



The University of Southern Queensland

## Course specification

This version produced 23 Jun 2008.

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 2

| Subject | Cat-nbr | Class | Term    | Mode | Units | Campus    |
|---------|---------|-------|---------|------|-------|-----------|
| CHE     | 2120    | 67333 | 2, 2007 | EXT  | 1.00  | Toowoomba |

|                                   |        |
|-----------------------------------|--------|
| <b>Academic group:</b>            | FOSCI  |
| <b>Academic org:</b>              | FOS002 |
| <b>Student contribution band:</b> | 2      |
| <b>ASCED code:</b>                | 010599 |

### STAFFING

### REQUISITES

Pre-requisite: CHE1110

### RATIONALE

This course provides students with the basic principles and skills of physical, inorganic and organic chemistry as they relate to the study of Biology and Chemistry. The course builds upon the material covered in Chemistry 1 (CHE1110) and is essential for further studies in Biology and Chemistry.

### SYNOPSIS

This course addresses the important basic principles and concepts of physical, inorganic and organic chemistry. The course covers basic thermodynamics, reaction kinetics, equilibria, colligative properties, organic functional groups, IUPAC naming, basic stereochemistry, and simple reactions. This course has a compulsory residential school held during the September break period.

### OBJECTIVES

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

1. apply the basic principles of thermodynamics, reaction rates and colligative properties; (restricted test)
2. describe the chemistry of metallo-organic molecules; (restricted test)
3. apply the basic principles of stereochemistry and chirality in organic chemistry; (restricted exam)
4. demonstrate an understanding of the organisation of organic functional groups; (restricted exam)
5. describe simple organic reactions and functional group interconversions; (restricted exam)
6. utilize appropriate laboratory techniques in basic organic, inorganic and physical chemistry. (Laboratory)

## TOPICS

|    | Description  | Weighting (%) |
|----|--|---------------|
| 1. | Physical Chemistry - thermodynamics; reaction Rates/Kinetics; equilibria; colligative properties. Inorganic chemistry - metallo-organic compounds; coordination complexes; oxidation states; - naming and stereochemistry.   | 45.00         |
| 2. | Organic Chemistry - naming of simple organic compounds; stereochemistry and chirality and their implications; functional groups and their interconversions.  | 45.00         |
| 3. | Laboratory Practical classes will give students a practical understanding of the concepts within the lectures. At the conclusion of the practical, students will: - demonstrate an understanding of the need for laboratory safety and safe work habits; show mastery of basic laboratory skills; and have become familiar with the use of some common pieces of laboratory 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).

*Chemistry 2 practical manual*, USQ Publication, Toowoomba.

Ebbing, DD & Gammon, SD 2005, *General chemistry and solutions manual*, 8th edn, Houghton and Mifflin Co, Boston.

McMurry, J 2007, *Organic chemistry*, 7th edn, Brooks/Cole, Pacific Grove.

McMurry, J 2007, *Study guide and solutions manual for organic chemistry*, 7th edn, Brooks/Cole, California.

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

Ebbing, DD & Gammon, SD 2005, *General chemistry & solution manual*, 8th edn, Houghton Mifflin, Boston, MA, ISBN: 04 708 075 39.

Hughes, KJ 1999, *Study guide for Umland/Bellamas general chemistry*, 3rd edn, Brooks/Cole, Pacific Grove.

Umland, JB & Bellama, JM 1999, *General chemistry*, 3rd edn, Brooks/Cole, Pacific Grove.

Yates, P 1997, *Chemical calculations*, Blackie Academic and Professional, London.

## STUDENT WORKLOAD REQUIREMENTS

| ACTIVITY                        | HOURS |
|---------------------------------|-------|
| Examinations                    | 4.00  |
| Laboratory or Practical Classes | 24.00 |
| Lectures                        | 26.00 |
| Private Study                   | 70.00 |
| Report Writing                  | 30.00 |
| Tutorials                       | 13.00 |

## ASSESSMENT DETAILS

| Description                   | Marks out of | Wtg(%) | Due date                    |
|-------------------------------|--------------|--------|-----------------------------|
| 1.5HR RESTRICTED TEST TOPIC 1 | 45.00        | 45.00  | 23 Jul 2007<br>(see note 1) |
| LABORATORY REPORTS            | 1.00         | 10.00  | 23 Jul 2007<br>(see note 2) |
| 2 HR RESTRICTED EXAM TOPIC 2  | 45.00        | 45.00  | END S2<br>(see note 3)      |

### NOTES

1. Examiner will advise the date of the 1.5 hr Restricted Test Topic 1 early in the Semester. This will be conducted as part of the compulsory residential school.
2. Examiner to advise due dates for Laboratory Reports
3. 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 maximize 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 complete the practical component satisfactorily, students must submit all nominated practical reports and obtain a passing grade (mark of 1) overall for the lab component. To complete the examination and test satisfactorily, students must obtain at least 50% of the marks available for the examination and test.
- 3 Penalties for late submission of required work:  
If students submit assignments after the due date without prior approval then a penalty of 10% of the total marks available for the assignment will apply for each working day late.
- 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 weighted aggregate of the marks obtained for each of the summative assessment items in the course.
- 6 Examination information:  
In a Restricted Examination, candidates are allowed access to specific materials during the 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. With the Examiner's approval, candidates may, take an appropriate non- electronic translation dictionary (but not technical dictionaries) into the examination. This will be subject to perusal and, if it is found to contain annotations or markings that could give the candidate an unfair advantage, it may be removed from the candidate's possession until the appropriate disciplinary action is completed.
- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any Supplementary work for this course must be submitted by the end of week 2 of the following semester. Any Deferred examinations for this course must occur at a time suitable to both the student and the course examiner but no later than the next semester's examination 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 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.
- 10 Students 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.

## **OTHER REQUIREMENTS**

- 1 It is expected that students in this course have access to a computer with internet capabilities for accessing relevant course materials as they become available. The system used should be able to handle files generated as pdf's, powerpoint or word. Additional useful freeware software that may be beneficial yet not a formal requirement may be discussed during class.
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