



DEAKIN
UNIVERSITY AUSTRALIA

**SCIENCE AND
ENVIRONMENT**

POSTGRADUATE

| MELBOURNE | GEELONG | WARRNAMBOOL | OFF CAMPUS

2012

BIOTECHNOLOGY |

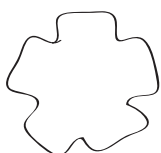
ENVIRONMENTAL MANAGEMENT |

NATURAL AND CULTURAL RESOURCE MANAGEMENT |

OCCUPATIONAL HYGIENE |

RESEARCH DEGREES |

SUSTAINABLE WATER MANAGEMENT |



SCIENCE AND ENVIRONMENT

Welcome



Professor Guang Shi.

The School of Life and Environmental Sciences is ambitious in its scope, encompassing a wide range of disciplines from biomedical science to environmental management. These two fields are at the ends of a continuum which has at its central point, the biology of living organisms. We aspire to be Australia's best school of life and environment, known for outstanding teaching and research at the cutting edge of the interface between the physical, biological and environmental sciences.

The School offers a range of highly relevant postgraduate courses that produce well-informed, employable and adaptable graduates with a broad skill base, an understanding of their chosen field and its social and commercial contexts, and a capacity for lifelong learning. We also undertake innovative research that creates new knowledge in science and environment with far-reaching applications for the benefit of industry and the community, and we offer research degrees leading to PhD in these areas. In this way we help Deakin University achieve its vision of being Australia's most progressive university. Deakin is already Australia's fastest growing research university, and the School of Life and Environmental Sciences has made a significant contribution to this impressive research growth.

Across the School, we pride ourselves on the relevance of our degrees to industry, and our responsiveness to the rapidly changing demands of employers. Our Advisory Boards, consisting of key industry leaders, assist us to ensure the relevance of our courses, and to help us define and develop the skills set that employers expect of top graduates. We have strong relationships with industry and the professions and most of our courses provide opportunities for you to gain work experience as part of your degree.

It is certainly an exciting time to be part of these fields and we hope you accept our offer to join us in building a rewarding future.

I look forward to welcoming you to Deakin University.

Professor Guang Shi
Head of School

Finding more information

2012 Postgraduate Course Guide

This guide provides a list of the postgraduate courses Deakin offers, detailed information about types of postgraduate study, how to apply, our campuses, and study options, such as part time and off campus (distance education). To request a copy phone 1300 DEGREE (1300 334 733) or download at www.deakin.edu.au.

Postgraduate study area booklets

Deakin has a range of postgraduate study area booklets. These booklets provide more information about each course, including course structures, career opportunities and unit descriptions.

Visit our web site

Visit our web site for more comprehensive information including details of new courses, campuses, facilities, fee and support services at www.deakin.edu.au. To search for courses and view unit descriptions visit www.deakin.edu.au/courses.

Talk to us

If you require more information or would like to speak with a student adviser, call 1300 DEGREE (1300 334 733). You can also contact us via email: enquire@deakin.edu.au.

Visit us

There are numerous opportunities to talk face-to-face with Deakin staff at events such as Open Day and Postgraduate Information Nights. See the inside back cover of this guide for details.

Contents



Using this booklet

This booklet provides you with detailed information about Deakin's postgraduate courses in Science and Environment (for domestic students), including course overviews, course structures, career opportunities and detailed descriptions of individual units at the back of the booklet.

It is designed to be read in conjunction with the *2012 Postgraduate Course Guide*, which gives an overview of Deakin's postgraduate courses, detailed information about types of postgraduate study, how to apply, our campuses, student support services and study options such as part time and off campus (distance education).

Once you have chosen the course you want to study, applying to study at Deakin is easy. You can apply online, track the progress of your application and accept your offer at www.deakin.edu.au/apply.

Deakin University also produces course guides specifically for international students. To request a copy, phone Deakin International on +61 3 9627 4877.

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About postgraduate study

What is postgraduate study?

Postgraduate courses are for students who have completed an undergraduate degree or for those with significant work experience. You can start postgraduate studies to advance your career or change direction to a completely new field. It can also give you the opportunity to pursue study in a discipline area of personal interest. In particular, it can allow you to extend your undergraduate studies through research degrees where you can pursue your own theories or ideas at a high conceptual level. You may undertake postgraduate study by coursework or research. The best option for you will depend on your reasons for studying.

What are coursework programs?

A postgraduate coursework degree typically involves a series of units, with specific coursework and assessments. Our postgraduate coursework programs give you the opportunity to complete a **graduate certificate** (designed to enable you to develop skills in a specialised area not necessarily related to your undergraduate degree), **graduate diploma** (more specialised and generally vocationally-focused) or **masters by coursework** (intensive course in which the qualification is directly relevant to your career) in a structured learning format. We also offer a **Doctor of Business Administration (DBA)**, which represents the highest level of educational achievement for professionals who want to develop research capability which may be directly applied to business practice. The program consists of both coursework and a major research project.

What are research degrees?

A research degree involves completing an approved program of research under the guidance of one or more supervisors within a prescribed time period. Research degree programs encourage you to develop independent research skills and are for students who want to pursue their own theories and ideas at a high conceptual level. Deakin offers three types of research degrees – masters by research (usually involving some coursework and a thesis of not more than 50 000 words), Doctor of Philosophy (PhD) (usually involving some coursework and a thesis of not more than 100 000 words) and Doctor of Psychology (combining a research project, coursework and structured research tasks that are specifically related to professional practice and are often carried out in the workplace).

What is Credit for Prior Learning?

Credit for Prior Learning is credit granted towards your Deakin course for relevant approved study or work experience. There are two aspects to Credit for Prior Learning:

- » credit may be transferred to your Deakin program from completed or partially completed studies you have undertaken at other accredited institutions; and
- » credit may be granted on the basis of knowledge and skills acquired through uncredentialed learning.

Benefits of postgraduate study

No matter what stage of your career you are at, postgraduate study can help you stand out in the marketplace and expand your networks. Research found the main benefits of postgraduate study are:

- » increased income – on average, people with postgraduate qualifications earn as much as \$18 000 more per year compared to those with only a bachelors degree (*Postgraduate Destinations 2007*, produced by Graduate Careers Australia)
- » increased job satisfaction – a 2010 survey* found that students who completed Deakin postgraduate programs increased their job satisfaction by 93 per cent within 12 months
- » career advancement – a 2010 survey* of Deakin graduates found that 42 per cent attained a more senior position within 12 months of completing their postgraduate studies.

* Research conducted by First Point Research and Consulting in 2010.



Student support services

Deakin University offers a complete range of services and programs to support students throughout their studies.

- » **Study advice** – including time management, reading and note-taking, developing your academic English, avoiding plagiarism, critical thinking, writing essays and reports, class presentations and exam preparation.
- » **Career development and employment** – including career guidance, job search assistance, and interview and resume skills training.
- » **Counselling and personal support** – professional and experienced counsellors provide free, confidential counselling where personal concerns or stresses are affecting your studies.
- » **Financial support** – including interest-free loans, grants, food vouchers and rental assistance.
- » **Religious services** – including spiritual counselling, faith support services and worship and prayer spaces.
- » **Medical centre** – medical and nursing healthcare and advice to students across all campuses, including GP consultations, vaccinations, tests and screenings and referrals to specialists.
- » **Library** – access more than 1.47 million books, journals, newspapers, videos, CDs and DVDs across the campus libraries. Off-campus students located in Australia may have print material from any campus library sent to their nominated address free of charge. Many of the library's resources are also available online.

