

521-303 Molecular Aspects of Cell Biology

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 1, - Taught on campus.
Time Commitment:	Contact Hours: 36 lectures (three per week) Total Time Commitment: 120 hours
Prerequisites:	Biochemistry 521-211, 521-212 and 521-220. Other combinations that provide a similar background will be considered by the coordinator. BBiomedSc students: 521-213 and 536-250.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
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 active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.
Coordinator:	A/Prof T Lithgow
Subject Overview:	<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.</p> <p>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.</p> <p>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.</p> <p>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, and acquire abilities in collaborative working while participating in group presentations.</p>
Assessment:	Two 1-hour multiple choice tests during the semester (5% each); a 10-15 minute group oral presentation during the semester (5%); a 1000-word written assignment due during the semester (5%); a 3-hour written examination in the examination period (80%).
Prescribed Texts:	Molecular Biology of the Cell (B Alberts et al), 4th edn, Garland, 2002 Molecular Cell Biology (H Lodish et al), 5th edn, Scientific American Books, 2004
Breadth Options:	This subject is a level 2 or level 3 subject and is not available to new generation degree students as a breadth option in 2008. This subject or an equivalent will be available as breadth in the future. Breadth subjects are currently being developed and these existing subject details can be used as guide to the type of options that might be available.

	2009 subjects to be offered as breadth will be finalised before re-enrolment for 2009 starts in early October.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Notes:	Students enrolled in the BSc (pre-2008 BSc), BASc or a combined BSc course will receive science credit for the completion of this subject.
Related Course(s):	Bachelor of Arts and Bachelor of Science Bachelor of Arts and Sciences Bachelor of Biomedical Science Bachelor of Science Graduate Diploma in Biotechnology