CHEM10007 Fundamentals of Chemistry

Credit Points:	12.50
Level:	1 (Undergraduate)
Dates & Locations:	2011, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus. Lectures, practicals, tutorials/workshops, independent learning tasks, computer-aided learning.
Time Commitment:	Contact Hours: 3 x one hour lectures per week, 6 x three hours of practical activities during semester, 1 x one hour tutorial/workshop sessions per week, 6 hours of computer aided learning during semester, 8 hours of independent learning tasks during semester. Total Time Commitment: Estimated total time commitment of 120 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	Some knowledge of basic science will be assumed.
Non Allowed Subjects:	Students will not be permitted to enrol in this subject if they have previously completed any of # 610-121 Chemistry A (Advanced Study Program) (prior to 2008) # 610-141 Chemistry A (prior to 2008) # 610-051 Chemistry (Biomedical Science A) (prior to 2008) or equivalent studies.

Subject	Study Period Commencement:	Credit Points:
CHEM10003 Chemistry 1	Semester 1, Semester 2	12.50

Core Participation Requirements:	For the purposes of considering applications for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005) and Students Experiencing Academic Disadvantage Policy, this subject requires all students to actively and safely participate in laboratory activities. Students who feel their disability may impact upon their participation are encouraged to discuss this with the Subject Coordinator and the Disability Liaison Unit. Hhttp://www.services.unimelb.edu.au/disability/
Coordinator:	Prof Muthupandian Ashokkumar
Contact:	first-year-director@chemistry.unimelb.edu.au
Subject Overview:	On completion, the student should have an understanding of the nature of matter, solutions and gases, the chemical change related to equilibrium, energy and kinetics, and the nature of redox processes; and structures and functional groups in organic molecules. In the practical component, students should develop basic laboratory skills (observation, analytical techniques, report writing) and an appreciation of the health and safety issues associated with the safe handling and disposal of laboratory chemicals. The subject provides an introduction to the nature of matter: elements, atoms, ions and molecules; the electronic structure of atoms and ions; bond formation, including covalent, ionic, metallic, hydrogen bonding, and van der Waals; solubility and the solution state; ions and hydration; the behaviour of gases; the mole concept; concentrations; stoichiometry; acids, bases, neutralisation reactions and salt formation; acid/base strength and the pH scale; energy and chemical systems; rates of reaction and reaction order; catalysis and enzymes; chemical equilibrium; the equilibrium constant, Ka, Kb, stability constants and solubility products; redox reactions and redox potentials; organic molecules: structure, nomenclature and functional groups; hydrophobicity and hydrophilicity; and biologically significant macromolecules.

	This subject will provide the student with the opportunity to establish and develop the following generic skills: the ability to use conceptual models and gather and rationalise data, problem-solving and critical thinking.
Objectives:	The aim of the subject is to provide students with an understanding of the nature of matter, solutions and gases, the chemical change related to equilibrium, energy and kinetics, and the nature of redox processes; and structures and functional groups in organic molecules. In the practical component, students should develop basic laboratory skills (observation, analytical techniques, report writing) and an appreciation of the health and safety issues associated with the safe handling and disposal of laboratory chemicals.
Assessment:	Three 45-minute on-line mid-semester tests (15%); ongoing assessment of practical work throughout the semester (20%); a 3-hour written examination in the examination period (65%). Satisfactory completion of practical work is necessary to pass the subject. Independent learning tasks need to be completed in order to pass the subject.
Prescribed Texts:	S S Zumdahl Chemical Principles, 6th Ed, Houghton Mifflin, 2008.
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2011/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2011/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2011/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2011/B-MUS)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	This subject encompasses particular generic skills so that on completion of the subject students should have developed skills relating to: # the organization of work schedules that permit appropriate preparation time for tutorials, practical classes and examinations; # the use of electronic forms of communication; # the utilisation of computer-aided learning activities to enhance understanding; # the performance of basic manipulations with laboratory equipment; # the recording of observations, the analysis of information and the interpretation data within a laboratory setting; # accessing information from the library employing both electronic and traditional means; # working collaboratively with other students; # the use of conceptual models; # problem solving; and # critical thinking.
Notes:	This subject is available for science credit to students enrolled in the BSc (both pre-2008 and new degrees), BASc or a combined BSc course. Students intending to undertake CHEM10004 Chemistry 2 in order to meet prerequisites for later year chemistry or biochemistry subjects must achieve at a high level in the examination component of this subject. The chemistry sequence of CHEM10003 Chemistry 1 and CHEM10004 Chemistry 2 is available for students who have completed VCE Chemistry. A laboratory coat and safety glasses are required for laboratory activities.
Related Course(s):	Bachelor of Agriculture Bachelor of Science
Related Majors/Minors/ Specialisations:	Chemistry Science credit subjects* for pre-2008 BSc, BASc and combined degree science courses

Related Breadth Track(s):	Environmental Chemistry