- » **IT at Deakin** – all students can access 24-hour computer laboratories on each campus, and email and internet access for study purposes.
- » **Disability services** – the Disability Resource Centre can provide students who have a health condition or a disability (long term or temporary) that affects access or ability to study, with alternative assessment arrangements, academic support workers, study materials in accessible formats and help with assistive technology.

For more information about postgraduate study at Deakin, please refer to the *2012 Postgraduate Course Guide* or visit www.deakin.edu.au/postgrad.

Flexible delivery

Deakin's postgraduate courses are designed to be flexible so you can study when and where it suits you. You don't have to be a full-time, on-campus student to gain a postgraduate qualification at Deakin. We offer a range of study options and modes to choose from, including off-campus study.

Find out what will best suit you in the *Choose how you study* section on page 20, or get in touch using the contact details at the back of this booklet.



Belinda Christie
Bachelor of Environmental Science (Environmental Management), 2008
Bachelor of Environmental Science (Honours), 2009
Currently: Doctor of Philosophy
Melbourne Burwood Campus

'I chose to study at Deakin because it was only place I could find with an emphasis on environmental management and sustainability. I wanted a macro view of the world. Deakin recognises the human dimensions of environmental science, allowing me to investigate sustainability and still undertake an environmental science degree.

At Deakin, I have had countless opportunities for work placements and volunteering. The degrees weren't just about theory – equal attention was given to theoretical and practical industry-based learning. In my first semester of my undergraduate degree we were asked to volunteer for an environmental organisation. Shortly after volunteering, I was offered a job. Five years on, I still work there. During

my undergraduate courses I undertook four formal work placements, and several volunteer opportunities. I even spent a few months volunteering in the Amazon. It was this industry experience during my degree that made the difference when I graduated.

'I even spent a few months volunteering in the Amazon. It was this industry experience during my degree that made the difference when I graduated.'

The most important aspect of my degrees at Deakin was that I learnt to become a sustainable global citizen myself. Yes I learnt the theory, but I also graduated with critical thinking skills that

enable me to take a holistic view of problems – viewing them from an environmental, economic and social perspective.

Currently I'm investigating education for sustainability, critical thinking and teaching methods in Australian university classrooms. This research will help ensure every student, no matter what major or discipline they study, graduates with a working knowledge of how to make both their professional and personal lives more sustainable.

Research is a highly dynamic and engaging learning platform. It's the process of discovery that is most engaging. It's nice to feel like I'm making a contribution to environmental science and to my local and global community.'

About Science and Environment

Applied science

Deakin's Master of Applied Science has been designed to increase your breadth and depth of knowledge, and application of skills, in contemporary scientific processes, as well as in a specialisation chosen from the areas of occupational hygiene, sustainable water management and environmental management.

Occupational hygiene

Occupational hygiene is concerned with the recognition, evaluation and control of workplace factors that may result in illness, impaired health and wellbeing, or significant discomfort and inefficiency amongst workers.

These factors include toxic chemicals, ionising and non-ionising radiation, noise and vibration, heat and cold stress, as well as ergonomic and psychological factors. An occupational hygienist is someone who is qualified to recognise these occupational factors and understand their effect on humans; evaluate the magnitude of these factors and of the response of individuals exposed to them and select methods to eliminate or control them.

Environmental management

Environmental management involves a multi-disciplinary approach to examining why impacts on the environment occur and developing appropriate solutions to managing these impacts. Approaches to environmental management today tend to be based on the concept of the 'triple bottom line', being the management of the environmental, social and economic issues.

Balancing the need for resource use and providing jobs, but also minimising environmental consequences requires specialist skills and knowledge. Environmental managers need to be able to understand government policy direction, legislative compliance issues and to analyse risk to the environment. They may be employed in many diverse areas in both the government and the private sector, addressing a diverse range of issues, from waste management through to resource protection.

Sustainable water management

Managing our water resources and working effectively as a sustainable water management professional requires an understanding of the complex, interdisciplinary aspects of the field.

The sustainable water management specialism is designed to provide students with an opportunity to increase the breadth and depth of their knowledge and application of skills in the area. The multidisciplinary nature of the course addresses the complex, interdisciplinary aspects of managing resources by helping students integrate the biological and physical sciences (which identify and measure problems) with engineering (which defines technological alternatives) and law and the social sciences (which assess needs and potential for institutional response). A student gains breadth in relevant planning and management areas while developing depth in an area of speciality. The sustainable water management specialisation will prepare students for employment as water resource management professionals.

Biotechnology

Biotechnology is an exciting and emerging industry sector that covers molecular biology, human and animal health, pharmaceuticals environment, agriculture, medical devices, nanotechnology and related sciences and manufacturing, together with the associated business, regulatory, and intellectual property skills. It is one of the fastest growing scientific sectors and industries.

Deakin's postgraduate biotechnology program has been introduced in response to the demand for multi-skilled biotechnologists in Australia and overseas.

The courses equip you with a thorough understanding of the very latest techniques and emerging developments in the exciting and innovative area of biotechnology.

You will benefit from the state-of-the-art facilities and cutting-edge research at the Geelong Technology Precinct. You will undertake broad studies that cover biopharmaceuticals, drug development and clinical trials, medical devices, medical biotechnology, stem cells, regenerative medicine, applied agricultural biotechnology, food biotechnology, bio-processing, industrial biotechnology, environmental biotechnology, nanotechnology, frontier techniques in biotechnology including RNAi and Microarray, global and Australian regulatory schemes, intellectual property laws and commercialisation, venture capital and capital raising.

The program's distinctive blend of applied science and management-focused units ensures that graduates are highly employable, with the ability to work in industrial, innovative, regulatory, emerging and commercial biotechnology sectors.



Tim Bowser
Commercialisation Manager
GlaxoSmithKline Australia –
Chemicals Division

'GlaxoSmithKline (GSK) is a global, research-based pharmaceutical and healthcare company. Deakin graduates display good practical skills and self-confidence which allows them to learn quickly and adapt to the work environment. Deakin graduates have also displayed leadership capabilities which have led them on career paths that include roles in senior management at GSK Australia's manufacturing operations.'

Careers

You will graduate with knowledge, skills and experience in biotechnology that can be applied in both research and commercial environments. These skills are in high demand worldwide and markets are developing rapidly in Australia and the entire Asia Pacific region.

As a graduate, you may work with biopharmaceutical companies, medical devices companies, hospitals, medical institutions, agricultural companies, government departments and institutes, CSIRO, regulatory bodies, stock exchange, business management companies and intellectual property law companies.

Industry focus

Deakin's postgraduate biotechnology program has been developed using input from Australian and global industry leaders. You will benefit from a program that is up-to-date and relevant to the demands of the modern biotechnology industry.

The courses have a strong industry focus, giving you the opportunity to undertake a major project in a biotechnology related area. Industry experts provide guest lectures on the latest developments and emerging techniques.

