



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: Inorganic Chemistry

| Subject | Cat-nbr | Class | Term | Mode | Units | Campus |
|---------|---------|-------|---------|------|-------|-----------|
| CHE | 3203 | 66717 | 2, 2007 | ONC | 1.00 | Toowoomba |

| | |
|-----------------------------------|--------|
| Academic group: | FOSCI |
| Academic org: | FOS002 |
| Student contribution band: | 2 |
| ASCED code: | 010503 |

STAFFING

REQUISITES

Pre-requisite: CHE2120

RATIONALE

This course is designed to provide students with a knowledge and understanding of topics relating to inorganic and organometallic chemistry.

SYNOPSIS

THIS COURSE IS OFFERED IN ODD-NUMBERED YEARS ONLY. Topics covered in this course will include electronic structure, the chemistry of main group metals, transition metal and organometallic complexes including: coordination chemistry, oxidation states, stereochemistry, crystal field theory, magnetic and absorption properties, structure and reactivity, and aspect of catalysis using organometallic complexes. The course involves compulsory laboratory work.

OBJECTIVES

On completion of this course students will be able to:

1. demonstrate an understanding of the chemistry of elements based on periodicity, electronic configuration and crystal field theory (Assignments 1 & 2; Exam);
2. demonstrate an understanding of the application of IUPAC rules to correctly name inorganic compounds (Assignment 2, Practical Reports, Exam);
3. demonstrate an understanding of the structure, bonding and reactivity of transition metal, main group & organometallic complexes (Assignments 1 & 2, Practical Reports, Exam);
4. demonstrate an understanding of the use of organometallic complexes as catalysts (Practical Reports, Exam).

TOPICS

| | Description | Weighting (%) |
|----|----------------------------|---------------|
| 1. | Structure and Bonding | 5.00 |
| 2. | Main Group Chemistry | 20.00 |
| 3. | Transition Metal Chemistry | 20.00 |
| 4. | Organometallic Chemistry | 30.00 |
| 5. | Laboratory | 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).

Housecroft, CE & Sharpe AG 2005, *Inorganic Chemistry*, 2nd edn, Pearson, ISBN 0130399132.
van den Ancker, TR 2007, *Inorganic Chemistry Practical Manual*, USQ Publication, Toowoomba.

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.

Cotton, FA & Wilkinson, G 1999, *Advanced Inorganic Chemistry*, 6th edn, Wiley,

Housecroft, CE 2005, *Inorganic Chemistry Solutions Manual*, 2nd edn, Pearson,
(ISBN 0131399268)

Huheey, JE, Keiter & Keiter 1993, *Inorganic Chemistry - Principles of Structure and Reactivity*, 4th edn, Harper Collins, New York.

Massey, AG 2000, *Main Group Chemistry*, 2nd edn, John Wiley & Sons, Chichester.

Mingos, DMP 1995, *Essentials of Inorganic Chemistry*, 6th edn, Oxford University Press, Oxford.

Murahashi, Shun-Ichi & Davies SG (eds) 1999, *Transition Metal Catalysed Reactions: Chemistry for the 21st Century*, Blackwell Science, Oxford.

Shriver, DF & Atkins, PW 1999, *Inorganic Chemistry*, 3rd edn, Oxford University Press, Oxford.

STUDENT WORKLOAD REQUIREMENTS

| ACTIVITY | HOURS |
|---------------------------------|-------|
| Assignments | 40.00 |
| Examinations | 1.50 |
| Laboratory or Practical Classes | 32.00 |
| Lectures | 26.00 |
| Private Study | 35.00 |
| Report Writing | 32.00 |

ASSESSMENT DETAILS

| Description | Marks out of | Wtg(%) | Due date |
|------------------------|--------------|--------|-----------------------------|
| ASSIGNMENT 1 | 25.00 | 25.00 | 23 Jul 2007 (see note 1) |
| ASSIGNMENT 2 | 20.00 | 20.00 | 23 Jul 2007 (see note 2) |
| PRACTICAL REPORTS | 25.00 | 25.00 | 23 Jul 2007 (see note 3) |
| 1.5 HR RESTRICTED EXAM | 30.00 | 30.00 | END S2 (see note 4) |

NOTES

1. Examiner to advise due date for Assignment 1.
2. Examiner to advise due date for Assignment 2.
3. Examiner to advise due dates for practical 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.
- 2 Requirements for students to complete each assessment item satisfactorily:
To complete the laboratory reports satisfactorily, students must obtain at least 50% of the marks available for the reports. All written reports for practical work must be submitted within 10 days following the relevant laboratory/field work session. To complete the examination satisfactorily, students must obtain at least 50% of the marks available for the examination. To complete the assignments satisfactorily, students must obtain at least 50% of the marks available for the assignments.
- 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 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 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 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. If requested by the Examiner, students will be required to provide a copy of assignments submitted for assessment purposes. Such copies should be despatched to USQ within 24 hours of receipt of a request being made.