



# Wollongong College Australia

A College of the University of Wollongong

**Australia**

Wollongong

ITC Education Ltd trading as  
Wollongong College Australia  
CRICOS 02723D  
ABN 14105312329

# University Access Program

## Subject Outline Summer 2009/10

## UAP 005 Chemistry

© Wollongong College Australia. All rights reserved 2009.  
WCA-UAP 005-S0/5

# Chemistry

---

## Subject description

This subject is designed to introduce students to the content and methodology in Chemistry, so they have a basis for further study in science disciplines at undergraduate level. The subject introduces students to aspects of introductory physical and organic chemistry and develops independent learning, problem solving skills and tertiary literacy outcomes.

## Subject structure

Chemistry is a 6 credit point, single session subject consisting of 3 hours of scheduled classes per week. The session is of 14 week's duration, with face-to-face classes scheduled for the first 12 weeks and a study/examination period in weeks 13 and 14.

In addition to scheduled class sessions, students are expected to spend additional time in individual study and problem-solving. As a general guideline students will need to spend at least 1 hour in private study (including completing homework and revision) for every hour of scheduled class time.

Teachers will be available for a consultation time each week. Students will be notified of the time and location of the consultation session during Week 1 of the Session. It is recommended that students experiencing difficulty with this subject arrange to consult with the teacher as difficulties are encountered.

## Learning resources

There is no set textbook for this subject. The work covered in this course can be found in first year university texts. The following textbooks may be useful and are in the UOW library;

Zumdahl, S, *Chemical Principles*, D.C. Heath and Company Lexington.(various editions available).

Jones L & P. Atkins, *Chemistry: Molecules, Matter and Change*, 4th Edition, by, W.H. Freeman and Company, New York.

Students will be able to access a comprehensive set of lecture notes (in PDF format) from the UAP005 website.

## Subject outcomes

Successful completion of Chemistry will enable students to:

- Balance and interpret chemical reaction equations
- Name simple binary ionic and covalent compounds
- Write formula for simple chemical compounds
- Demonstrate a basic understanding of the properties of solutions
- Determine molecular weights of compounds
- Determine the number of subatomic particles present in atoms and ions
- Demonstrate an understanding of isotopes
- Understand the origin of radioactivity, and be able to describe radioactive processes using balanced nuclear equations
- Be able to solve problems using isotope half-lives
- Calculate empirical & molecular formula using elemental analysis data
- Determine electronic configurations for elements and ions using a simple model
- Perform stoichiometric mole calculations based on chemical equations
- Determine the molar concentration of solutions
- Demonstrate an understanding of the importance of electronic structure to chemical reactivity and bonding
- Be able to perform thermodynamic and equilibrium calculations
- Work safely in a chemistry laboratory
- Write a chemistry practical report

## Participation

Active participation in classes is expected of all students in all classes in the University Access Program. Participation in class discussions will help develop the student's confidence in questioning and commenting on material presented, encourage critical thinking and allow the tutor to evaluate the student's progress.

Participation includes:

- Constructive contribution to general class discussion
- Active participation in tutorial support classes where recommended
- Proactive consultation with class teacher and/or tutorial support where relevant
- Completion of non-assessable tasks including homework and practice tasks
- Preparation for teacher-student consultation sessions
- Active participation in group work

## Subject outline in weeks

The following guide to lessons and activities may be adjusted to suit the needs of the group as long as subject outcomes and assessment criteria are met.

### Week 1

Atomic Theory and Electronic Structure

### Week 2

Radioactivity and Radioisotopes

### Week 3

Chemical Nomenclature

### Week 4

Moles and Molarity

### Week 5

Stoichiometry

*WEB CT Assignment 1*

### Week 6

*Experiment 1*

### Week 7

Problem Solving Workshop

### Week 8

Thermodynamics

### Week 9

Equilibria

### Week 10

Molecular Shape and Polarity

*WEB CT Assignment 2*

### Week 11

*Experiment 2*

### Week 12

Problem Solving Workshop

### Weeks 13 & 14 Final examination Period

Examination and study period. Please refer to examination timetable for the exact date, time and location of the final exam.

