

# BIEN90001 Biochemical Engineering Research Project

<b>Credit Points:</b>	25															
<b>Level:</b>	9 (Graduate/Postgraduate)															
<b>Dates &amp; Locations:</b>	<p>2015, Parkville</p> <p>This subject commences in the following study period/s:            Summer Term, Parkville - Taught on campus.            Semester 1, Parkville - Taught on campus.            Semester 2, Parkville - Taught on campus.</p> <p>Laboratory, computer or literature-based research project (independent or team-based).            Research Project is usually completed in Semester 2. However, as a special arrangement,            Research Project may be undertaken in Summer Semester and/or Semester 1 with the approval            of the Subject Co-ordinator. It may be possible to complete your Research Project overseas at            another university. If this is of interest, please discuss it with the Subject Co-ordinator.</p>															
<b>Time Commitment:</b>	Contact Hours: 1 x two hour lecture (first week of semester only) + 5 x one hour lectures in the next few weeks of semester Total Time Commitment: Estimated 400 hours															
<b>Prerequisites:</b>	<p>Students must have completed the following subjects prior to enrolling in this subject:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEN30005 Heat and Mass Transport Processes</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>CHEN30001 Reactor Engineering</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p>Prior to 2010 CHEN40003 Reactor Engineering</p> <p>AND one of the following subjects:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEN90031 Bioprocess Engineering</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p>Prior to 2012 CHEN30014 Bioprocess Engineering or BTCH90006 Bioprocess Engineering            Prior to 2013 CHEN90008 Biology for Engineers</p>	Subject	Study Period Commencement:	Credit Points:	CHEN30005 Heat and Mass Transport Processes	Semester 1, Semester 2	12.50	CHEN30001 Reactor Engineering	Semester 1	12.50	Subject	Study Period Commencement:	Credit Points:	CHEN90031 Bioprocess Engineering	Semester 1	12.50
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<b>Corequisites:</b>	None															
<b>Recommended Background Knowledge:</b>	None															
<b>Non Allowed Subjects:</b>	<p>Credit will not be given for this subject and the following subjects:            BIEN40001 Biomolecular Engineering Research Project            CHEN40008 Research Project</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEN90023 Chemical Engineering Research Project</td> <td>Summer Term, Semester 1, Semester 2</td> <td>25</td> </tr> <tr> <td>CHEN90026 Chemical Engineering Minor Research Project</td> <td>Summer Term, Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	CHEN90023 Chemical Engineering Research Project	Summer Term, Semester 1, Semester 2	25	CHEN90026 Chemical Engineering Minor Research Project	Summer Term, Semester 1, Semester 2	12.50						
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<b>Core Participation Requirements:</b>	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description,															

	Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: <a href="http://www.services.unimelb.edu.au/disability/">http://www.services.unimelb.edu.au/disability/</a>
<b>Coordinator:</b>	Prof Geoff Stevens
<b>Contact:</b>	Email: <a href="mailto:gstevens@unimelb.edu.au">gstevens@unimelb.edu.au</a> ( <a href="mailto:gstevens@unimelb.edu.au">mailto:gstevens@unimelb.edu.au</a> )
<b>Subject Overview:</b>	<p><b>AIMS</b></p> <p>Students will undertake as individuals or as a member of a team a designated investigative project which could involve a critical literature review, experimental research and/or development, theoretical modelling, process simulation and/or the solution of an industrial problem. Rigorous planning and scheduling of the project, time management, written and verbal technical communication, interpretation of results and team work will be required. Lectures will be presented on laboratory safety, and the use of statistical methods for experimental data analysis.</p> <p>Engineering graduates need the ability to research topics and to perform structured investigations. This research project subject provides students with an opportunity to develop these skills and to develop an appreciation of the importance of life long learning.</p> <p><b>INDICATIVE CONTENT</b></p> <p>The exact content covered in the subject will depend to some extent on the nature of the research project. Topics covered will most probably include literature searches, laboratory safety, risk assessment, data modelling, data analysis, error analysis and report writing.</p>
<b>Learning Outcomes:</b>	<p><b>INTENDED LEARNING OUTCOMES (ILO)</b></p> <p>On completion of this subject the student is expected to:</p> <ol style="list-style-type: none"> <li>1 Plan and conduct an independent research project in the biomolecular engineering field</li> <li>2 Communicate their research results orally to an audience of their peers</li> <li>3 Analyse experimental data using appropriate statistical methods</li> <li>4 Present a detailed written report.</li> </ol>
<b>Assessment:</b>	<p>A written report of up to 35 pages, not including appendices, diagrams, tables, computations and computer output (50%). Time commitment of approximately 130-140 hours. Intended Learning Outcomes (ILOs) 2 to 4 will be assessed through the student's written report. Students participating in the Endeavour program submit their written report during the exam period. Students not participating in the Endeavour program submit their written report towards the end of semester A 30 minute oral presentation supported either by powerpoint slides or a poster (25%). ILOs 2 to 4 will be assessed through the student's presentation. Time commitment of approximately 65-70 hours. Students participating in the Endeavour program submit their poster and complete their oral presentation towards the end of semester. Students not participating in the Endeavour program complete their oral presentation during the exam period Assessment of the quality of the student's research work (25%). ILO 1 will be assessed through the student's performance in research workspace throughout teaching periods within semester.</p>
<b>Prescribed Texts:</b>	None
<b>Recommended Texts:</b>	None
<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	<ul style="list-style-type: none"> <li># Ability to apply knowledge of basic science and engineering fundamentals</li> <li># Ability to communicate effectively, not only with engineers but also with the community at large</li> <li># In-depth technical competence in at least one engineering discipline</li> <li># Ability to undertake problem identification, formulation and solution</li> </ul>

	<ul style="list-style-type: none"> <li># Ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member</li> <li># Capacity for independent critical thought, rational inquiry and self-directed learning</li> <li># Intellectual curiosity and creativity, including understanding of the philosophical and methodological bases of research activity</li> <li># Profound respect for truth and intellectual integrity, and for the ethics of scholarship.</li> </ul>
<p><b>Notes:</b></p>	<p><b>LEARNING AND TEACHING METHODS</b></p> <p>Students will receive one-on-one instruction on how to complete an open-ended research project on some topic in biochemical engineering. They will undertake a project either individually or as part of a team of two or three students. Students will take responsibility for their time management setting priorities and establishing a program that will allow them to complete their project within the time allowed.</p> <p><b>INDICATIVE KEY LEARNING RESOURCES</b></p> <p>The exact content covered in the subject will depend to some extent on the nature of the research project. Topics covered will most probably include literature searches, laboratory safety, risk assessment, data modelling, data analysis, error analysis and report writing.</p> <p><b>CAREERS / INDUSTRY LINKS</b></p> <p>Many of the projects that will usually be available to the students will relate to some problem or activity found in the process industries.</p>
<p><b>Related Majors/Minors/ Specialisations:</b></p>	<p>B-ENG Chemical and Biomolecular Engineering stream Master of Engineering (Biochemical)</p>