610-283 Reactions and Synthesis

Credit Points:	12.50
Level:	2 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus. Lectures, tutorials and seminars
Time Commitment:	Contact Hours: 3 one-hour lectures per week; 1 one-hour tutorial per week; 3 one-hour seminars during the semester. Total 51 hours. Total Time Commitment: 120 hours total time commitment.
Prerequisites:	One of # *Chemistry 2* # *Chemistry for Biomedicine* # 610-142 (prior to 2009) # 610-052 (prior to 2008)
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students who have completed any one of 610210, 610211, 610220, 610221, 610240, 610241 may not also gain credit for *Reactions and Synthesis*
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. Students who feel their disability may impact upon their participation are encouraged to discuss this with the subject coordinator and the Disability Liaison Unit.
Coordinator:	Dr Stephen Best
Contact:	
Subject Overview:	This subject covers key concepts associated with the synthesis and design of organic and inorganic molecules, molecular architecture and the energy transformations associated with chemical and physical processes. Topics covered include synthesis of simple polyfunctional organic compounds, reactions and properties of s-, p- and d- block elements and thermodynamics. These topics have applications in drug discovery, nanotechnology, and energy harnessing through conventional and alternative energy sources.
Objectives:	Upon completion of this subject students should; # 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; # be able to distinguish between kinetically and thermodynamically controlled reactions and to apply these concepts to rationalise synthetic transformations; # understand basic thermodynamic concepts and the application of these approaches to real solutions, mixtures and phase equilibria; # have a knowledge of the main factors controlling the substitution and redox reactions of main group and transition metal elements.
Assessment:	Up to six short tests each of duration less than 1 hour conducted on-line using the learning management system (LMS) for a total of 20% and a three-hour end of semester exam (80%)
Prescribed Texts:	None

Recommended Texts:	J McMurry, *Organic Chemistry*, Thomson Brooks/Cole, 6th edition, 2004. P Atkins and J De Paula, *Atkins' Physical Chemistry*, Oxford University Press, 8th edition, 2006. C E Housecroft and A G Sharpe, *Inorganic Chemistry*, Pearson Prentice-Hall, 3rd edition, 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/2009/D09)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2009/F04)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2009/A04)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2009/M05)** 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:	At the completion of this subject students should develop the following generic skills: # 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 think and reason logically; # the ability to think critically and independently.
Notes:	Students enrolled in the BSc (both pre-2008 and new degrees), BASc or a combined BSc course will receive science credit for the completion of this subject.
Related Course(s):	Bachelor of Engineering
Related Majors/Minors/ Specialisations:	Environmental Science