Our Advisory Board membership includes personnel from diverse and highly respected organisations.

Natural and cultural resource management

The Graduate Diploma of Natural and Cultural Resource Management provides the knowledge and skills for Aboriginal and Torres Strait Islander specialists who work in, or intend to work in the areas of: Aboriginal and Torres Strait Islander land management, cultural heritage protection and management, research, project management, caring for country policy, environmental policy analysis and issues of sustainability. The course is designed to increase knowledge and skills in interpreting significance, cultural mapping, developing techniques for collaboration in the natural and cultural resource management arena, analysing policy, researching for land management and creating frameworks for sustainability.

The course is taught through Deakin University's Institute of Koorie Education located at the Geelong Wurn Ponds Campus. The Institute of Koorie Education offers the course under the community-based mode of delivery whereby you attend three one-week long intensives per trimester and stay at the Kitjarra Residences. During that time, lectures, workshops and field trips are delivered. You also study in your own community with online and telephone support.

The course content and assessment tasks are designed so that you can draw on information, projects and issues that are from your own community which introduces a more localised connection to your environment and community. Students attend from all around Australia and draw on each other's knowledge and experience. Workshop style activities and guest speakers enrich the course to introduce a practical component. During the course, you will also be introduced to national, state and local frameworks and natural and cultural resource management structures and policy.

For more information on the course including application and admission requirements, please visit the Institute of Koorie Education's web site www.deakin.edu.au/ike.

One intake per year is offered at the start of Trimester 1.





*Matthew Owen
Graduate Diploma of Occupational Hygiene*, 2009
Off campus/Geelong Waurn Ponds Campus
Employed: Senior Occupational Hygiene Consultant
and Head Laboratory Technician, Identifibre*

Working as an Occupational Hygiene Consultant, Matthew Owen wanted a postgraduate qualification that would not only further his knowledge and skills but also allow him to accelerate his career.

'I chose Deakin because it offered the only occupational hygiene course in Australia that is recognised nationally and internationally,' he says.

Occupational hygiene is now one of the specialisms offered in Deakin's Graduate Certificate of Applied Science and Master of Applied Science courses.

Matthew says the course gave him the opportunity to work closely with 'Deakin's occupational hygiene team who are well-known and highly respected throughout the industry.'

Practical experience was also an important aspect of the program.

'I had the opportunity to gain great hands-on experience with up-to-date equipment

that I would not normally come across in my daily work . . . I also had to investigate a very interesting and sensitive site as part of my major thesis project,' he says.

'I had the opportunity to gain great hands-on experience with up-to-date equipment that I would not normally come across in my daily work . . . I also had to investigate a very interesting and sensitive site as part of my major thesis project.'

Working with an asbestos and hygiene management services company, Matthew has now moved from a junior to a senior consultant position within the organisation.

'As a direct result of my studies, both myself and the company as a whole have expanded the

services offered to our clients . . . this includes services such as lead monitoring, project management and site contamination consulting.'

Matthew says each day provides new challenges and different experiences.

'I get the opportunity to regularly travel throughout Victoria and occasionally interstate, attend interesting sites and work with a variety of different people. My job provides daily variety, averting the feel of career stagnation!'

Matthew is looking forward to continued work with the company and the opportunity to develop new areas of study and services for their clients.

'I'd like to help build and grow the company with the skills I have learned from my postgraduate studies.'

* Deakin now offers occupational hygiene as a specialism in the Graduate Certificate of Applied Science and Master of Applied Science.

Science and Environment postgraduate coursework degrees

Course name	Course code	Years full time and campus	Trimester intake options ²	Indicative 2011 annual fee FT ¹	Page
Graduate Certificate of Applied Science specialisms in environmental management (X), occupational hygiene (X), and sustainable water management (G, X)	S505	0.5 G X	T1, T2	\$11 790 (FPP)	8
Master of Applied Science specialisms in environmental management (X), occupational hygiene (X), and sustainable water management (G, X)	S705	1.5 G X	T1, T2	\$23 500 (FPP)	8
Graduate Certificate of Biotechnology	S572	0.5 G	T1, T2	\$12 130 (FPP)	10
Master of Biotechnology	S772	1 G	T1, T2	\$24 220 (FPP)	10
Master of Biotechnology (Honours)	S771	2 G	T1, T2	\$24 040 (FPP)	13
Graduate Diploma of Natural and Cultural Resource Management	S662	1 G X	T1, T2	\$19 790 (FPP) \$6090 (CSP)	13

Information correct at June 2011, Deakin University reserves the right to alter, amend or delete course offerings and other information listed.

- 1 Fees quoted are for Australian domestic students and should be used as a guide only. Fees are based on a typical enrolment in one year of full time study. All fees quoted are for Fee Paying Places, unless indicated CSP (Commonwealth Supported Place). Actual tuition fee charged may depend on the units studied and are subject to change. Masters program students please note: where the length of the masters program is 12 units or 1.5 years of full time study equivalent, the indicative fee may not be a full fee for the course. For further fee information, including information about the FEE-HELP loan program, see page 22 or www.deakin.edu.au/fees.
- 2 Most courses start in Trimester 1. This column indicates whether you have the option of commencing your studies in Trimester 2 or Trimester 3. Not all units are offered in every trimester.

CSP = Commonwealth Supported Place

FPP = Fee Paying Place

FT = Full time

T1 = Trimester 1

T2 = Trimester 2

KEY

3 Course duration in years

PT Part time

B Melbourne Burwood Campus

F Geelong Waterfront Campus

G Geelong Waurin Ponds Campus

W Warrnambool Campus

X Off campus



Coursework degrees

Graduate Certificate of Applied Science

0.5 G X Course code: S505

Admission requirements: applicants should have successfully completed an approved bachelors degree (or equivalent) in a related area, comprising at least three years of study, or be able to demonstrate at least three years professional experience in an area directly related to your chosen specialisation.

The Graduate Certificate of Applied Science has been designed to increase your breadth and depth of knowledge, and application of skills, in contemporary scientific processes, as well as in a specialisation chosen from the following areas:

- » Occupational Hygiene
- » Sustainable Water Management
- » Environmental Management.

Refer to the Master of Applied Science for more information.

Course structure

To qualify for the award of Graduate Certificate of Applied Science, you must successfully complete 4 credit points of study from one of the specialisations listed below:

Details of specialisations

Occupational Hygiene

SLE718 Chemical Hazards
SLE719 Toxicology and Biohazards
SLE723 Physical Hazards
SLE724 Human Factors

Sustainable Water Management

SLE720 Risk Assessment and Control

Plus three units from the list below:

SEN740 Water Treatment Processes
SEN741 Wastewater Treatment Processes
SEN744 Environmental Systems
SEN745 Water Reclamation and Reuse

Environmental Management

SLE720 Risk Assessment and Control

Plus three units from the list below:

SLE721 Policy and Planning for Sustainable Development
SLE725 Environmental Management Systems
SLE794 Sustainability and Waste Management
SLE727 Environment Protection and Occupational Health and Safety

Note: Students should consult their course adviser to develop an appropriate study plan that takes into consideration career/study pathways, professional accreditation requirements and Credit for Prior Learning (CPL) applications.

