521-220 Techniques in Protein & Gene Technology

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 1, - Taught on campus. Semester 2, - Taught on campus.
Time Commitment:	Contact Hours: 12 lectures (one per week), 36 hours of practical work (three hours per week), 12 hours of computer-assisted learning and 11 tutorials (1 per week from Week 2) Total Time Commitment: 120 hours
Prerequisites:	None
Corequisites:	Biochemistry 521-211.
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:	Dr L Helfenbaum
Subject Overview:	This is a subject suitable for students taking life science subjects and combined degrees. The focus of the subject is primarily on the development of practical skills in the laboratory and the understanding of techniques employed in biochemistry to investigate biological problems. This subject should be undertaken by students considering any third-year level study in life science. The subject is a specific prerequisite for most subjects offered by the Department of Biochemistry and Molecular Biology in third year. The subject is conceptually organised into three major divisions: # basic skills, experimental accuracy and data interpretation; # separation and handling of proteins; and # separation and handling of nucleic acids. The lectures will provide a summary of the theory of both classic laboratory techniques and the latest methodology that are central to research progress in biochemistry and molecular biology. The new technologies to be described are driving the emerging fields of genomics and proteomics. Progress in research is predicated not only on asking appropriate questions, but on having the laboratory support and skills to investigate those questions. Students will be able to develop skills of preparation, execution and interpretation of laboratory procedures by performing: # chromatographic separation of small and large biological molecules; # quantitation of macromolecules; # determination of kinetic parameters of a glycolytic enzyme; # purification of the enzyme lysozyme; # purification and characterisation of plasmid DNA; # restriction mapping of the lambda phage genome;

	# polymerase chain reaction to amplify DNA of interest; # interrogation of computer databases in life sciences. Students will learn to relate theoretical principles to practical explanations, through observing and reporting on practical work.
Assessment:	Ongoing computer-based assessment during the semester (5%); continuous assessment through the semester by completing written reports and related exercises for each practical activity (50%); a 1-hour laboratory practical test during the semester (10%); a 50-minute written test held mid-semester (5%); a 2-hour written examination in the examination period (30%). Satisfactory completion of the continuous assessment component is necessary to pass the subject (hurdle requirement).
Prescribed Texts:	None
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. Not available to students enrolled in the BBiomedSc. Before the commencement of the semester, students must advise the Department of Biochemistry and Molecular Biology of their order of preference for the alternative practical sessions and the other subjects they will be taking.
Related Course(s):	Bachelor of Food Science Graduate Diploma in Biotechnology