

Biochemistry and Molecular Biology

Year and Campus:	2010																					
Coordinator:	Associate Professor Paul Gooley Department of Biochemistry and Molecular Biology																					
Contact:	prg@unimelb.edu.au																					
Overview:	Biochemistry and Molecular Biology are key biological science disciplines. The knowledge and techniques of the disciplines are applied in many biological fields and have fuelled rapid advances in medical research and biotechnology. This major will provide the springboard for students to enter careers including medical research, biotechnology, agricultural and medical support industries, education etc. This major will develop knowledge in key basic biological processes as well as more specialized areas of molecular science. In addition, an emphasis is placed on developing a foundation in practical skills required for a career as a laboratory scientist. The major will also develop skills in communication, team-work and research essential in the modern scientific workplace.																					
Objectives:	<p>By the end of this major the student should have developed knowledge of:</p> <ul style="list-style-type: none"> # current concepts concerning the molecular bases of genome structure and the mechanisms and consequences of the regulation of gene expression in eukaryotic organisms; # theoretical background to recombinant DNA technology and an appreciation of its biomedical and biotechnological applications; # the significance and applications of human and related genome sequencing programs and bioinformatic techniques used to analyse these data; # how functional genomic approaches can elucidate gene function and can be applied to study human diseases such as cancer; # the structural properties of proteins, the techniques used to study them and how protein engineering is used for investigating structure-function relationships; # the chemistry of basic biological molecule, how they are synthesised and broken down. <p>In addition, students will gain:</p> <ul style="list-style-type: none"> # practical experience in a variety of biochemical techniques, methods for keeping scientific records and scientific report writing, provide experience in simple experimental design and problem solving; and # experience in critical evaluation of scientific literature and to develop skills in presentation of scientific data. 																					
Structure & Available Subjects:	Completion of 50 points of study at third year level																					
Subject Options:	<p>All three of</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BCMB30001 Protein Structure and Function</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>BCMB30002 Functional Genomics and Bioinformatics</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>BCMB30010 Advanced Techniques in Molecular Science</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>Plus one elective selected from</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BCMB30003 Molecular Aspects of Cell Biology</td> <td>March</td> <td>12.50</td> </tr> <tr> <td>BCMB30004 Cell Signalling and Neurochemistry</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>Or one third year level subject from one of the following majors: Cell and Developmental Biology, Chemistry, Genetics, Human Structure and Function, Microbiology, Infection and Immunology, Neuroscience, Pathology, Pharmacology, Physiology, Plant Science, Science Informatics, Zoology.</p>	Subject	Study Period Commencement:	Credit Points:	BCMB30001 Protein Structure and Function	Semester 2	12.50	BCMB30002 Functional Genomics and Bioinformatics	Semester 1	12.50	BCMB30010 Advanced Techniques in Molecular Science	Semester 1, Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	BCMB30003 Molecular Aspects of Cell Biology	March	12.50	BCMB30004 Cell Signalling and Neurochemistry	Semester 2	12.50
Subject	Study Period Commencement:	Credit Points:																				
BCMB30001 Protein Structure and Function	Semester 2	12.50																				
BCMB30002 Functional Genomics and Bioinformatics	Semester 1	12.50																				
BCMB30010 Advanced Techniques in Molecular Science	Semester 1, Semester 2	12.50																				
Subject	Study Period Commencement:	Credit Points:																				
BCMB30003 Molecular Aspects of Cell Biology	March	12.50																				
BCMB30004 Cell Signalling and Neurochemistry	Semester 2	12.50																				
Related Course(s):	Bachelor of Science																					