

BCMB20003 Molecular Analysis of Cell Function

Credit Points:	12.5														
Level:	2 (Undergraduate)														
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.														
Time Commitment:	Contact Hours: two x 1 hour lecture per week and two x 1 hour tutorial per week Total Time Commitment: 48 contact hours with an estimated total time commitment of 170 hours														
Prerequisites:	<p>For BSc degree:</p> <table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>BCMB20002 Biochemistry and Molecular Biology</td><td>Semester 1, Semester 2</td><td>12.50</td></tr></table> <p>This subject may also be taken as a corequisite (with the approval of the subject coordinator).</p> <p>For BBiomed degree:</p> <table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>BIOM20001 Molecular and Cellular Biomedicine</td><td>Semester 1</td><td>25</td></tr></table> <p>Other combinations of subjects that provide a similar background may 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													
Corequisites:	Refer to prerequisite details.														
Recommended Background Knowledge:	<p>Level 1 Biology is strongly recommended. A biomedical or biological practical subject such as</p> <table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>BCMB20005 Techniques in Molecular Science</td><td>Semester 1, Semester 2</td><td>12.50</td></tr></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						
Subject	Study Period Commencement:	Credit Points:													
BCMB20005 Techniques in Molecular Science	Semester 1, Semester 2	12.50													
Non Allowed Subjects:	Students cannot enrol in and gain credit for this subject if previously obtained credit for pre-2009 subject Biochemistry and Molecular Biology Part A or Biochemistry and Molecular Biology Part B.														
Core Participation Requirements:	<p><p>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.</p> <p>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: http://services.unimelb.edu.au/disability</p></p>														
Coordinator:	Dr Heather Verkade														
Contact:	Subject Coordinator														

	<p>Dr Heather Verkade heather.verkade@unimelb.edu.au (mailto:heather.verkade@unimelb.edu.au)</p> <p>Administrative Coordinator</p> <p>Mrs Irene Koumanelis BiomedSci-AcademicServices@unimelb.edu.au (mailto:BiomedSci-AcademicServices@unimelb.edu.au)</p>
Subject Overview:	<p>This subject investigates the molecular mechanisms by which cells regulate their replication, function and metabolism, i.e. the essential properties of living organisms. The focus of the subject is the examination of current or classic research that exemplifies these topics.</p> <p>Subject content focuses on modern research techniques in biochemistry and molecular cell biology. Topics include: the regulation of protein folding and misfolding, gene expression regulation, the transduction of cellular signals, cytoskeletal remodelling and protein trafficking, and the regulation of cellular metabolism. These elegant biochemical processes are fundamental to human existence. This subject is designed to complement and extend both BCMB20002 and BCMB20005.</p>
Learning Outcomes:	<p>By the end of the subject the student should understand:</p> <ul style="list-style-type: none"> # the structures of cells, proteins, membranes, DNA and chromatin, and the importance of these structures in regulation of the cell. # the way that the expression of genes is controlled and how this impacts cell structure and function # the importance of protein folding and the mechanisms by which this is controlled # the regulation of cellular processes within and external to cells and communicated by signal transduction molecules. # the metabolic mechanisms which cells use to extract, convert and store biochemical energy. # the transport of molecules into, out of, and throughout the cell, and the importance of the cytoskeleton in these processes. # how the scientific literature represents the analysis of the above topics. # how to interpret research data in these topic areas.
Assessment:	3 hour exam held in the University examination period: 70%, 2 x intrasemester test during semester (10% each): 20%, Continuous assessment during semester:10%
Prescribed Texts:	Nelson and Cox, Lehninger Principles of Biochemistry, 6th edn., 2013 Recommended text: Alberts et al Molecular Biology of the Cell, 6th edition, Garland Science
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/2016/B-ARTS) # Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2016/B-COM) # Bachelor of Environments (https://handbook.unimelb.edu.au/view/2016/B-ENVS) # Bachelor of Music (https://handbook.unimelb.edu.au/view/2016/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"> # have an in-depth understanding of the biochemical regulation of cell function # understand the principles of sound project and experimental design, including data analysis # be critical thinkers # apply analytical skills to problem solving

Notes:	<p>This subject is available for science credit to students enrolled in the BSc (both pre-2008 and New Generation degrees), BSc or a combined BSc course.</p> <p>Students undertaking this subject will be expected to regularly access an internet-enabled computer.</p>
Related Majors/Minors/ Specialisations:	<p>Science-credited subjects - new generation B-SCI and B-ENG.</p> <p>Selective subjects for B-BMED</p>