and safe work habits - be able to use appropriate laboratory techniques - have mastered some basic laboratory skills, as provided by the above laboratory experiments - have used some common laboratory pieces of equipment	20.00

TEXT and MATERIALS required to be PURCHASED or ACCESSED:

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at <http://bookshop.usq.edu.au> by entering the author or title of the text.

Chemistry 1 Practical Manual, USQ Publication

Henderleiter, J. & Trapp, C.A., 2000 *Student Solutions Manual for Jones & Atkins - Chemistry Molecules Matter & Change*, 4th edn, Freeman, ISBN 0-7167-3437-0.

Jones, L. and Atkins, P., 2000 *Chemistry Molecules, Matter and Change*, 4th edn, Freeman.

REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Aylward, G., and Findlay, T., 1998 *SI Chemical Data*, 4th edn, John Wiley & Sons,

Becker, D., 1999 *Study Guide for Chemistry Molecules, Matter and Change*, 4th edn, Freeman.

Ebbing, D.D., 1999 *General Chemistry*, 6th edn, Houghton Muffin Company.

Ebbing, D.D., 1999 *General Chemistry - Student Solution Manual*, 6th edn, Houghton Muffin Company.

Hughes, K.J., 1999 *Study Guide for Umland/Bellamas General Chemistry*, 3rd edn, Brooks/Cole.

Umland, J.B. and Bellama, J.M., 1999 *General Chemistry*, 3rd edn, Brooks/Cole.

Yates, P., 1997 *Chemical Calculations*, Blackie Academic and Professional (Chapman and Hall).

Zumdahl, S.S., 1997 *Chemistry*, 4th edn, Houghton Mifflin.

Zumdahl, S.S. and Kelter, P.B., 1997 *Chemistry Study Guide*, Houghton Mifflin, Boston Mass.

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Examinations	4
Laboratory or Practical Classes	36
Lectures	26
Private Study	85
Report Writing	12
Tutorial	13

ASSESSMENT DETAILS

Description	Marks Out of	Wtg(%)	Required	Due Date
45MIN MIDSEM RESTRICTED TEST	999.00	20.00	Y	04 Mar 2002 (see note 1)
PRACTICAL WORK	999.00	20.00	Y	04 Mar 2002 (see note 2)
2.5 HOUR RESTRICTED EXAM	999.00	60.00	Y	END S1 (see note 3)

NOTES:

1. Examiner to advise date of 45min mid-semester restricted test.
2. Examiner will advise details required for the practical work and students are to also refer to Course Specifications for further details.
3. Examination dates will be available during the Semester. Please refer to the examination timetable when published.

OTHER REQUIREMENTS

- 1 Attendance Requirements It is the students' responsibility to actively participate in all classes scheduled for them, and to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.

- Attend at least 80% of the practical/laboratory classes for this course and demonstrate by involvement in these classes and the practical reports submitted that they have achieved the practical objectives of the course.
- 2 Requirements to Satisfactorily Complete Each Assessment Item To satisfactorily complete the practical component of the course, students must submit all practical reports and obtain at least 60% of the marks available for each report submitted. To satisfactorily complete the examinations in the course, students must obtain at least half of the marks available for each examination.
 - 3 Minimum Requirements to Pass the Course To be assured of a pass in this course, students must: obtain at least 60% (12 out of 20) for the laboratory reports; obtain at least 50% (40 out of 80) for the restricted examinations.
 - 4 Grading Final grades for students will be determined by the addition of the marks obtained in each assessment item, weighted as in the Assessment Details and by considering the students' level of achievement of the objectives of the course.
 - 5 Supplementary and Deferred Examinations Students who obtain an overall passing mark, but who do not perform satisfactorily in an examination, may, at the discretion of the examiner, be granted a supplementary examination. Students will be granted a deferred examination only if they perform satisfactorily in all other assessment items. Any supplementary work for this course must be submitted by the end of week 2 of the following semester. Deferred examinations will be held at a time suitable by to both the student and the unit examiner but must occur no later than the end of the next semester's exam period.
 - 6 Assignments The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner. Students must retain a copy of each item submitted for assessment. This must be produced within 48 hours if required by the Examiner. In accordance with University's Policy on Assignments (Regulations 5.6.1), the Examiner of a course may grant an extension of the due date of an assignment in extenuating circumstances. This policy may be found in the USQ Handbook, the Distance Education Study Guide and the Faculty of Sciences' Orientation Handbook for new on-campus students. All students are advised to study and follow the guidelines associated with this policy. Assignments submitted after the Due date will be penalised 10% of the maximum mark possible for each day late unless the student can convince the examiner that such a penalty is not warranted.
 - 7 Examinations Candidates should be aware that the University has policies and regulations (Regulation 5.6.2.2) about the use of unfair means and electronic devices in an examination and they should refer to them to determine whether or not actions they intend to take are acceptable to the University. Restricted Examination: Candidates will be allowed access only to specific materials in a restricted examination. The only materials that candidates may use in the restricted examination for this course are: (a) writing materials (non-electronic and free from materials which could give the student an unfair advantage in the examination); (b) calculators which cannot hold textual information (students must indicate on their examination paper the make and model of any calculator(s) they use during the examination). With the approval of the Examiner, candidates may take an appropriate non-electronic translation dictionary into the examination. This will

be subject to perusal and may be removed from the candidate's possession until appropriate disciplinary action is completed if found to contain material that could give the candidate an unfair advantage. A list of the materials candidates may access in the restricted examination will be on the frontispiece of the examination paper.
