

Biotechnology

Year and Campus:	2010																											
Coordinator:	Associate Professor Ed Newbigin School of Botany																											
Contact:	edwardjn@unimelb.edu.au (mailto:edwardjn@unimelb.edu.au)																											
Overview:	Biotechnology is the use of biological knowledge to develop new processes and products for use in industry, health, agribusiness and other areas of human technology. Biotechnology advances can be based on knowledge from biological sciences, chemical sciences, physical sciences or engineering. Because of this, the major is not tied to a particular discipline area. The binding concept is that of developing technology from basic discipline knowledge in at least one area of biomedical science.																											
Objectives:	By the end of this major a student should have: <ul style="list-style-type: none"> # Knowledge of the basic principles of cellular and molecular science and bioengineering that underpin developments in biotechnology; # Understood local and global issues in biotechnology in relation to human welfare; # Studied the process by which developments in biotechnology are brought to the market place; and # Gained experience in written and oral presentation. 																											
Structure & Available Subjects:	This major consists of: <ul style="list-style-type: none"> # 50 credit points at the third year level. 																											
Majors/Minors/ Specialisations	Molecular Biotechnology (Genetics stream) Molecular Biotechnology (Cell and Developmental Biology stream) Biomedical Biotechnology (Microbiology & Immunology stream) Biomedical Biotechnology (Pharmacology stream) Biomedical Biotechnology (Biochemistry stream)																											
Subject Options:	<p>Second Year: 202-211 Biotechnology is a recommended subject but not required:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BTCH20002 Biotechnology</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>Third Year Core:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BTCH30003 Biotechnology in Practice</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p>PLUS a specialisation combination from one of the following five streams: Molecular Biotechnology (Genetics stream)</p> <p>Second Year:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>GENE20001 Principles of Genetics</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p>Third Year:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>GENE30002 Genes: Organisation and Function</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>GENE30001 Evolutionary Genetics and Genomics</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p>Plus one subject from:</p>	Subject	Study Period Commencement:	Credit Points:	BTCH20002 Biotechnology	Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	BTCH30003 Biotechnology in Practice	Semester 1	12.50	Subject	Study Period Commencement:	Credit Points:	GENE20001 Principles of Genetics	Semester 1	12.50	Subject	Study Period Commencement:	Credit Points:	GENE30002 Genes: Organisation and Function	Semester 1	12.50	GENE30001 Evolutionary Genetics and Genomics	Semester 1	12.50
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Subject	Study Period Commencement:	Credit Points:
GENE30005 Human and Medical Genetics	Semester 2	12.50
GENE30004 Genetic Analysis	Semester 2	12.50

Molecular Biotechnology (Cell and Developmental Biology stream)

Subject	Study Period Commencement:	Credit Points:
CEDB30002 Concepts in Cell & Developmental Biology	Semester 1	12.50

Plus Two subjects from:

Subject	Study Period Commencement:	Credit Points:
CEDB30003 Developmental Biology	Semester 2	12.50
BIOL30001 Reproduction	Semester 2	12.50
BCMB30003 Molecular Aspects of Cell Biology	March	12.50
BOTA30003 Functional Plant Biology	Semester 1	12.50
BOTA30005 Plant Molecular Biology & Biotechnology	Semester 2	12.50
GENE30002 Genes: Organisation and Function	Semester 1	12.50

Biomedical Biotechnology (Microbiology & Immunology stream)

Second Year:

Subject	Study Period Commencement:	Credit Points:
MIIM20002 Microbes, Infections and Responses	Semester 2	12.50

Third Year:

Subject	Study Period Commencement:	Credit Points:
MIIM30002 Principles of Immunology	Semester 1	12.50
MIIM30013 Techniques in Microbiology & Immunology	Semester 1, Semester 2	12.50
MIIM30011 Molecular and Medical Microbiology	Semester 1	12.50

Biomedical Biotechnology (Pharmacology stream)

Third Year:

Subject	Study Period Commencement:	Credit Points:
PHRM30008 Drugs: From Discovery to Market	Semester 1	12.50
PHRM30009 Drugs in Biomedical Experiments	Semester 1, Semester 2	12.50

Plus one subject from:

Subject	Study Period Commencement:	Credit Points:
PHRM30003 Drug Treatment of Disease	Semester 2	12.50
PHRM30002 Drugs Affecting the Nervous System	Semester 2	12.50

Biomedical Biotechnology (Biochemistry stream)

Second Year:

	Subject	Study Period Commencement:	Credit Points:
	BCMB20005 Techniques in Molecular Science	Semester 1, Semester 2	12.50
	<p>*Alternative year 2 level PRACTICAL subjects other than 521-220: Techniques in Molecular Science may qualify students to complete the Biochemistry stream of the Biotechnology major. This will be determined on a case by case basis and will depend on the level of academic achievement of the student.</p> <p>Third Year:</p>		
	BCMB30001 Protein Structure and Function	Semester 2	12.50
	BCMB30010 Advanced Techniques in Molecular Science	Semester 1, Semester 2	12.50
	BCMB30002 Functional Genomics and Bioinformatics	Semester 1	12.50
Links to further information:	http://www.bbiomed.unimelb.edu.au/		
Related Course(s):	Bachelor of Biomedicine		