CHEN90034 Research Methods

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2013.
Time Commitment:	Contact Hours: 1x three hour lectures per week and 6 x one hour seminars per semester Total Time Commitment: 120 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	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. 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: http://services.unimelb.edu.au/disability
Contact:	Andrea O'Connor **a.oconnor@unimelb.edu.au (mailto:a.oconnor@unimelb.edu.au)**
Subject Overview:	The aim of engineering and scentific research is to produce new knowledge. To be useful, new knowledge must be able to stand up to scrutiny, and its presentation to other researchers and/or to the public must be persuasive. This subject is an introduction to the processes of research as they apply to chemical and biomolecular engineering, incuding chemical and biological safety and risk assessment, locating and critically analysing relevant literature, designing experiments and/or computational modelling, analysing data, writing papers, giving presentations and refereeing. Underlying all of these, the subject will foster the development of critical thinking, a skeptical, scientific perspective, and professional ethics.
Objectives:	On completion of this subject students should be able to: # Understand the importance of safety and risk assessment in the conduct of experimental research # Describe the roles of rigour and skepticism in producing results of high impact # Understand relevant statistical techniques including the use of error bars, t-statistics ANOVA and non-linear linear regression analysis # Explain the ethical guidelines governing academic research # Demonstrate knowledge of and experience in research planning, conduct and analysis and in written and spoken communication
Assessment:	A literature review of approximately 2,000 words, including a competitor analysis on a chosen research topic, due around mid semester (20%) An oral presentation on a research topic, due in the second half of semester (10%) A research plan of up to 2,000 words, focusing on research questions with justifications and discussion of plausible outcomes, due around the end of the semester (10%) Reviews of two research papers, due throughout semester (20%) A two hour exam at the end of semester. (40%) Passing the final exam and attendance at a minimum of 5 Departmental Seminars are required to pass the subject.
Prescribed Texts:	None

Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Related Course(s):	Master of Philosophy - Engineering Ph.D.- Engineering