Master of Applied Science

1.5 G X Course code: S705

Admission requirements: applicants should have successfully completed an approved bachelors degree (or equivalent) in a related area, comprising at least three years of study, or completed the Graduate Certificate of Applied Science (or equivalent) and achieved a weighted average mark of 60.

The Master of Applied Science has been designed to increase your breadth and depth of knowledge, and application of skills, in contemporary scientific processes, as well as in a specialisation chosen from the following areas:

- » Occupational Hygiene[^]
- » Sustainable Water Management
- » Environmental Management.

The course will offer an integrated suite of units that will cover industrial/environment health, sustainability, environment and/or waste management, chemical hazards and water treatment and management.

Depending on your specialisation, the course aims to provide you with a critical understanding and ethical awareness of issues related to occupational hygiene and environmental and resource management, including an understanding of legislation and the administration of policy in your field.

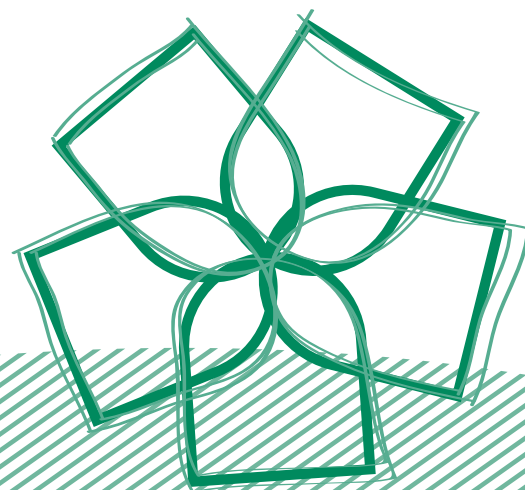
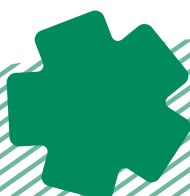
You will learn the ability to integrate risk, environmental and resource management core concepts into practical applications in your chosen field, and implement appropriate methods of management to a range of situations involving occupational hygiene and natural resource use.

The course will also provide a pathway for students who wish to undertake a doctorate degree.

[^] Requires attendance at a short on-campus intensive study period at the Geelong Waurin Ponds Campus; otherwise it is fully off campus.



FOR MORE INFORMATION VISIT
www.deakin.edu.au/scitech/les



KEY

- 3** Course duration in years
- PT** Part time
- B** Melbourne Burwood Campus
- F** Geelong Waterfront Campus
- G** Geelong Waurin Ponds Campus
- W** Warrnambool Campus
- X** Off campus

Course structure

To qualify for the award of Master of Applied Science, you must successfully complete 12 credit points of study including one core unit and at least three units selected from one of the specialisations listed below. The remaining units/credit points can be selected from units listed in the other specialisations within the course, project units, or course-grouped elective units.

Note: Students should consult their course adviser to develop an appropriate study plan that takes into consideration career/study pathways, professional accreditation requirements and Credit for Prior Learning (CPL) applications.

Core unit

SLE720 Risk Assessment and Control

Project units

SEN701 Professional Project 1*
 SEN702 Professional Project 2*
 SEN719 Industry Project 1
 SEN720 Industry Project 2
 SIT764 Project Management

Course-grouped elective units[^]

HSH724 Local Action for Healthy Cities and Communities
 HSH736 Community Consultation and Participation
 HSH740 People, Health and Planning
 MPM704 Managing for Environmental Sustainability
 SEN752 Engineering Management and the Environment
 SLE755 Catchment and Coastal Management
 SLE732 Geographic Information Systems
 SLE728 Oceans, Coasts and Climate Change

Or any other Level 7 unit(s) approved by the course adviser.

Details of specialisations**Occupational Hygiene **X****

SLE718 Chemical Hazards*
 SLE719 Toxicology and Biohazards*
 SLE723 Physical Hazards*
 SLE724 Human Factors*
 SLE731 Occupational Hygiene Practice*

Sustainable Water Management **G X**

SEN740 Water Treatment Processes
 SEN741 Wastewater Treatment Processes
 SEN744 Environmental Systems
 SEN745 Water Reclamation and Reuse

Environmental Management **X**

SLE721 Policy and Planning for Sustainable Development
 SLE725 Environmental Management Systems
 SLE794 Sustainability and Waste Management
 SLE727 Environment Protection and Occupational Health and Safety

* Students enrolled in the Master of Applied Science and seeking professional accreditation from the Australian Institute of Occupational Hygienists (AIOH) via the Occupational Hygiene studies will be required to successfully complete all course-grouped units and two project-based units.

[^] Please refer to the unit descriptions at the back of this brochure for the campus and mode of offer.



Coursework degrees

Graduate Certificate of Biotechnology

0.5 G Course code: S572

Admission requirements: applicants should have successfully completed a bachelors degree in science or equivalent. Applicants with relevant honours or postgraduate qualifications will be eligible to seek credit for prior learning.

This cutting-edge course provides hands-on experience of the latest techniques in biotechnology research with a focus on emerging frontier biotechnologies including nanotechnology, bio-processing and molecular diagnostics. This course will appeal to scientists wishing return to study or update their knowledgebase. Flexibility is a great strength of this course as applicants can choose their units from a core unit list.

On completion, graduates can continue their studies by direct articulation into the Master of Biotechnology or Master of biotechnology (Honours) courses.

Course structure

You must complete 4 credit points of course-grouped units. Students should consult their course advisor to develop an appropriate study plan to take into consideration career/study pathways.

Master of Biotechnology

1.5 G Course code: S772

Admission requirements: applicants will normally have successfully completed an accredited undergraduate program comprising at least four years of study in science (i.e. honours), a relevant graduate certificate, or equivalent.

Alternative entry is available for applicants with a relevant, accredited three year bachelors degree in science, and at least three years of demonstrated relevant work experience.

An articulation pathway is available for applicants with a relevant, accredited three-year bachelors degree, or however will be required to first complete the 4 credit point Graduate Certificate of Biotechnology.

Deakin University's postgraduate biotechnology program has been introduced in response to the demand for multi-skilled biotechnologists in Australia and overseas. The courses equip you with a thorough understanding of the very latest techniques and emerging developments in the exciting and innovative area of biotechnology.

You will gain experience operating cell-culture bioreactors similar to those in industrial-scale production facilities. An important component of this course is that each unit includes industry involvement through guest lecturers who bring an industry perspective of research and commercialisation into the biotechnology environment. Industry involvement will also include on-site visits for some units. The core units in this course cover a wide range of emerging topics in biotechnology and, importantly, business skills.

As a graduate, you may choose to articulate into the Master of Biotechnology (Honours). Alternatively, you may choose to exit early with a Graduate Certificate of Biotechnology.

