

610-296 Physical Chemistry 2

Credit Points:	12.50
Level:	2 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Year Long, - Taught on campus. Lectures, tutorials and practical classes.
Time Commitment:	Contact Hours: Three 1-hour lectures per week for 4 weeks (semester 1, weeks 5-8); one 1-hour tutorial per week for 4 weeks (semester 1, weeks 6-9); one 3.5-hour practical class per week for 8 weeks (semester 2, weeks 5-12); one 3-hour practical class per week for 8 weeks (semester 2, weeks 5-12). Total 68 hours. Total Time Commitment: 120 hours total time commitment.
Prerequisites:	One of # 610-220 (prior to 2009) # 610-221 (prior to 2009) plus one of # 610-240 (prior to 2009) # 610-241 (prior to 2009)
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students may not enrol in this subject and either <i>Reactions and Synthesis</i> or <i>Practical Chemistry</i> . Students who have completed 610-210 or 610-211 may not also gain credit for this subject.
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. 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. Students will be required to conduct themselves in a manner that is safe to themselves and those around them in a chemical laboratory environment.
Coordinator:	Dr Stephen Best
Subject Overview:	The subject includes lecture and practical components. The lectures provides a formal introduction of thermodynamics and its application to phase and chemical equilibria and the practical component will include the synthesis of different classes of organic and inorganic compounds, characterization of chemical compounds using modern analytical techniques; analysis of samples with single and multiple components; determination of the kinetic and thermodynamic properties of molecules; measurement and interpretation of the spectroscopic and magnetic properties of inorganic and organic compounds. This subject, together with prior completion of subjects in Organic Chemistry (610-220 or 610-221) and Inorganic Chemistry (610-240 or 610-241) will provide the prerequisites for entry into the core third-year lecture and laboratory subjects in Chemistry and thereby provide a path to a Chemistry major
Objectives:	Upon completion of this subject students should; # understand basic thermodynamic concepts and the application of these approaches to real solutions, mixtures and phase equilibria; # be able to distinguish between kinetically and thermodynamically controlled reactions and to apply these concepts to rationalise synthetic transformations;

	<ul style="list-style-type: none"> # consolidate their understanding of molecular properties and energetics and be able to apply these concepts to the synthesis of organic and inorganic compounds; # know approaches to the synthesis and some reactions of simple polyfunctional organic compounds; # acquire skills needed to conduct chemical synthesis; # develop the skills needed to perform a range of methods used for chemical analysis; # be able to interpret and report the results of spectroscopic or analytical measurements; # apply procedures that allow the safe handling of chemicals and conduct of chemical reactions.
Assessment:	Up to three short tests of duration less than 1 hour conducted online using the learning management system (LMS) for a total of 10%, Ongoing assessment of practical work (of technical competence, reporting and interpretative skills) in the form of approximately 18 short reports (three to four pages) due during the semester (60%) and a two-hour end of semester exam (30%)
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<p>This subject will develop the following generic skills:</p> <ul style="list-style-type: none"> # the ability to comprehend complex concepts and effectively communicate this understanding to the scientific community and in a manner accessible to the wider community; # the ability to analyse and solve abstract technical problems; # the ability to connect and apply the learnt concepts to a broad range of scientific problems beyond the scope of this subject; # an awareness of advanced technologies; # the ability to use conceptual models to rationalise observations; # the ability to think and reason logically; # the ability to think critically and independently; # data recording and interpretation of scientific observations; # ability to search chemical databases and the chemical literature; # be able to apply procedures for data and error analysis.
Notes:	<p>Students enrolled in the BSc (pre-2008 degree), BASc or a combined BSc course will receive science credit for the completion of this subject.</p> <p>A laboratory coat and safety glasses are required for laboratory activities.</p> <p>Subject materials will be disseminated via the learning management system (LMS). Students will be expected to be able to access the LMS for tests conducted through the semester.</p>