

# Biotechnology

<b>Year and Campus:</b>	2010					
<b>Coordinator:</b>	Associate Professor Ed Newbigin School of Botany					
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<b>Overview:</b>	<p>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. For example, agricultural biotechnology will normally involve some core crop and food technology, molecular biotechnology will normally involve some core molecular biology and chemical biotechnology will normally involve some core chemistry together with some biological science.</p>					
<b>Objectives:</b>	<p>By the end of this major the student should 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>Structure &amp; Available Subjects:</b>	Completion of 50 points of study at third year level					
<b>Majors/Minors/Specialisations</b>	<p>There are four specialisations within the Biotechnology major.</p> <table border="1"> <thead> <tr> <th>Major/Minor/Specialisation</th> </tr> </thead> <tbody> <tr> <td>Agri-food Biotechnology</td> </tr> <tr> <td>Molecular Biotechnology</td> </tr> <tr> <td>Biomedical Biotechnology</td> </tr> <tr> <td>Chemical Biotechnology</td> </tr> </tbody> </table>	Major/Minor/Specialisation	Agri-food Biotechnology	Molecular Biotechnology	Biomedical Biotechnology	Chemical Biotechnology
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<b>Related Course(s):</b>	Bachelor of Science					