Course structure

You must complete 8 credit points of core units as follows:

Core units

- SLE701 Foundations of Biotechnology
- SLE702 Bioinformatics, Proteomics and Genomics
- SLE703 Agricultural Biotechnology
- SLE704 Cellular Biology and Immunology
- SLE705 Biopharmaceuticals and Medical Devices
- SLE706 Frontier Techniques in Biotechnology and Nanotechnology
- SLE712 Laboratory Techniques for Cellular and Molecular Biotechnology
- SLE713 Industrial and Analytical Techniques in Biotechnology



FOR MORE INFORMATION VISIT
www.deakin.edu.au/biotechnology

KEY

3 Course duration in years

PT Part time

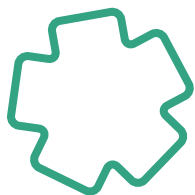
B Melbourne Burwood Campus

F Geelong Waterfront Campus

G Geelong Waurn Ponds Campus

W Warrnambool Campus

X Off campus

**STUDENT
PROFILE**

Vengamanaidu Modepalli
Master of Biotechnology (Honours), 2010
Currently studying: PhD, Institute for Technology,
Research and Innovation (ITRI)
Geelong Waurn Ponds Campus

'I joined Deakin University to pursue a masters degree in biotechnology. While I was doing my research project (under Professor Kevin Nicholas, Chair of Biosciences (Research) at ITRI) I decided to extend my knowledge by undertaking a PhD.

'There are many reasons why I chose Deakin. It has a strong spotlight on research and development and provides great opportunities for research degree students by providing scholarships. Deakin is also performing its research in broad areas and extending with great progress. It also has the best library with wide access to a number of books and e-journals,' he says.

'The University has different instruments for research where research students can extend their study into a wide-ranging number of experiments. The Faculty staff are friendly and they are available whenever you need their help,' he says.

Vengamanaidu started his PhD in May 2011 and adds, 'my field of research is studying the role of milk factors in the development of neonates. Our lab works with different marsupial

'(Deakin) has a strong spotlight on research and development and provides great opportunities for research degree students by providing scholarships.'

animals like the Tammar Wallaby and platypus to understand the milk factors. It's great to work with Professors and my lab mates – they are helpful and friendly. Deakin is the place to fulfil your aim in research and it is the best place to be a research student,' he says.



Coursework degrees

Master of Biotechnology (Honours)

2 **G** Course code: S771

Admission requirements: applicants should have successfully completed a bachelors degree in science or equivalent. Applicants with relevant honours or postgraduate qualifications will be eligible to seek Credit for Prior Learning.

This cutting-edge course provides hands-on experience of the latest techniques in biotechnology research as well as up-to-date bio-processing and production technologies involving mammalian cells, stem cells and other cultures.

You will gain experience operating cell-culture bioreactors similar to those in industrial-scale production facilities. An important component of this course is that each unit includes industry involvement through guest lecturers who bring an industry perspective of research and commercialisation into the biotechnology environment. Industry involvement will also include on-site visits for some units. The core units in this course cover a wide range of emerging topics in biotechnology and, importantly, business skills.

The Master of Biotechnology with Honours provides students with the opportunity to undertake industry-linked research project equating to 8 credit points over two trimesters.

As a graduate, you may choose to articulate into a research degree. Alternatively, you may choose to exit early with a Graduate Certificate or Master of Biotechnology.

Course structure

You must complete 16 credit points of study comprising 8 credit points of core units and two industry-linked research project units (worth 4 credit points each).

Core units

SLE701 Foundations of Biotechnology
SLE702 Bioinformatics, Proteomics and Genomics
SLE703 Agricultural Biotechnology
SLE704 Cellular Biology and Immunology
SLE705 Biopharmaceuticals and Medical Devices
SLE706 Frontier Techniques in Biotechnology and Nanotechnology
SLE712 Laboratory Techniques for Cellular and Molecular Biotechnology
SLE713 Industrial and Analytical Techniques in Biotechnology

Industry-linked research project units

SLE710 Industry-Linked Research Project A* (4 credit points)
SLE730 Industry-Linked Research Project B* (4 credit points)

* Please contact the Unit Chair prior to enrolling in the Industry-Linked Research Project units. You would normally be expected to have an approved academic standard of 65 per cent and above and an available project and supervisor. Attendance to lectures throughout the course will be highly considered when an industry-linked research project is offered to you.

Graduate Diploma of Natural and Cultural Resource Management

1 **G** **X** Course code: S662

Graduate Certificate of Natural and Cultural Resource Management S562 (Exit option only)

This course is available through the Institute of Koorie Education.

Admission requirements: successful completion of a relevant tertiary program equivalent to not less than three years of full-time study at a university or other approved educational institutions; or academic qualifications or cultural qualifications, considered to be the equivalent of a relevant tertiary program or membership of any required Aboriginal and Torres Strait Islander community organisation, including a minimum of five years of relevant experience in a related field.

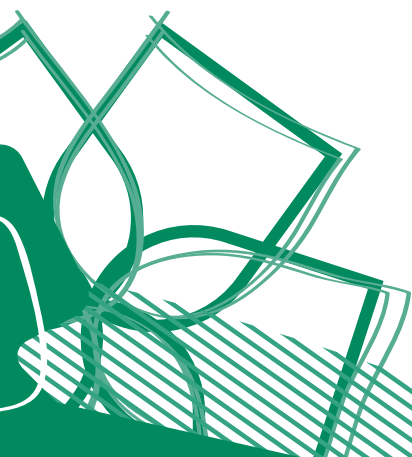
The Graduate Certificate and Graduate Diploma of Natural and Cultural Resource Management provides advanced specialist skills and professional development for Aboriginal and Torres Strait Islander cultural heritage officers, land management facilitators, cultural heritage site managers, educationalists and elders in the areas of integrated natural resource management, cultural heritage interpretation, research and project design.

A key focus of the course revolves around the exploration and convergence of Western science values and Indigenous knowledge that is currently developing in Australia. The course provides an academic environment effective for the dissemination of substantive material connected to the multifaceted arena of both natural and cultural resource matters, but also a culturally sensitive learning environment for Aboriginal and Torres Strait Islander students from all over Australia who come together and discuss the major issues connected to the protection and management of cultural heritage, land and knowledge.

Course structure

SHD701 Creating Sustainable Futures
SLE791 Interpreting Natural and Cultural Landscapes
SLE792 Knowledge for Natural and Cultural Environments
SLE793 Environmental Policy, Frameworks and Issues
SLE795 Planning and Techniques for Interpretation
SLE797 Community Project Management
SLE798 Researching for Country
SLE799 Essential Skills for Natural and Cultural Resource Management

Note: This course has been designed so that you have the opportunity to exit after 4 credit points of study with a Graduate Certificate of Natural and Cultural Resource Management.



Related courses

Graduate Certificate of Diabetes Education

1 PT **X** **CBD** Course code: H520

Admission requirements: you must complete 4 credit points of study. Students who are eligible to seek Australian Diabetes Educators Association (ADEA) accreditation must take the one-week supervised clinical practicum and attend a five-day workshop at the Melbourne Burwood Campus. The course can be completed in two, three or four trimesters of study.

The Graduate Certificate of Diabetes Education at Deakin University prepares health professionals for specialty practice in diabetes education. This course is conducted by the School of Nursing and Midwifery. It has received accreditation from the Australian Diabetes Educators Association (2009–2013).

For more information about this course see the *Nursing and Midwifery Postgraduate Study Area Booklet*.

