

# COMP40001 Computer Science Research Project

<b>Credit Points:</b>	37.5
<b>Level:</b>	4 (Undergraduate)
<b>Dates &amp; Locations:</b>	2015, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus. Semester 2, Parkville - Taught on campus.
<b>Time Commitment:</b>	Contact Hours: Students are required to attend regular meetings with their supervisor. Total Time Commitment: Approximately 510 hours
<b>Prerequisites:</b>	Students must have approval of the subject coordinator to enrol in COMP40001.  Prerequisites are: Study at the third-year level in at least four of the following areas: # Artificial intelligence computer design # Database systems, graphics # Interactive system design # Networks and communications # Operating systems, programming languages # Software engineering # Theory of computation.
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	None
<b>Non Allowed Subjects:</b>	None
<b>Core Participation Requirements:</b>	<p>&lt;p&gt;For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.&lt;/p&gt; &lt;p&gt;It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: &lt;a href="http://services.unimelb.edu.au/disability"&gt;http://services.unimelb.edu.au/disability&lt;/a&gt;&lt;/p&gt;</p>
<b>Coordinator:</b>	Prof James Bailey
<b>Contact:</b>	email: <a href="mailto:baileyj@unimelb.edu.au">baileyj@unimelb.edu.au</a> ( <a href="mailto:baileyj@unimelb.edu.au">mailto:baileyj@unimelb.edu.au</a> )
<b>Subject Overview:</b>	<p><b>AIMS</b></p> <p>Students undertake a research investigation under the supervision of a member of the academic staff and in the context of one of the departmental research groups. This subject is available only to students enrolled in the BSc(Honours) and BCS(Honours) degrees. Students enrol in the Computer Science Research Project over one, two or three semesters, depending upon their individual course plan. The subject will be weighted at 12.5, 18.75, 25, or 37.5 points per semester of enrolment, depending upon the other subjects that comprise the course plan, and whether the student is part-time or full-time. A grade will only be awarded when 37.5 points of enrolment have been successfully completed.</p> <p><b>INDICATIVE CONTENT</b></p>

	As a research subject, content is different for each student. Common content includes the process of research, writing a research report, and constructing and giving a research presentation.
<b>Learning Outcomes:</b>	<p><b>INTENDED LEARNING OUTCOMES (ILO)</b></p> <p>The objective of this subject is to allow students to get some research experience by studying a selected topic in detail under the supervision of a member of academic staff. Having completed this unit the student is expected to gain research training and skills in:</p> <ol style="list-style-type: none"> <li>1 Formulation of a research problem</li> <li>2 Independent critical thinking, rational inquiry and self-directed learning on medium or large size problems, applying computer science knowledge to medium or large size problems, especially with real-life applications</li> <li>3 Design and development of complex software systems to solve research problem</li> <li>4 Systematically evaluating the performance or quality of a software system</li> <li>5 Formal writing of technical contents and reporting the work in written form</li> <li>6 Presenting the work orally and answering questions about it</li> </ol>
<b>Assessment:</b>	One 10,000 - 12,000 word research report, due in the second week of the examination period, (90%) One 20 to 30 minute presentation, including answering audience questions, of the work or demonstration of a working system, given in week 12, requiring approximately 10 -13 hours of work (10%). A research project is usually done on individual basis. To pass this subject, the student must obtain at least 50% overall. The research report will present an introduction to the field of research and the topic addressed, explain the work undertaken in this project, relate the work to previous work in the field, and explain the significance of the results. Intended Learning Outcomes (ILOs) 1, 2, 3 and 4 are addressed mainly in the supervision process. ILO 5 is addressed by the final report. ILO 6 is addressed by the final presentation.
<b>Prescribed 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>	<p>On completion of this subject; students should have the following skills:</p> <ul style="list-style-type: none"> <li># Have intellectual curiosity and creativity, including understanding of the philosophical and methodological bases of active research</li> <li># Have gained experience in computer science research</li> <li># Be able 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># Be able to undertake problem identification, formulation and solution</li> <li># Have a capacity for independent critical thought, rational inquiry and self-directed learning</li> <li># Have a profound respect for truth and intellectual integrity, and for the ethics of scholarship.</li> </ul>
<b>Notes:</b>	<p>This subject is available only to students enrolled in the BSc(Honours) and BCS(Honours) degrees. Students enrol in the Computer Science Research Project over one, two or three semesters, depending upon their individual course plan. The subject will be weighted at 12.5, 18.75, 25, or 37.5 points per semester of enrolment, depending upon the other subjects that comprise the course plan, and whether the student is part-time or full-time. A grade will only be awarded when 37.5 points of enrolment have been successfully completed.</p> <p><b>LEARNING AND TEACHING METHODS</b></p> <p>This is purely a research subject. There are two lectures of up to one hour duration covering the running of the subject and on how to give a research presentation. Additionally there are individual meetings with an academic supervisor of at least 12 hours over a semester to provide reading suggestion, give feedback on the student's work and guide research direction. The student is expected to:</p> <ol style="list-style-type: none"> <li>1 Read research papers in the related area, i.e., to perform a literature review</li> <li>2 Think critically about existing solutions to the research problem</li> <li>3 Try to develop new and better solutions to the research problem</li> <li>4 Implement the solution and evaluate the solution</li> </ol>

**INDICATIVE KEY LEARNING RESOURCES**

The key learning resource for this subject is one-on-one academic guidance. It usually involves recommended books, recent conference papers and journal articles related to the research topic.

**CAREERS / INDUSTRY LINKS**

Students are given a guest lecture by a computer scientist from industry or an external research organisation, which highlights the challenges of developing and deploying cutting-edge computing projects in practice. Examples are also given of research career opportunities in computer science. Some projects may have industry involvement. The skills of carrying out independent research, writing reports, and preparing and giving presentations are valued in industry.