# Assessment

---

## Assessment and plagiarism policy

All written assessment tasks, with the exception of examinations and in-class tasks, must be word-processed unless students are otherwise advised.

Students must keep copies of all assessment tasks submitted for marking with the exception of class tests and examinations.

Plagiarism is a form of cheating or stealing that happens when a student uses someone else's work and presents it as his/her own without showing where it comes from. To avoid this, students are expected to submit their own original work for assessment and to accurately acknowledge all references and sources used in essays and assignments.

For information regarding assessment, plagiarism, acknowledging sources and examination rules, please refer to the Wollongong College Australia Student Handbook <http://www.wca.uow.edu.au/handbook>

Assignments must be the student's own work. Group work on an assignment is not permitted. Copying another person's assignment, or allowing someone else to copy your work, is regarded as plagiarism.

If you do not understand the questions in the assignment or you do not know how to solve the problems, then don't hesitate to ask for assistance, after you have earnestly tried to solve the problems.

**IMPORTANT – Students who do not submit all written assessment tasks and attempt both the Web CT Assignments and final examination may not be awarded an overall pass for this subject, regardless of the total final mark.**

## Assessment schedule

Task	Due	Weighting	Length/Time
WEB CT Assignment 1	Week 5	15%	2 hours
WEB CT Assignment 2	Week 10	15%	2 hours
Experiment 1 **	Week 6	15%	3 hours
Experiment 2 **	Week 11	15%	3 hours
Final examination	Week 13/14	40%	2 hours

\*\* *Scheduling of tasks may vary due to lab availability. Students will be notified in advance of any changes*

## Marking Guidelines

WCA best practice is that students can normally expect to have assessment tasks handed back within two weeks, and before the next assessment task is due. On occasion there may be exceptions to this time frame due to, for example, the size of the task, the size of the class, teacher illness or teacher leave.

Where there are several teachers marking a major assessment task, tasks will be handed back by all the teachers within the same week.

## Assessment criteria and explanation of components

All assessment components are marked according to set marking criteria. Some assessment tasks may undergo check-marking by a panel of tutors.

### **WEB CT Assignment 1** **15%**

This computer-based assignment will be accessible to students at the beginning of week 5. Once the assignment has been downloaded, students will have a total of 2 hours to complete it, and submit their answers. If they wish, students can attempt a second quiz before the end of week 5. This assignment will assess material covered in lectures in weeks 1 - 4.

### **WEB CT Assignment 2** **15%**

This computer-based assignment will be accessible to students at the beginning of week 10. Once the assignment has been downloaded, students will have a total of 2 hours to complete it, and submit their answers. If they wish, students can attempt a second quiz before the end of week 10. This assignment will assess material covered in lectures in weeks 4 - 9.

### **Experiment 1** **15%**

This will be held in week 6 at a venue to be announced. During this practical class you will prepare a chemical compound and determine both the theoretical yield and percentage yield of the compound. A report based on the experiment must be handed in at the conclusion of the 3 hour laboratory class. Students must wear correct clothing and footwear and comply will all other directions of the laboratory demonstrators. There will be no opportunities to perform the experiment at a later date.

### **Experiment 2** **15%**

This will be held in week 11 at a venue to be announced. During this practical class you will use chromatographic methods to separate a mixture of amino acids and a mixture of food colouring agents. A report based on the experiment must be handed in at the conclusion of the 3 hour laboratory class. Students must wear correct clothing and footwear and comply will all other directions of the laboratory demonstrators. There will be no opportunities to perform the experiment at a later date.

### **Final Examination** **40%**

The examination will cover all topics covered throughout the session and will be held in either week 13 or 14 of the session.