

# CHEM20018 Reactions and Synthesis

<b>Credit Points:</b>	12.50									
<b>Level:</b>	2 (Undergraduate)									
<b>Dates &amp; Locations:</b>	2010, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus. Lectures, tutorials and seminars									
<b>Time Commitment:</b>	Contact Hours: 3 x one hour lectures per week; 1 x one hour tutorial per week; 3 x one hour seminars during the semester. Total 51 hours. Total Time Commitment: Estimated total time commitment of 120 hours									
<b>Prerequisites:</b>	One of <table border="1" data-bbox="387 607 1485 808"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEM10004 Chemistry 2</td> <td>January, Semester 2</td> <td>12.50</td> </tr> <tr> <td>CHEM10006 Chemistry for Biomedicine</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li># 610-142 Chemistry B (prior to 2009)</li> <li># 610-052 Chemistry Biomedical Science B (prior to 2008)</li> </ul>	Subject	Study Period Commencement:	Credit Points:	CHEM10004 Chemistry 2	January, Semester 2	12.50	CHEM10006 Chemistry for Biomedicine	Semester 1	12.50
Subject	Study Period Commencement:	Credit Points:								
CHEM10004 Chemistry 2	January, Semester 2	12.50								
CHEM10006 Chemistry for Biomedicine	Semester 1	12.50								
<b>Corequisites:</b>	None									
<b>Recommended Background Knowledge:</b>	None									
<b>Non Allowed Subjects:</b>	Students who have completed any one of the following subjects may not also gain credit for this subject <ul style="list-style-type: none"> <li># 610-210 Light, Matter and Chemical Change A (prior to 2009)</li> <li># 610-211 Light, Matter and Chemical Change B (prior to 2009)</li> <li># 610-220 Organic Chemistry (prior to 2009)</li> <li># 610-221 Organic &amp; Bio-organic Chemistry (prior to 2009)</li> <li># 610-240 Inorganic and Bio-inorganic Chemistry A (prior to 2009)</li> <li># 610-241 Inorganic and Bio-inorganic Chemistry B (prior to 2009)</li> </ul>									
<b>Core Participation Requirements:</b>	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.									
<b>Coordinator:</b>	Dr Stephen Best									
<b>Contact:</b>	<b>Email: <a href="mailto:second-year-director@chemistry.unimelb.edu.au">second-year-director@chemistry.unimelb.edu.au</a></b>									
<b>Subject Overview:</b>	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.									
<b>Objectives:</b>	Upon completion of this subject students should; <ul style="list-style-type: none"> <li># consolidate their understanding of molecular properties and energetics and be able to apply these concepts to the synthesis of organic and inorganic compounds;</li> <li># know approaches to the synthesis and some reactions of simple polyfunctional organic compounds;</li> </ul>									

	<ul style="list-style-type: none"> <li># be able to distinguish between kinetically and thermodynamically controlled reactions and to apply these concepts to rationalise synthetic transformations;</li> <li># understand basic thermodynamic concepts and the application of these approaches to real solutions, mixtures and phase equilibria;</li> <li># have a knowledge of the main factors controlling the substitution and redox reactions of main group and transition metal elements.</li> </ul>
<b>Assessment:</b>	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%)
<b>Prescribed Texts:</b>	None
<b>Recommended Texts:</b>	<ul style="list-style-type: none"> <li># J McMurry, <i>Organic Chemistry</i>, Thomson Brooks/Cole, 6th Ed. 2004.</li> <li># P Atkins and J De Paula, <i>Atkins' Physical Chemistry</i>, Oxford University Press, 8th Ed. 2006.</li> <li># C E Housecroft and A G Sharpe, <i>Inorganic Chemistry</i>, Pearson Prentice-Hall, 3rd Ed. 2008.</li> </ul>
<b>Breadth Options:</b>	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> <li># <b>Bachelor of Arts</b> (<a href="https://handbook.unimelb.edu.au/view/2010/B-ARTS">https://handbook.unimelb.edu.au/view/2010/B-ARTS</a>)</li> <li># <b>Bachelor of Commerce</b> (<a href="https://handbook.unimelb.edu.au/view/2010/B-COM">https://handbook.unimelb.edu.au/view/2010/B-COM</a>)</li> <li># <b>Bachelor of Environments</b> (<a href="https://handbook.unimelb.edu.au/view/2010/B-ENVS">https://handbook.unimelb.edu.au/view/2010/B-ENVS</a>)</li> <li># <b>Bachelor of Music</b> (<a href="https://handbook.unimelb.edu.au/view/2010/B-MUS">https://handbook.unimelb.edu.au/view/2010/B-MUS</a>)</li> </ul> <p>You should visit <b>learn more about breadth subjects</b> (<a href="http://breadth.unimelb.edu.au/breadth/info/index.html">http://breadth.unimelb.edu.au/breadth/info/index.html</a>) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.</p>
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	<p>At the completion of this subject students should develop the following generic skills:</p> <ul style="list-style-type: none"> <li># the ability to comprehend complex concepts and effectively communicate this understanding to the scientific community and in a manner accessible to the wider community;</li> <li># the ability to analyse and solve abstract technical problems;</li> <li># the ability to connect and apply the learnt concepts to a broad range of scientific problems beyond the scope of this subject;</li> <li># an awareness of advanced technologies;</li> <li># the ability to think and reason logically;</li> <li># the ability to think critically and independently.</li> </ul>
<b>Notes:</b>	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.
<b>Related Course(s):</b>	Bachelor of Engineering Bachelor of Science
<b>Related Majors/Minors/Specialisations:</b>	Environmental Science Master of Engineering (Biomolecular) Master of Engineering (Chemical)