

521-303 Molecular Aspects of Cell Biology

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus.
Time Commitment:	Contact Hours: three x 1 hour lecture and one x 1 hour tutorial per week Total Time Commitment: 120 hours
Prerequisites:	<p>BSc Students</p> <p>(521-211) Biochemistry & Molecular Biology Part A AND (521-212) Biochemistry & Molecular Biology Part B</p> <p>BBiomedSc Students</p> <p>(521-213) Integrated Biomedical Science I AND (536-250) Integrated Biomedical Science II</p> <p>Other combinations that provide a similar background will be considered by the coordinator.</p>
Corequisites:	None
Recommended Background Knowledge:	521-220 Techniques in Protein & Gene Technology is highly recommended
Non Allowed Subjects:	Students cannot enrol in and gain credit for this subject if previously obtained credit for pre-2009 subject (521-303) Molecular Aspects of Cell Biology
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:	Assoc Prof Marie Bogoyevitch
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>
Objectives:	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 Functional Genomics & Bioinformatics and Protein Structure & Function. It will effectively complement offerings in other Departments that focus on cell biology, infection and immunity, neurobiology etc.
Assessment:	3 hour written exam held in examination period (70%), two 1 hour written examinations held during semester (7.5% x 2 = 15%), Oral presentation (7.5%). 1,000 word written assignment (7.5%)
Prescribed Texts:	Alberts et al "Molecular Biology of the Cell", 5th edition, Garland Science
Breadth Options:	This subject is not available as a breadth subject.
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"> # Critical analysis of research papers and other resource material # Capacity to develop ideas from theoretical principles to practical explanations through observing and reporting research literature # Abilities in collaborative (small team) work through preparation of oral presentations # The capacity to integrate knowledge across disciplines # The ability to comprehend a question, evaluate the relevant information and communicate and answer
Notes:	<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>
Related Course(s):	Bachelor of Biomedical Science Graduate Diploma in Biotechnology
Related Majors/Minors/Specialisations:	Biochemistry and Molecular Biology Biotechnology Cell Biology