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	79530	2, 2008	ONC	1.00	Toowoomba

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

STAFFING

Examiner: Lisa Reardon
Moderator: Robert Learmonth

REQUISITES

Pre-requisite: Students must be enrolled in the following Program: ABMS

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. Residential School component is not applicable to ABMS students enrolled CHE1110 for Semester 2 on campus.

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 Test);
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 Test);
3. demonstrate manipulative skills associated with the effective and safe use of chemical substances, associated chemical laboratory apparatus and equipment (Laboratory Reports);
4. demonstrate ability to solve practical problems associated with the laboratory classes (Laboratory Reports, Quizzes); and

5. be aware 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 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.	22.50
3.	Chemical change: Chemical reactions; precipitation, acid/base, oxidation, reduction, redox; equilibria - acid/base dissociation; pH, buffers; electrochemistry; displacement of metals, electrode potential, cell notation, Nernst equation.	45.00
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.	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).

Blackman, A, Bottle, SE, Schmid, S, Mocerino, M & Wille, U 2008, *Chemistry*, John Wiley & Sons, Australia.

(ISBN 9780470810866)

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 & Findlay, T 2002, *SI chemical data*, 5th edn, John Wiley & Sons, Brisbane.

Becker, D 2000, *Jones & Atkin's chemistry: molecules, matter and change*, 4th edn, WH Freeman, New York.

Brown, TL, LeMay, HE (Jr), Bursten, BE & Burdge, JR 2003, *Chemistry - the central science & solution to exercises*, 9th edn, Prentice Hall, Pearson Education Inc, Upper Saddle River, New Jersey.

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

(ISBN 04 708 075 39)

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Directed Study	40.00
Private Study	107.00
Quizzes	3.00
Test	3.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
QUIZZES	20.00	20.00	21 Jul 2008 (see note 1)
LABORATORY REPORTS	1.00	10.00	22 Aug 2008 (see note 2)
1.5 HR MIDSEM RESTRICTED TEST	35.00	35.00	15 Sep 2008 (see note 3)
1.5 HR RESTRICTED TEST	35.00	35.00	10 Nov 2008 (see note 4)

NOTES

1. Examiner will inform students of due date for Quizzes.
2. Examiner will inform students of due date for Laboratory reports.
3. Examiner will inform students of due date for Mid semester test.
4. Test dates will be available during the Semester. Please refer to Semester 2 ABMS Introductory Book.

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. (Depending upon the requirements in Statement 4 below, students may not have to satisfactorily complete each assessment item 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:
N/A

6 Examination information:
In a Closed Test, candidates are allowed to bring only writing, drawing instruments and non programmable calculators into the test.

7 Examination period when Deferred/Supplementary examinations will be held:
N/A

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 In order to attend 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.
