

## BCMB30003 Molecular Aspects of Cell Biology

<b>Credit Points:</b>	12.5												
<b>Level:</b>	3 (Undergraduate)												
<b>Dates &amp; Locations:</b>	2015, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.												
<b>Time Commitment:</b>	Contact Hours: three x 1 hour lecture, and one x 1 hour tutorial per week. Total Time Commitment: 170 hours.												
<b>Prerequisites:</b>	<p>BSc students</p> <p>Before 2009:</p> <p><b>Biochemistry &amp; Molecular Biology Part A (521-211)</b></p> <p><b>Biochemistry &amp; Molecular Biology Part B (521-212)</b></p> <p>2009 and subsequently:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BCMB20002 Biochemistry and Molecular Biology</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>Note that the pre-2009 subject "<b>Biochemistry &amp; Molecular Biology Part A</b>" and the 2009 subject "<b>Biochemistry &amp; Molecular Biology</b>" are not identical despite having the same subject code. Only the subject "<b>Biochemistry &amp; Molecular Biology</b>" offered in 2009 and subsequently acts as a stand-alone prerequisite.</p> <p>BBiomedicine students</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BIOM20001 Molecular and Cellular Biomedicine</td> <td>Semester 1</td> <td>25</td> </tr> </tbody> </table> <p>Other combinations that provide similar background will be considered by the coordinator.</p>	Subject	Study Period Commencement:	Credit Points:	BCMB20002 Biochemistry and Molecular Biology	Semester 1, Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	BIOM20001 Molecular and Cellular Biomedicine	Semester 1	25
Subject	Study Period Commencement:	Credit Points:											
BCMB20002 Biochemistry and Molecular Biology	Semester 1, Semester 2	12.50											
Subject	Study Period Commencement:	Credit Points:											
BIOM20001 Molecular and Cellular Biomedicine	Semester 1	25											
<b>Corequisites:</b>	None												
<b>Recommended Background Knowledge:</b>	None												
<b>Non Allowed Subjects:</b>	Students cannot enrol in and gain credit for this subject if previously obtained credit for pre-2009 subject <b>(521-303) Molecular Aspects of Cell Biology</b> .												
<b>Core Participation Requirements:</b>	<p>&lt;p&gt;For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.&lt;/p&gt; &lt;p&gt;It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: &lt;a href="http://services.unimelb.edu.au/disability"&gt;http://services.unimelb.edu.au/disability&lt;/a&gt;&lt;/p&gt;</p>												
<b>Coordinator:</b>	Assoc Prof Marie Bogoyevitch												
<b>Contact:</b>	Subject Coordinator												

	<p>Assoc Prof Marie Bogoyevitch  <a href="mailto:marieb@unimelb.edu.au">marieb@unimelb.edu.au</a> (<a href="mailto:marieb@unimelb.edu.au">mailto:marieb@unimelb.edu.au</a>)          Administrative Coordinator          Mrs Irene Koumanelis  <a href="mailto:i.koumanelis@unimelb.edu.au">i.koumanelis@unimelb.edu.au</a> (<a href="mailto:i.koumanelis@unimelb.edu.au">mailto:i.koumanelis@unimelb.edu.au</a>)</p>
<b>Subject Overview:</b>	<p>To complement the information explosion of the new genomic era, it is essential to appreciate the cellular architecture of cells and how the delivery of proteins to their correct locations in the cell is crucial for the complex intracellular signalling pathways that control cell morphology, organisation and behaviour. Topics covered include compartmentalisation in eukaryotic cells; intracellular RNA and protein traffic; the molecular structure, function and biogenesis of subcellular organelles; protein folding and maturation; vesicle-mediated transport; structure and function of the extracellular matrix and cell adhesion molecules and their role in diseased states such as malignancies; cellular stress responses and linked signal transduction events; cytoskeletal structures and the signal transduction processes regulating the assembly and disassembly of actin-cytoskeleton; molecular processes determining cell movement and shape changes; imaging of processes within live cells. Students should acquire an understanding of the relationships between molecular design, cellular organisation and biological function of normal, stressed and malignant eukaryotic cells, as well as detailed knowledge of the major experimental strategies for investigating the molecular basis of these relationships. In addition to these specific skills, students will think critically from consideration of the lecture material and research papers, expand from theoretical principles to practical explanations through observing and reporting research literature.</p>
<b>Learning Outcomes:</b>	<p>This subject will provide a molecular explanation to facets of cell biology. This molecular level understanding of cell biology builds upon material provided in biochemistry and molecular biology year 2 level subjects and extends material taught in other biochemistry and molecular biology year 3 level subjects such as <b>Functional Genomics &amp; Bioinformatics</b> and <b>Protein Structure &amp; Function</b>. It will effectively complement offerings in other Departments that focus on cell biology, infection and immunity, neurobiology etc.</p>
<b>Assessment:</b>	<p>3 hour written exam held in examination period (70%); two 1 hour written examinations held during semester (7.5% x 2 = 15%); 1,000 word essay assessment due mid-semester (15%).</p>
<b>Prescribed Texts:</b>	<p>Alberts et al Molecular Biology of the Cell, 5th edition, Garland Science</p>
<b>Breadth Options:</b>	<p>This subject is not available as a breadth subject.</p>
<b>Fees Information:</b>	<p>Subject EFTSL, Level, Discipline &amp; Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a></p>
<b>Generic Skills:</b>	<p>On completion of this subject, students should have developed the following generic skills:</p> <ul style="list-style-type: none"> <li># Critical analysis of research papers and other resource material.</li> <li># Capacity to develop ideas from theoretical principles to practical explanations through observing and reporting research literature.</li> <li># The capacity to integrate knowledge across disciplines.</li> <li># The ability to comprehend a question, evaluate the relevant information and communicate an answer.</li> </ul>
<b>Notes:</b>	<p>Students enrolled in the BSc (pre-2008 BSc), BASc or a combined BSc course will receive science credit for the completion of this subject.</p> <p>Students undertaking this subject will be expected to regularly access an internet-enabled computer.</p>
<b>Related Course(s):</b>	<p>Bachelor of Engineering (Biomedical)Biocellular</p>
<b>Related Majors/Minors/Specialisations:</b>	<p>Animal Cell Biology (specialisation of Cell and Developmental Biology major)          Biochemistry and Molecular Biology          Biotechnology (pre-2008 Bachelor of Science)          Cell Biology (pre-2008 Bachelor of Science)</p>

Genetics  
Genetics  
Genetics  
Genetics  
Genetics  
Immunology  
Microbiology  
Molecular Biotechnology (specialisation of Biotechnology major)  
Plant Cell Biology and Development (specialisation of Cell and Developmental Biology major)  
Reproduction and Development (specialisation of Cell and Developmental Biology major)  
Science-credited subjects - new generation B-SCI and B-ENG.  
Selective subjects for B-BMED