The University of Southern Queensland

Course specification

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.
Please consult the web for updates that may occur during the year.

Description: Chemistry 1

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
CHE	1110	74201	1, 2008	ONC	1.00	Toowoomba

Academic group: FOSCI
Academic org: FOS002
Student contribution band: 2
ASCED code: 010599

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, chemical equations, periodic table, chemical bonding and structure, chemical calculations, chemical reactions, acids and bases, pH buffers and redox reactions. This course involves a compulsory Residential School.

OBJECTIVES

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

1. demonstrate an understanding of the chemical and physical principles involved in the application of chemistry in the laboratory, in the community and in industry (Quizzes, Mid-semester test, Laboratory Reports, End-semester exam);
2. demonstrate the basic knowledge of chemistry and associated calculations which are needed for higher level courses in chemistry as well as other related discipline areas (Quizzes, Mid-semester test, Laboratory Reports, End-semester exam);
3. demonstrate manipulative skills associated with the effective and safe use of chemical substances, associated chemical laboratory apparatus and equipment (Laboratory Reports);
4. solve practical problems associated with the laboratory classes (Laboratory Reports); and
5. demonstrate awareness of aspects associated with safe laboratory procedures and activities (Laboratory Reports).

TOPICS

	Description	Weighting (%)
1.	Calculations: SI units, significant figures: Moles, percentage composition, empirical formula; Concentration, density.	22.50
2.	Atomic Structure: Electronic structure of the atom; shells; subshells; orbitals; Electronic configuration, Pauli exclusion	22.50

	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.	
3.	Precipitation Chemistry; solubility rules, balancing and writing ppt reactions, equilibria, solubility product:	10.00
4.	Acid/Base Chemistry; balancing and writing acid/base reactions, weak and strong acids/bases, acid dissociation, base ionisation, pH (strong and weak acids/bases), buffers, pH indicators and titrations	25.00
5.	Redox Chemistry; oxidation numbers, balancing and writing redox reactions, electrochemistry, displacement of metals, electrode potential, cell notation, spontanaeity, Nernst equation.	10.00
6.	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.	10.00

TEXT and MATERIALS required to be PURCHASED or ACCESSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at http://bookshop.usq.edu.au click 'Semester', then enter your 'Course Code' (no spaces).

Balckman, Bottle, Schmid, Mocerino & Wille 2008, *Chemistry 1*, 1st edn, Wiley PLUS, Wiley & Sons,

(ISBN 9780470818510)

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, GH and Findlay, T 2002, *SI Chemical Data*, 5th edn, John Wiley & Sons, Brisbane.

Ebbing, DD & Cammon, SD 2005, *General chemistry & solution manual*, 8th edn, Houghton Mifflin Compnay, Boston.

(ISB 04 708 075 39)

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Directed Study	40.00
Examinations	3.00
Private Study	107.00
Residential Schools	18.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
1.5 HR MIDSEM RESTRICTED TEST	35.00	35.00	03 Mar 2008 (see note 1)
LABORATORY REPORTS	1.00	10.00	03 Mar 2008 (see note 2)
QUIZZES	20.00	20.00	03 Mar 2008 (see note 3)
1.5 HR RESTRICTED EXAM	35.00	35.00	END S1 (see note 4)

NOTES

1. Examiner will inform students of due date for Mid semester test.
2. Examiner will inform students of due date for Laboratory reports.
3. Examiner will inform students of due date for Quizzes.
4. Examination dates will be available during the Semester. Please refer to the examination timetable when published.

IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) 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. To maximize their chances of satisfying the objectives of the practical component of the course, students should attend and actively participate in the laboratory sessions in the course.

2 Requirements for students to complete each assessment item satisfactorily:
To satisfactorily complete an assessment item a student must achieve at least 50% of the marks or a grade of at least C-. To complete the practical component satisfactorily, students must submit all the nominated practical reports and obtain a passing grade (mark of 1) overall for the lab component. Students do not have to satisfactorily complete each assessment item to be awarded a passing grade in this course. Refer to Statement 4 below for the requirements to receive a passing grade in this course.

3 Penalties for late submission of required work:
If students submit assignments after the due date without (prior) approval of the examiner then a penalty of 5% of the total marks gained by the student for the assignment may apply

for each working day late up to ten working days at which time a mark of zero may be recorded.. No assignments will be accepted after model answers have been posted.

4 Requirements for student to be awarded a passing grade in the course:
To be assured of receiving a passing grade a student must achieve at least 50% of the total weighted marks available for the course.

5 Method used to combine assessment results to attain final grade:
The final grades for students will be assigned on the basis of the aggregate of the weighted marks obtained for each of the summative assessment items in the course.

6 Examination information:
Candidates are allowed access only to specific materials during a Restricted Examination. The only materials that candidates may use in the restricted examination for this course are: writing materials (non-electronic and free from material which could give the student an unfair advantage in the examination); 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).

7 Examination period when Deferred/Supplementary examinations will be held:
Any Supplementary work (excluding examinations) 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 to both the student and the course examiner but must occur no later than the end of the next semester's exam period. Supplementary examinations will be held during the next semester's exam period

8 University Regulations:
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL http://www.usq.edu.au/corporateservices/calendar/part5.htm or in the current USQ Handbook.

ASSESSMENT NOTES

9 Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete - Deferred Examination; IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).

10 In order to attend the Laboratory Classes, students must provide and wear appropriate personal protective equipment. This shall include a laboratory coat, closed in shoes, and safety glasses. Such equipment must be approved by supervising staff. Failure to provide and wear the appropriate safety equipment will result in students being excluded from classes.

OTHER REQUIREMENTS

1 Students will require regular access to the Internet for this course.