Master of Dietetics

1.5 **B** Course code: H718

Admission requirements: a bachelors degree or equivalent in a relevant cognate area (for example: science, health sciences, nutrition, food science, exercise science, biomedical science, allied health or nursing). You must have successfully completed one full year of study of biochemistry and minimum of one unit of dedicated study of physiology. Applicants are also required to have completed at least four units (equivalent to 4 Deakin credit points) of nutrition and food science study, covering content relating to principles of nutrition, lifespan nutrition and food science. Potential applicants should seek further information in regards to the exact content of the prerequisite nutrition units needed.

Deakin's Master of Dietetics is a three-trimester professional training program in dietetics which is accredited with the Dietitians Association of Australia. You will gain practical experience throughout the course in collaborating metropolitan and non-metropolitan hospitals, clinics and community centres.

Career opportunities for dietetic graduates include working in a hospital or clinic, private practice, dietetic education, sports nutrition, community health settings or in the food industry.

For more information about this course see the *Nutrition and Dietetics Postgraduate Study Area Booklet*.

Graduate Certificate of Human Nutrition

1 PT **X** Course code: H511

Admission requirements: applicants should have an approved tertiary qualification (or equivalent) or significant relevant professional experience. A science subject at Year 12 level or equivalent is also recommended.

The Graduate Certificate of Human Nutrition is designed to be a postgraduate introduction to nutrition in a multidisciplinary context. It includes relevant material from related disciplines such as food science, biochemistry, physiology, epidemiology, psychology, sociology, and politics and policy.

Following successful completion of this course you will be eligible for registration as an 'Associate Nutritionist' with the Nutrition Society of Australia (NSA).

See also Graduate Diploma of Human Nutrition (H616) and Master of Human Nutrition (H714).

For more information about this course see the *Nutrition and Dietetics Postgraduate Study Area Booklet*.

Graduate Diploma of Human Nutrition

1 **X** Course code: H616

Admission requirements: applicants should have an approved tertiary qualification (or equivalent) or significant relevant professional experience. A science subject at Year 12 level or equivalent is also recommended.

The Graduate Diploma of Human Nutrition provides the opportunity to learn about nutrition in a broad context ranging from metabolic studies and food science to social and behavioural nutrition. It will enable you to understand and learn to apply knowledge in the areas of: the physiological basis of nutrition; nutritional requirements; the nature and composition of foods and food groups; nutritional assessment; and social, cultural and economic aspects of nutrition.

Following successful completion of this course you will be eligible for registration as an 'Associate Nutritionist' with the Nutrition Society of Australia (NSA).

See also Master of Human Nutrition (H714).

For more information about this course see the *Nutrition and Dietetics Postgraduate Study Area Booklet*.



KEY**3** Course duration in years**PT** Part time**B** Melbourne Burwood Campus**F** Geelong Waterfront Campus**G** Geelong Waurin Ponds Campus**W** Warrnambool Campus**X** Off campus**CBD** Community Based Delivery /
Institute of Koorie Education

Master of Human Nutrition

1.5 **X** Course code: H714

Admission requirements: applicants should have an approved tertiary qualification, be involved in the field of human nutrition, and will also normally have met the requirements for the Graduate Diploma of Human Nutrition.

The Master of Human Nutrition course is designed primarily to allow students who have completed a Graduate Diploma of Human Nutrition (H616) to either extend their content knowledge of nutrition areas or to gain research skills.

By the end of the masters course you should be able to:

- » demonstrate an advanced knowledge of human nutrition at biological, social and/or policy levels
- » have the knowledge and skills to practise effectively as a nutritionist in a range of employment settings including the food industry, community nutrition, private practise and business environments
- » understand human nutrition and the complexity of current issues relating to food and human health
- » evaluate the findings of human nutrition studies.

Following successful completion of this course you will be eligible for registration as an 'Associate Nutritionist' with the Nutrition Society of Australia (NSA).

For more information about this course see the *Nutrition and Dietetics Postgraduate Study Area Booklet*.

Other related courses

Psychology Postgraduate Study Area Booklet

Graduate Diploma of Psychological Studies (H653)
Graduate Diploma of Psychology (H650)
Master of Psychology (Clinical) (H750)
Master of Psychology (Industrial and Organisational) (H752)
Doctor of Psychology (Clinical) (H951)
Doctor of Psychology (Forensic) (H952)
Doctor of Psychology (Health) (H953)

Health Postgraduate Study Area Booklet

Graduate Certificate of Health Promotion (H515)
Graduate Diploma of Health Promotion (H615)
Master of Health Promotion (H749)
Master of Health and Human Services Management (H746)
Master of Public Health (H747)
Master of Social Work (H703)
Master of Science (H850)
Master of Arts (H851)
Master of Applied Science (H852)
Doctor of Philosophy (H950)

For copies of these booklets please phone 1300 DEGREE (1300 334 733).

A student in a science lab at the Geelong Waurin Ponds Campus.



Research at Deakin

Universities are about knowledge – creating, discovering, analysing, sharing and dispersing knowledge. Research is at the core of these activities and helps to make Deakin University a vibrant place to study.

At Deakin we take pride in being relevant to students and to their communities, not just in the courses we teach, but in the research we carry out.

Studying at a university that is committed to research that matters means you have the opportunity to learn from people who are making a real difference in the world.

Our academic and research staff are highly regarded and at the cutting edge in their fields of research. This is important, regardless of whether or not you want to pursue a research career, because it means that you will graduate with the latest knowledge in your chosen field.

Deakin is serious about providing excellent support and experiences for our research students, most of whom have opportunities to work with partner collaborators nationally and internationally, present at international conferences and use world-class facilities within Australia and abroad.

There has never been a more exciting or compelling time to be at Deakin University as it moves confidently towards improving the University's research performance in order to position itself in the top third of the Australian higher education sector.

This is being achieved by building a critical mass of researchers who will develop a distinctive, broad-based portfolio of high quality discovery, applied and commercial research.

Deakin University provides research degree programs to match a variety of career plans and personal circumstances. Part-time or full-time study is available on campus and some programs may also be available off-campus.

The two main types of research degree we provide are the research masters and the Doctor of Philosophy (PhD). A number of professional doctorate programs in Psychology (Doctor of Psychology) are also offered.

A **masters degree** is awarded to a candidate for making an original contribution to knowledge achieved in one to two years of full-time candidature or the part-time equivalent. The focus of these postgraduate degrees is on research, but some coursework may be included. The masters degree is an advanced qualification that is relevant for many careers, in areas such as education, nursing, law and engineering.

A **doctoral degree** is awarded to a candidate for making a substantial original contribution to knowledge achieved in two to four years of full-time candidature or the part-time equivalent. The PhD is recommended for those interested in pursuing a career in academia or research and is an ideal basis for many other careers.

To ensure you enrol in a research program that meets your needs and expectations, please discuss the available options with the Faculty of Science and Technology.

More information

Research Services Division

Phone: +61 3 9251 7124

research-hdr@deakin.edu.au

www.deakin.edu.au/future-students/research

A student in a science lab at the Geelong Waurn Ponds Campus.





*Professor Marcel Klaassen
Director, Centre for Integrative Ecology,
School of Life and Environmental
Sciences*

Professor Marcel Klaassen heads up the largest aggregation of avian biologists in the southern hemisphere in the Centre for Integrative Ecology where he holds the position of Director.

