



UNSW Course Outline

ZPEM1102 Chemistry 1B - 2024

Published on the 03 Jul 2024

General Course Information

Course Code : ZPEM1102

Year : 2024

Term : Semester 2

Teaching Period : Z2

Is a multi-term course? : No

Faculty : UNSW Canberra

Academic Unit : UC Science

Delivery Mode : In Person

Delivery Format : Standard

Delivery Location : UNSW Canberra at ADFA

Campus : UNSW Canberra

Study Level : Undergraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

The direction in which chemical reactions proceed (thermodynamics) is studied. There is an introduction to the laws of thermodynamics and the concepts of entropy, enthalpy and free energy. In kinetics, the temperature and concentration dependence for rates of reaction are discussed. This includes the concept of rate laws, activation energy and mechanism. The degree

to which a reaction proceeds (chemical equilibrium) is discussed and related to the change of free energy. Electron transfer is introduced as an important area of chemistry, together with the principles of electrochemical cells. Finally, some military chemistry is presented, including a brief introduction to chemical and biological weapons.

Course Aims

The aim of this course is to introduce students to the laws of thermodynamics and the concepts of entropy, enthalpy and free energy.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Perform a range of chemical calculations pertaining to chemical thermodynamics, equilibrium, pH, reaction rates and electrochemistry
CLO2 : Relate thermodynamic data to reaction spontaneity and kinetic data to reaction mechanisms
CLO3 : Classify organic molecules by their acid-base characteristics under different definition regimes
CLO4 : Identify the oxidation state of elements in compounds and determine the direction of redox reactions
CLO5 : Carry out a range of basic laboratory procedures

Course Learning Outcomes	Assessment Item
CLO1 : Perform a range of chemical calculations pertaining to chemical thermodynamics, equilibrium, pH, reaction rates and electrochemistry	<ul style="list-style-type: none">• Laboratory• Class Tests• Final Exam
CLO2 : Relate thermodynamic data to reaction spontaneity and kinetic data to reaction mechanisms	<ul style="list-style-type: none">• Laboratory• Class Tests• Final Exam
CLO3 : Classify organic molecules by their acid-base characteristics under different definition regimes	<ul style="list-style-type: none">• Laboratory• Class Tests• Final Exam
CLO4 : Identify the oxidation state of elements in compounds and determine the direction of redox reactions	<ul style="list-style-type: none">• Laboratory• Class Tests• Final Exam
CLO5 : Carry out a range of basic laboratory procedures	<ul style="list-style-type: none">• Laboratory

Learning and Teaching Technologies

Moodle - Learning Management System | Echo 360

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Laboratory Assessment Format: Individual	20%	
Class Tests Assessment Format: Individual	40%	
Final Exam Assessment Format: Individual	40%	

Assessment Details

Laboratory

Assessment Overview

Variety of lab exercises. Marked pro-forma returned to students

Course Learning Outcomes

- CL01 : Perform a range of chemical calculations pertaining to chemical thermodynamics, equilibrium, pH, reaction rates and electrochemistry
- CL02 : Relate thermodynamic data to reaction spontaneity and kinetic data to reaction mechanisms
- CL03 : Classify organic molecules by their acid-base characteristics under different definition regimes
- CL04 : Identify the oxidation state of elements in compounds and determine the direction of redox reactions
- CL05 : Carry out a range of basic laboratory procedures

Detailed Assessment Description

Laboratory sessions will be held throughout semester. Within each session the labwork must be undertaken and worksheets submitted before leaving. The use of generative artificial intelligence will be permissible for lab reports, but kept to simple editing assistance. See UNSW policy [UNSW_guidelines_Use-of-Generative-AI-in-assessments_8.02.23.pdf](#)

Class Tests

Assessment Overview

Marked class tests. Tutorials held in class

Course Learning Outcomes

- CL01 : Perform a range of chemical calculations pertaining to chemical thermodynamics,

equilibrium, pH, reaction rates and electrochemistry

- CLO2 : Relate thermodynamic data to reaction spontaneity and kinetic data to reaction mechanisms
- CLO3 : Classify organic molecules by their acid-base characteristics under different definition regimes
- CLO4 : Identify the oxidation state of elements in compounds and determine the direction of redox reactions

Detailed Assessment Description

Class tests will be weighted according to number of lectures. Relative ratios are in parentheses: Module 1 (1), Module 2 (1), Module 3(1), Module 4 (1).

All marks obtained for assessment items during the session are provisional. The final mark as published by the university following the assessment review group meeting is **the only official mark**.

Given the nature of tests no assistance from generative artificial intelligence will be possible. See UNSW policy [UNSW_guidelines_Use-of-Generative-AI-in-assessments_8.02.23.pdf](#)

Final Exam

Assessment Overview

Comprehensive final exam

Course Learning Outcomes

- CLO1 : Perform a range of chemical calculations pertaining to chemical thermodynamics, equilibrium, pH, reaction rates and electrochemistry
- CLO2 : Relate thermodynamic data to reaction spontaneity and kinetic data to reaction mechanisms
- CLO3 : Classify organic molecules by their acid-base characteristics under different definition regimes
- CLO4 : Identify the oxidation state of elements in compounds and determine the direction of redox reactions

Detailed Assessment Description

The 2 hour final exam will be scheduled in the final exam period with a time and date advertised closer to this period.

Given the nature of exams no assistance from generative artificial intelligence will be possible. See UNSW policy [UNSW_guidelines_Use-of-Generative-AI-in-assessments_8.02.23.pdf](#)

General Assessment Information

The theory component of Chemistry 1B is made up of 4 content modules, and students are tested on each module before the next one commences. For each module, at least 2 test opportunities will generally be available. Lectures will first be given on each new module, then in a following lecture period a test on the module will be offered. At the following lecture period a tutorial will be given, with another test opportunity being available in a subsequent lecture period, normally combined with new material. The best test score is recorded for the module

Grading Basis

Standard

Requirements to pass course

Students who obtain 40 or more marks (50%) in the theory component and receive 10 (50%) or more in the laboratory component will pass the subject.

Course Schedule

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

The course shedule consists of 4 x 1 hour lecture slots and 6 x 3 hours of lab distributed through the semester. The lecture schedule will consist of approximately 4 lectures followed by a test. There will then be a revision session followed by another 4 lectures and a new test and revision session. A combined test is then conducted on multiple modules and the best test score from the two is recorded for that module. Lab sessions are scheduled appropriately to match the lecture material.

A full lecture, lab and test schedule is available on Moodle once enrolled in the course. Alternatively, you can contact the course convenor for the lecture schedule.

Course Resources

Prescribed Resources

Chang, R., *Chemistry* (14th ed.), McGraw-Hill, ISBN 978-1-265-57756-0

Recommended Resources

Blackman A., Gahan L.; Aylward & Findlay's SI Chemical Data Book (7th ed.), Wiley.

Course Evaluation and Development

Students will be asked to complete the myExperience survey towards the end of this course. Student opinions really do make a difference. Refer to the Moodle site for this course to see how the feedback from previous students has contributed to the course development.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
	Tristan Reekie					No	Yes
	Anthony Day					No	No
	Morphy Dumlaao					No	No
	S.M.Parvez Mahbub					No	No
	Lynne Wallace					No	No