



The University of Southern Queensland

## Course specification

### Description: Organic Chemistry 1

| Subject | Cat-nbr | Class | Term    | Mode | Units | Campus    |
|---------|---------|-------|---------|------|-------|-----------|
| CHE     | 2202    | 50250 | 1, 2006 | ONC  | 1.00  | Toowoomba |

|                                   |        |
|-----------------------------------|--------|
| <b>Academic group:</b>            | FOSCI  |
| <b>Academic org:</b>              | FOS002 |
| <b>Student contribution band:</b> | 2      |
| <b>ASCED code:</b>                | 010501 |

### STAFFING

Examiner: Ray Marshall

Moderator: Tania van den Ancker

### REQUISITES

Pre-requisite: CHE2120

### RATIONALE

This subject builds upon the work studied in Chemistry 2. This course in organic chemistry is essential for further studies in organic and natural products chemistry and highly recommended for those studying biochemistry and the biomedical sciences.

### SYNOPSIS

This course is designed to introduce students to the realm of organic chemistry. It covers in detail the reactions and uses of molecules containing functional groups such as alcohols, aldehydes, ketones, carboxylic acids, and amines in both aliphatic and aromatic compounds. The three dimensional shape of molecules and its applications are also studied. The course is supported by appropriate laboratory experimental work where students develop safe manipulative skills relevant to organic chemistry. A field trip to an nmr facility may also be included as part of the laboratory component.

### OBJECTIVES

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

1. demonstrate an understanding of the principles behind the bonding nature of organic compounds and how this relates to a compound's reactivity;
2. demonstrate an understanding of the structures and properties of a variety of functionalised organic molecules;
3. demonstrate an understanding of simple mechanisms in organic chemistry;
4. competently perform practical work in an organic chemistry laboratory;
5. demonstrate a basic knowledge of stereochemistry and chirality in organic chemistry.

## TOPICS

|    | Description   | Weighting (%) |
|----|---|---------------|
| 1. | Overview of organic chemistry, naming reactions and mechanisms involving alkanes, alkenes and alkynes.  | 25.00         |
| 2. | Reactions and mechanisms involving aromatic compounds alcohols, ethers and phenols. It will also include a study of stereochemistry and its implications. | 25.00         |
| 3. | Investigation of aldehydes and ketones, carboxylic acids and their derivatives, and amines. Reactions and mechanisms involving carbonyl compounds.        | 25.00         |
| 4. | Laboratory: The practical classes will be organised in such a manner as to give a hands on understanding of the material covered in the lectures.         | 25.00         |

## 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).

McMurry, J. 2003, *Organic Chemistry*, 6th edn, Brooks/Cole Publishing, Pacific Grove.

McMurry, J. 2003, *Study guide and Solutions Manual for Organic Chemistry*, 6th edn, Brooks/Cole Publishing, Pacific Grove.

## 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.

Chemical Abstracts

Greene, T.W. & Wuts, P.G.M. 1999, *Protective Groups in Organic Synthesis*, John Wiley & Sons, New York.

Smith, M. 2001, *March's Advanced Organic Chemistry*, 5th edn, John Wiley & Sons, New York.

Vogel, A.I. 1989, *Textbook of Practical Organic Chemistry*, 5th edn, Longman Scientific, Harlow, Essex.

## STUDENT WORKLOAD REQUIREMENTS

| ACTIVITY                        | HOURS |
|---------------------------------|-------|
| Examinations                    | 5.00  |
| Laboratory or Practical Classes | 30.00 |
| Lectures                        | 26.00 |
| Private Study                   | 70.00 |
| Report Writing                  | 30.00 |
| Tutorials                       | 13.00 |

## ASSESSMENT DETAILS

| Description                  | Marks out of | Wtg(%) | Due date                    |
|------------------------------|--------------|--------|-----------------------------|
| 90MIN RESTRICTED TEST QUIZ 1 | 25.00        | 25.00  | 07 Mar 2006<br>(see note 1) |
| 90MIN RESTRICTED TEST QUIZ 2 | 25.00        | 25.00  | 07 Mar 2006<br>(see note 2) |
| LAB REPORTS                  | 25.00        | 25.00  | 07 Mar 2006<br>(see note 3) |
| 2HR RESTRICTED EXAMINATION   | 25.00        | 25.00  | END S1<br>(see note 4)      |

### NOTES

1. Examiner will advise the date of 90min Restricted Test Quiz 1
2. Examiner to advise the date of 90min Restricted Test Quiz 2 .
3. Examiner to advise details on the weekly Lab Reports
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 complete the examination satisfactorily, students must obtain at least 50% of the marks available for the examination and the quizzes. To complete the practical component satisfactorily, students must submit all nominated practical reports and obtain at least 50% of the marks available for each report submitted.
- 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 gained by the student 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 available weighted marks for the examination and obtain at least 50% of the available marks for the laboratory reports.
- 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 examinations for this course must be submitted by the end of week 5 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.
- 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 The due date of an assignment is the date by which a student must despatch the assignment at 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.
- 10 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.
- 11 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.