Professor Klaassen has developed broad research interests including theoretical, experimental and observational studies on numerous animal, plant and microbe taxa. Throughout this, his focus has primarily been on bird migration and nutritional ecology issues. To gain a better understanding of the behaviour and functioning of animals, he uses the rate of energy intake and the economy of its use for life processes as an index of fitness.

He has also recently been involved in a project monitoring the flight paths of the Ruddy Turnstone bird from Australia to Siberia and back again using geolocators. The research project broke new ground early in 2011 when for the first time, a Ruddy Turnstone was found to have made the 27 000 km journey twice in successive years.

Research in Science and Environment

Course name Course code	Years full time	Campus
Research degrees		
Biological, Biomedical and Chemical Science		
Master of Science S811	1 – 2	B G X
Doctor of Philosophy S911	3 – 4	B G X
Environment		
Master of Science S810	1 – 2	B W X
Doctor of Philosophy S910	3 – 4	B G W X

The School of Life and Environmental Sciences offers research opportunities in the following areas:

biochemistry, biodiversity, bioinformatics, biomolecular sciences; chemistry and forensic sciences; ecophysiology, sensory ecology and behaviour; environmental management and sustainability, evolutionary biology, immunology, marine and freshwater science; neurodegenerative disease; palaeobiology and global change; plant and animal biology, wildlife and landscape ecology and zoology.

Research areas

Marine and freshwater science

Deakin University's Marine and Freshwater Sciences research focuses on the ecology and management of coastal marine and estuarine ecosystems, cutting edge technologies for mapping marine habitats, the effects of a drying climate on ecological function and biodiversity in rivers and streams, river restoration, the ecology and management of marine wildlife, population genetics of marine invertebrates and sustainable aquaculture.

Wildlife and landscape ecology

Research focuses on understanding the processes that influence the distribution and abundance of plants and animals, and using this knowledge to enhance biodiversity conservation in Australia and globally. A diverse range of projects are undertaken on the ecology of individual species and assemblages, disturbance processes, the consequences of human land-use and landscape change, and the social and policy dimensions of nature conservation.

Palaeobiology and global change

The fossil record of 'deep-time' ecological processes and ecosystem evolution is used to investigate the dynamics of past biotic responses to global environmental change at a temporal scale ranging from thousands to millions of years. Research focuses on documenting the patterns and processes of past biodiversity and environmental changes and to investigate some of science's fundamental and long-standing questions.

Ecophysiology, sensory ecology and behaviour

Research examines, from a wide range of perspectives, the interactions of animals, plants and microorganisms with their environment. Research themes include animal and plant physiology and ecology, animal behaviour, migration and nutritional ecology, evolution of vision and visual signals and physiological and behavioural responses of animals towards their natural environment.

KEY

- 3** Course duration in years
- PT** Part time
- B** Melbourne Burwood Campus
- F** Geelong Waterfront Campus
- G** Geelong Waurm Ponds Campus
- W** Warrnambool Campus
- X** Off campus

Biomolecular sciences

Research focuses on molecular and cellular biology to solve both fundamental and practical problems. Key research areas include: copper and zinc in health and disease, cell biology of breast cancer, plant-microorganism interactions, allergy research, omega-3 fatty acids and functional foods.

Chemistry and forensic sciences

Research focuses on the isolation, synthesis, processing and detection of compounds, especially those with biological activity. There is a strong link between chemistry and forensic sciences research and innovations and research in chemical education.

For more information about these research areas visit www.deakin.edu.au/scitech/research.

Institute for Technology Research and Innovation

The Institute for Technology Research and Innovation (ITRI), located on the Geelong Waurm Ponds Campus, plays a key role in Deakin University's cutting edge research activities.

Research at ITRI focuses on advanced materials, biosciences and intelligent systems and the creation of new technologies which address real world problems. That means working in partnership with the community at the local, national and international level.

ITRI is also training the next generation of students and researchers who are skilled at working between technology interfaces in growing and dynamic industries.

Honours

Honours is a year of specialised study taken after the completion of an undergraduate degree. It builds on the foundations gained in your undergraduate degree and provides an excellent opportunity to learn new skills and obtain an in-depth understanding of a particular topic of personal interest. The honours programs at Deakin are designed to provide you with the knowledge and research skills required to undertake a postgraduate course by research, advanced professional training or pursue diverse employment opportunities.

An honours award may satisfy the entry requirements and provide a pathway for students into a research degree.

To find out more about honours, please visit www.deakin.edu.au/honours.

More information

For more information about research, please contact:

Faculty of Science and Technology
Phone: +61 3 5227 2270 or +61 3 5227 2134
scitech-research@deakin.edu.au
www.deakin.edu.au/scitech/research



Choose how you study

Deakin offers you the flexibility and choice to make your learning experience fit with your lifestyle, work and personal commitments. With four campuses and off-campus study options, you choose where and when you study. You can choose from a variety of teaching delivery methods including traditional on-campus lectures, podcasts, iLectures, online tutorials and residential programs. Flexible course entry and exit points, and full-time and part-time study options all allow you to choose the pace of your study.

Off-campus study*

Deakin supports more than 9500 off-campus students. Studying off campus is a popular choice for postgraduate students as it allows flexibility in terms of when and where you study. Off-campus units, or units offered by distance education, are similar to on-campus units. The only difference is that rather than attend classes in person, you study away from campus using a variety of other methods. These include online technologies, study guides, reading lists and audiovisual materials, as well as Deakin's Software Essentials package, which provides you with access to software you may need for your study.

Deakin offers a variety of coursework and research programs in off-campus study mode, all of which are accredited by the Accrediting Commission of the Distance Education and Training Council (DETC). To find out if the course you are interested in is available off campus, please refer to both the coursework table on page 7 and the research table on page 18.

Deakin provides an online orientation with everything you will need to get started as an off-campus student, including information about exams and assessment, Deakin Card, Deakin Studies Online (DSO), course materials and textbooks, library, study skills, student services, disability services and the Deakin University Student Association (DUSA). In addition, a face-to-face study skills program for off-campus students is conducted in February at Deakin campuses. Details are available from January each year at www.deakin.edu.au/current-students/transition.

Off-campus students are supported through our award-winning library services, interactive study methods such as iLectures and podcasts, online conferencing for peer support and communication between staff and students, and weekend classes for some subjects. Specialist off-campus career advisers and language and learning advisers can help you with course direction and the development of successful study skills and techniques.

You will also have a direct link to all your enrolment and fee records through StudentConnect, www.deakin.edu.au/studentconnect. StudentConnect allows you to access course completion details, eCAF (electronic Commonwealth Assistance Form) and eCAN (electronic Commonwealth Assistance Notice), exam timetables, fees information and results, make payments, find and print assignment coversheets, access Credit for Prior Learning information, re-enrol, receive confirmation of enrolment, track your assignments, update your address details and vary your enrolment.

For more information about off-campus study, please visit www.deakin.edu.au/future-students/mature-age/study-online.

