Graduate Diploma in Applied Science (SC71)

Year offered: 2011
Admissions: Yes
CRICOS code: 020314E
Course duration (full-time): 2 semesters (1 year)
Course duration (part-time): 4 semesters (2 years)
Domestic Fees (indicative): 2011: CSP $2,178 (indicative) per semester
International Fees (indicative): 2011: $12,000 (indicative) per semester
Domestic Entry: February and July
International Entry: February
Total credit points: 96
Standard credit points per full-time semester: 48
Standard credit points per part-time semester: 24
Course coordinator: Associate Professor Terry Walsh
Discipline coordinator: Dr Geoffrey Will (Chemistry Major); Dr Mark O'Brien (Life Science Major); Dr Troy Farrell (Mathematics Major); Associate Professor Peter Mather (Natural Resource Sciences Major); Dr Andrew Fielding (Physics Major)
Campus: Gardens Point

Overview
This course offers students currently employed in industry the opportunity to upgrade their professional qualifications in one of our science disciplines. The course is a one-year-full-time (or two-year-part-time) postgraduate qualification by coursework, or coursework and a minor research project.

Career Outcomes
Graduates find employment in hospitals, health departments, mining companies, tertiary institutions and medical instrumentation companies, in careers such as medical physicists or biomedical engineers.

Course Design
This coursework program allows students to complete a minor research project of up to 36 credit points in some disciplines (as approved by the Academic Board). The assessed coursework may include advanced lectures, seminars, reading units or independent study designed to focus on information retrieval skills. Coursework units are chosen from those in the Master of Applied Science course and may contain units from other postgraduate courses, the Bachelor of Applied Science (Honours) program or advanced undergraduate programs.

Limits on grades of 3
A new policy concerning grades of 3 came into effect from 1 January 2009 (QUT MOPP C/5.2). With effect from this date grades of 3 are no longer considered a conceded or low pass but are classified as a fail grade. Any grades of 3 awarded prior to 1 January 2009 retain the conceded pass status and will be counted for graduation purposes up to the maximum number of grades of 3 permitted for your course. Grades of 3 incurred in units that commence after 1 January 2009 will not count towards your degree. Further information is available on the Student Services website.

Further Information
For further information about this course, please contact:
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Course structure - Chemistry Strand
PCN701 Topics in Advanced Chemistry 1
PCN705-1 Research Methodology
PCN705-2 Research Methodology
PCN710 Chemical Instrumentation
PCN720 Chemometrics

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UNIT SYNOPSISES

LSN011 RESEARCH SEMINARS IN LIFE SCIENCE 1
Your transition from undergraduate scholar to reliable and productive researcher requires an ability to present research findings and their critical analysis in an oral form. Oral presentation is a significant skill in academic, industrial and clinical research settings. The primary aim of this unit is to help you communicate your research ideas and outcomes effectively and articulately.

Corequisites: LSN013  Credit points: 12  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 SEM-2

LSN013 READINGS IN LIFE SCIENCE 3
Scientific investigations by an individual or a group of individuals from Australian Institutions require in-depth knowledge of the field of research. Literature reviews are undertaken by all researchers prior to commencing, (and throughout), their research projects. This unit will provide postgraduate students with the skills and strategies required for writing a critical literature review that may potentially be submitted for publication in the relevant Journals in the field. The aim of this unit is to provide you with the strategies required for writing a substantial critical literature review.

Corequisites: LSN011  Credit points: 24  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 SEM-2

LSN023 RESEARCH SEMINARS IN LIFE SCIENCE 3
Your transition from undergraduate scholar to reliable and productive researcher requires an ability to present research findings and their critical analysis in an oral form. Oral presentation is a significant skill in academic, industrial and clinical research settings. The primary aim of this unit is to help you communicate your research ideas and outcomes effectively and articulately.

Prerequisites: LSN011 and LSN013  Credit points: 12  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 SEM-2

NRN100 READINGS IN NATURAL RESOURCE SCIENCES 1
This unit includes a review of literature in an area of direct relevance to the research project. The review should be designed in conjunction with the supervisor and demonstrate a broad appreciation of the literature, a critical appraisal of research to date, and the relevance of the research project within the framework of current understanding. Reviews should normally be approximately...
5000 words.

**Credit points:** 12  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**NRN101 READINGS IN NATURAL RESOURCE SCIENCES 2**

This is a companion unit to NRN100 that allows students to (a) prepare a review of a second area relevant to the research project or (b) consider a wider subject area in greater depth. If option (b) is chosen, a single review can qualify as total assessment for both NRN100 and NRN101. In this case, the review should be approximately 10,000 words and be a critical analysis of a substantial research area.

