

# Biochemistry and Molecular Biology

<b>Year and Campus:</b>	2009
<b>Coordinator:</b>	The major in Biochemistry and Molecular Biology is taught by the Department of Biochemistry and Molecular Biology within the Faculty of Medicine, Dentistry and Health Sciences. Associate Professor Ian van Driel Department of Biochemistry and Molecular Biology Email: i.vandriel@unimelb.edu.au Dr Matt Perugini Department of Biochemistry and Molecular Biology Email: perugini@unimelb.edu.au
<b>Overview:</b>	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 provides the springboard for students to enter careers including medical research, biotechnology, agricultural and medical support industries, education and more. This major develops knowledge in key basic biological processes as well as more specialised 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 also develops skills in communication, team-work and research which are essential in the modern scientific workplace.
<b>Objectives:</b>	<p>By the end of this major the student will have developed knowledge of:</p> <ul style="list-style-type: none"> <li># current concepts concerning the molecular bases of genome structure and the mechanisms and consequences of the regulation of gene expression in eukaryotic organisms;</li> <li># theoretical background to recombinant DNA technology and an appreciation of its biomedical and biotechnological applications;</li> <li># the significance and applications of human and related genome sequencing programs and bioinformatic techniques used to analyse these data;</li> <li># how functional genomic approaches can elucidate gene function and can be applied to study human diseases such as cancer;</li> <li># the structural properties of proteins, the techniques used to study them and how protein engineering is used for investigating structure-function relationships;</li> <li># the chemistry of basic biological molecule, how they are synthesised and broken down.</li> </ul> <p>In addition, students will gain:</p> <ul style="list-style-type: none"> <li># 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</li> <li># experience in critical evaluation of scientific literature and to develop skills in presentation of scientific data.</li> </ul>
<b>Subject Options:</b>	<p>Students studying the Biochemistry and Molecular Biology major will be required to complete the following subjects:</p> <p><b>Second Year</b></p> <p>Techniques in Molecular Science</p> <p><i>Please note:</i></p> <ul style="list-style-type: none"> <li># <i>Biochemical Regulation of Cell Function is a recommended second year selective</i></li> <li># <i>Alternative second year level PRACTICAL subjects other than Techniques in Molecular Science may qualify students to major in Biochemistry and Molecular Biology. This will be determined on a case by case basis and will depend on the level of academic achievement of the student.</i></li> </ul> <p><b>Third Year</b></p> <p>Advanced Techniques in Molecular Science Functional Genomics and Bioinformatics Protein Structure and Function</p> <p><i>Plus one subject from:</i></p> <p>Cell Signalling and Neurochemistry (<i>highly recommended</i>) Molecular Aspects of Cell Biology (<i>highly recommended</i>) <i>Or any other third year level, non-practical, subject offered under the Biomedicine major program, with approval of the major coordinator.</i></p>

**NB** Complete information on third year level subjects will be available in the 2010 Handbook which will be published late 2009.

Subject	Study Period Commencement:	Credit Points:
521-220 Techniques in Molecular Science	Semester 1, Semester 2	12.50

**Links to further information:**

[http://www.bbiomed.unimelb.edu.au/bachelor\\_of\\_biomedicine/course\\_structure](http://www.bbiomed.unimelb.edu.au/bachelor_of_biomedicine/course_structure)

**Related Course(s):**

Bachelor of Biomedicine