

BCMB20002 Biochemistry and Molecular Biology

Credit Points:	12.50												
Level:	2 (Undergraduate)												
Dates & Locations:	2012, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus. Semester 2, Parkville - Taught on campus.												
Time Commitment:	Contact Hours: three x 1 hour lecture, and one x 1 hour tutorial per week Total Time Commitment: 48 contact hours with an estimated total time commitment of 120 hours												
Prerequisites:	<p>For BSc degree:</p> <p>One of:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEM10003 Chemistry 1</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>OR 610-121 Chemistry A OR 610-141 Chemistry A</p> <p>AND One of:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEM10004 Chemistry 2</td> <td>Summer Term, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>OR 610-122 Chemistry B OR 610-142 Chemistry B</p> <p>Other combinations of subjects that provide a similar background may be considered by the coordinator.</p>	Subject	Study Period Commencement:	Credit Points:	CHEM10003 Chemistry 1	Semester 1, Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	CHEM10004 Chemistry 2	Summer Term, Semester 2	12.50
Subject	Study Period Commencement:	Credit Points:											
CHEM10003 Chemistry 1	Semester 1, Semester 2	12.50											
Subject	Study Period Commencement:	Credit Points:											
CHEM10004 Chemistry 2	Summer Term, Semester 2	12.50											
Corequisites:	None												
Recommended Background Knowledge:	<p>For BSc degree Level 1 Biology is strongly recommended. A biomedical or biological practical subject such as</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BCMB20005 Techniques in Molecular Science</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>or equivalent is strongly recommended.</p>	Subject	Study Period Commencement:	Credit Points:	BCMB20005 Techniques in Molecular Science	Semester 1, Semester 2	12.50						
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BCMB20005 Techniques in Molecular Science	Semester 1, Semester 2	12.50											
Non Allowed Subjects:	<p>Disallowed subject combinations:</p> <p>Students cannot enrol in and gain credit for BCMB20002 Biochemistry and Molecular Biology if previously obtained credit for both pre-2009 subjects 521-211 Biochemistry and Molecular Biology Part A and 521-212 Biochemistry and Molecular Biology Part B.</p>												

	<p>Students who completed the pre-2009 subject 521-211 Biochemistry and Molecular Biology Part A without 521-212 Biochemistry and Molecular Biology Part B may enrol in BCMB20002 Biochemistry and Molecular Biology.</p> <p>Bachelor of Biomedicine students taking</p> <table border="1" data-bbox="387 365 1485 512"> <thead> <tr> <th data-bbox="387 365 1074 454">Subject</th> <th data-bbox="1074 365 1347 454">Study Period Commencement:</th> <th data-bbox="1347 365 1485 454">Credit Points:</th> </tr> </thead> <tbody> <tr> <td data-bbox="387 454 1074 512">BIOM20001 Molecular and Cellular Biomedicine</td> <td data-bbox="1074 454 1347 512">Semester 1</td> <td data-bbox="1347 454 1485 512">25</td> </tr> </tbody> </table> <p>are excluded from this subject.</p>	Subject	Study Period Commencement:	Credit Points:	BIOM20001 Molecular and Cellular Biomedicine	Semester 1	25
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BIOM20001 Molecular and Cellular Biomedicine	Semester 1	25					
<p>Core Participation Requirements:</p>	<p>For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/</p>						
<p>Coordinator:</p>	<p>Assoc Prof Graham Parslow</p>						
<p>Contact:</p>	<p>Academic Coordinator Assoc Prof Graham Parslow gparslow@unimelb.edu.au (mailto:gparslow@unimelb.edu.au)</p> <p>Administrative Coordinator Ms Irene Koumanelis i.koumanelis@unimelb.edu.au (mailto:i.koumanelis@unimelb.edu.au)</p>						
<p>Subject Overview:</p>	<p>This subject is a broad introduction to the core of biochemistry, building on chemical principles and relating structure to function. The subject is an approved biochemistry prerequisite for entry to graduate medicine (and kindred vocational study) at the University of Melbourne. The molecular basis of life systems as discussed in this course is essential for the understanding of any biological system and is at the core of all degrees in life science that use molecular techniques. The content includes an introduction to the molecular architecture of cells, cell signalling and the structure of biological building blocks (nucleic acids, amino acids, carbohydrates, lipids). The coverage includes how nucleic acids replicate information and serve as a template for the synthesis of RNAs and proteins. Genomics will be introduced as the application of constantly improving technologies to advance biomedical applications of genome sequencing. The structure and function of proteins is described, including the properties of enzymes, their regulation and kinetic behaviour. The structure of lipids is examined to show their major biological roles, particularly as components of cell membranes. Metabolic pathways (glycolysis, gluconeogenesis, oxidative phosphorylation and fat storage) will complete this core coverage of essential biochemistry.</p>						
<p>Objectives:</p>	<p>By the end of the subject the student should understand:</p> <ul style="list-style-type: none"> # the structure and composition of a cell as the basic unit of life, including the concept of cell signalling as a means of transmitting information within a cell; # the molecular basis for information storage and transmission from DNA to protein, including a basic understanding of genomics; # the chemical nature of amino acids and their role in determining the folding and functions of proteins; # the chemistry and structure of lipids and carbohydrates as components of cell membranes; # the complete breakdown of glucose (glycolysis, TCA cycle and oxidative phosphorylation) as an example of the complexity of cellular metabolism which provides the macromolecules and the energy needed for cells to carry out their functions. 						

Assessment:	3 hour written exam held in examination period (70%), one 1 hour multi-choice examination (10%), continuing computer based assessment (20%).
Prescribed Texts:	Nelson and Cox, Lehninger Principles of Biochemistry, 5th edn., 2008
Breadth Options:	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> # Bachelor of Arts (https://handbook.unimelb.edu.au/view/2012/B-ARTS) # Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2012/B-COM) # Bachelor of Environments (https://handbook.unimelb.edu.au/view/2012/B-ENVS) # Bachelor of Music (https://handbook.unimelb.edu.au/view/2012/B-MUS) <p>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.</p>
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<p>On completion of this subject, students should have developed the following generic skills:</p> <ul style="list-style-type: none"> # think critically and organise and expand knowledge from consideration of the lecture material; # learn to adopt new ideas from participation in the lecture and tutorial programs; and # plan effective work schedules and grow more confident in the synthesis of knowledge.
Notes:	<p>This subject is available for science credit to students enrolled in the BSc (both pre-2008 and New Generation degrees), BAsc or a combined BSc course.</p> <p>Not available to students enrolled in the BBiomedSc.</p> <p>This subject is not available to students enrolled in the Bachelor of Biomedicine.</p> <p>Students undertaking this subject will be expected to regularly access an internet-enabled computer.</p>
Related Course(s):	Bachelor of Biomedicine
Related Majors/Minors/Specialisations:	<p>Animal Health and Disease</p> <p>Science credit subjects* for pre-2008 BSc, BAsc and combined degree science courses</p> <p>Science-credited subjects - new generation B-SCI and B-ENG. Core selective subjects for B-BMED.</p>
Related Breadth Track(s):	Biochemistry