**Credit points:** 12  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**NRN104 ADVANCED TOPICS IN NATURAL RESOURCE SCIENCES 1**

Students develop an advanced understanding of a topic in the natural resource sciences that is highly relevant to the general area of their proposed research project. The structure and content is variable and can be tailored to the specific requirement of each project and the background of the student. A formal outline of the unit including objectives, content and assessment relevant to the individual course of study will be developed by the supervisor and approved by the Head of School. Content may include active participation in tutorials, workshops, laboratory/field techniques and components of advanced level undergraduate units. If components of advanced level undergraduate units are included, they should not exceed 70% of the total assessment.

**Credit points:** 12  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**NRN105 ADVANCED TOPICS IN NATURAL RESOURCE SCIENCES 2**

Material presented in this unit must be distinct from that covered in NRN104. Students develop an advanced understanding of a topic in the natural resource sciences relevant to the area of their proposed research project. A formal outline of the unit outlining objectives, content and assessment relevant to the individual course of study will be developed by the supervisor and approved by the Head of School. Content may include active participation in tutorials, workshops and laboratory/field techniques and components of advanced level undergraduate units. If components of advanced level undergraduate units are included, they should not exceed 70% of the total assessment.

**Credit points:** 12  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**PCN701 TOPICS IN ADVANCED CHEMISTRY 1**

The complexity of the chemical systems studied in a research program and the sophistication of the instrumentation used demand that deeper theoretical understanding than that acquired in an undergraduate program. The aims of this unit are to teach and extend knowledge and comprehension of Advanced Chemical Techniques and assess application of knowledge; and to provide the candidate with the appropriate theoretical and practical background, at an advanced level, necessary for the completion of a research program.

**Credit points:** 12  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**PCN705 RESEARCH METHODOLOGY**

This unit is a guided program of literature surveys to provide the background information for the research project. This unit enables students to develop verbal and oral communication skills required for the successful conduct of a chemical research project. During the course students will be required to attend and participate in seminars. Students must present two seminars on their own research. (12 credit points achieved at completion of PCN705-1 and PCN705-2.)

**Credit points:** 6  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**PCN710 CHEMICAL INSTRUMENTATION**

For those projects in which instrumental design forms a major part of the research activity a knowledge of the mode of operation of existing chemical instrumentation provides an important basis for further progress. Students will undertake study in chemical instrumentaton in both practical and theoretical means.

**Credit points:** 12  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**PCN715 ADVANCED TOPICS IN PHYSICS 1**

This unit provides a focused theoretical foundation for each students research program or other advanced topics in physics and develops a high level of theoretical understanding of the physical principles involved.
PCN716 ADVANCED TOPICS IN PHYSICS 2
This unit provides a focused theoretical foundation for each student's research program or other advanced topics in physics and develops a high level of theoretical understanding of the physical principles involved.

Credit points: 12  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 SEM-2

PCN720 CHEMOMETRICS
This unit includes the following: the concepts of chemical data acquisition and interpretation; computational methods and existing software packages for statistical analysis in chemistry; statistical methods in quality and process control; sampling procedures; multivariate analysis and optimisation techniques.

Credit points: 12  Campus: Gardens Point  Teaching period: 2011 SEM-1

PCN730 ADVANCED PHYSICAL METHODS IN CHEMISTRY
Research projects in chemistry are frequently dependent on instrumental and physical procedures both for monitoring preparative procedures and for studying fundamental chemical phenomena. The aim of this unit is to prepare students to undertake practical work in instrumental and physical procedures.

Credit points: 12  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 SEM-2

PCN740 LABORATORY TECHNIQUES FOR PREPARATIVE CHEMISTRY
Before an advanced practical project, particularly one involving organic synthesis, is undertaken it is necessary to develop specialised laboratory skills in preparative chemistry so that the candidate can have the confidence to handle and purify the small quantities of often precious material which he will encounter during the project. The aim of work in this unit is to cultivate and deepen understanding of systems and processes related to organic synthesis, to develop and enhance laboratory skills and techniques related to handling and purifying precious materials. Development of these skillsets is designed to lead to competence in designing and undertaking advanced practical work.

Credit points: 12  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 SEM-2

PCN801 TOPICS IN ADVANCED CHEMISTRY 2
The complexity of the chemical systems studied in a research program and the sophistication of the instrumentation used demand that deeper theoretical understanding than that acquired in an undergraduate program. The aims of this unit are to extend and deepen the theoretical and practical background required for undertaking a research program and to provide the candidate with the appropriate theoretical and practical background, at an advanced level, necessary for the completion of a research program.

Credit points: 12  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 SEM-2