On-campus study*

On-campus students usually attend a combination of lectures and tutorials. Lectures vary in size from 20 to 280 students, while tutorial classes are generally smaller, more informal and allow for open discussion of issues raised in lectures. Assessment may take a variety of forms, including written work and tests undertaken in class, participation in class or laboratory sessions, and final examinations each trimester. Fieldwork or practical experience can also form a large part of the content and assessment of some units.

Combine on and off-campus study*

Another aspect of the flexibility available to Deakin students is the option to combine on and off-campus study during your course (provided the units offered in your chosen course are available in both study modes). If you are undertaking your course on campus, you may find that some of the units in your course are also available in off-campus study mode, enabling you to combine on and off-campus study during your degree, if desired.

Full-time or part-time study modes

You can study full time or part time depending on the number of credit points you take in each trimester, and you can also switch between full-time and part-time study and vice versa throughout your degree. Every unit (subject) you enrol in has a credit point value and most postgraduate units are equivalent to 1 credit point. If you are enrolled in 3 or more credit points in a trimester, you are deemed to be a full-time student for that trimester. A small number of courses are only available full time, and some are only available part time.

Online learning

All courses have an online component. Access to online education adds another dimension to your degree and prepares you for success in your career. Online learning aims to complement, not replace, traditional teaching. Delivering units online creates an opportunity for you to learn in a variety of ways and gives you more control over your learning. You can access your online units 24/7, giving you the flexibility to study when and where it suits you. Online learning provides you with valuable experience in a world that is increasingly dependent on information technology.

Contact hours

The contact hours for a coursework degree can vary depending on the type of course and your mode of study. For example, off-campus students are advised to spend approximately 10 hours of study per week per unit. If you are enrolled as an on-campus student, most units require three contact hours per week, plus up to seven hours per week of individual study time. Undertaking a research degree requires a much greater commitment of time than a coursework degree – at least 36 hours per week for 48 weeks of the year, for a full-time student. For more information, please visit www.deakin.edu.au/courses.

* Not all courses or units are available through on-campus study and off-campus study.

Trimesters

Deakin operates a trimester system, meaning there are three 12-week study periods during the teaching year. Deakin's trimesters run from March to June, July to October and November to February. Our trimester system gives you greater flexibility and may create options for you to commence your degree sooner or at a more convenient time of year. It may enable you to speed up or slow down your study, or even fast-track the completion of your degree by taking extra units throughout the calendar year. You may even like to take a trimester off to fit your study around work, travel or family commitments. Undertaking study in Trimester 3 is not compulsory. For more information, please visit www.deakin.edu.au/trimesters.

Single-subject (non-award) study

You can pursue your personal or professional interests with a Deakin single-subject (non-award) unit. Single-subject (non-award) study provides access to a wide variety of tertiary-level units. Most units offered by Deakin are available for non-award study. Some units have prerequisites or special requirements, but most are open to all. Enrolling in single-subject (non-award) study allows you to test the waters before enrolling in a full program. If successfully completed, the unit may be counted as Credit for Prior Learning towards your chosen course at Deakin, subject to admission to a course and approval by the Faculty.

International study experiences

Deakin's Study Abroad and Exchange Office offers various programs including exchange, study abroad, short-term study programs, study tours and international volunteering opportunities which allow you to study overseas for a few weeks or a trimester while gaining credit towards your Deakin degree. Deakin has agreements with many universities around the world, giving you a broad range of destinations to choose from.

Studying overseas can be an enriching, life-changing experience, where you can gain in-depth knowledge and experience of another culture while learning more about your area of study through a new and exciting lens.

A range of travel grants and scholarships are available to help cover the cost of overseas study. For more information on study abroad, please visit www.deakin.edu.au/future-students/student-exchange/exchange.

Work-Integrated Learning

Many Deakin courses provide opportunities to gain discipline-specific work experience through Work-Integrated Learning programs. Courses offering Industry-Based Learning (IBL) and internships are highly sought-after by employers and students alike as they play a critical role in the development of employability skills and job readiness.

Industry placements play a valuable role in preparing you for employment in your chosen field by giving you an opportunity to:

- » apply and consolidate knowledge gained in your course
- » explore career options relevant to your discipline
- » develop professional competencies and networks.

A unique aspect of Deakin's Work-Integrated Learning programs is that most of them (except law) are credit-bearing, which means by undertaking a WIL program, you can gain credit towards your degree while learning on the job.

Our Alumni Community

Once you complete your Deakin degree, you will be invited to become a member of our Deakin University Alumni Community to continue your relationship with the University and the networks you have developed while studying.

The Deakin University Alumni Community will enable you to keep or renew contact with your student and professional networks around the world and will help develop your career after you leave the University. Members have access to many exclusive benefits including discounts, professional networking opportunities and career development services.

Alumni membership is free and joining is easy.

Log on to www.deakin.edu.au/alumni/register to register for membership. Once you are registered you can then take advantage of the many benefits available.



Fees and scholarships

Research degree fees

Australian citizens, Australian permanent residents and New Zealand citizens are not required to pay tuition fees for the normal duration of their research degree candidature, i.e. up to a maximum of four years of full-time equivalent study for a doctoral candidate and two years of full-time equivalent study for a masters candidate.

Coursework degree fees

When it comes to postgraduate study, some places are offered as Commonwealth Supported Places (CSPs); however, most places are available on a fee-paying basis only. The type of places available will depend on the course you are interested in.

Commonwealth Supported Place (CSP) students

Some postgraduate courses at Deakin offer Commonwealth Supported Places for students. A CSP is one in which the government pays a portion of the tuition costs and the student funds the balance. Depending on the course, a Commonwealth supported student at Deakin in 2011 can expect to pay between \$4355 and \$9080 per year of study. These fees may change for 2012.

CSP students can pay these fees up front or, if eligible, may defer payment by obtaining a loan via the Higher Education Contribution Scheme-Higher Education Loan Program (HECS-HELP). Repayments are made through the Australian taxation system once annual income exceeds the minimum threshold for repayment. Lump sum payments are also possible and attract a discount.

For more information visit the Government's *Going to Uni* web site at www.goingtouni.gov.au or phone the new student funding measures enquiry line on 1800 020 108.

Fee-paying students

As a fee-paying student you may be able to defer your course payment through the FEE-HELP loan program. Tuition fees are assessed based on the unit(s) in which you are enrolled. This means you pay fees for the units you choose in your course, rather than paying a fixed course price. Different units have different costs, based on how much it costs the University to provide the particular unit.

Course and unit details and associated fees can be found by using the course search tool www.deakin.edu.au/future-students/courses.

Please confirm fees when you are applying by visiting www.deakin.edu.au/future-students/fees or phoning 1300 DEGREE (1300 334 733).

FEE-HELP loan program

FEE-HELP is a loan program that assists fee-paying students to defer the payment of their tuition fees. FEE-HELP can cover all or part of your tuition fees. The Australian Government pays the amount of the loan direct to your higher education provider.

Over your lifetime you can borrow up to a maximum FEE-HELP limit which is indexed annually. For all courses except medicine the maximum limit is \$86 422 (2011). For medicine the maximum limit is \$108 029 (2011).

For postgraduate courses, there is no real interest charged on your debt. Your accumulated HELP debt is indexed annually to maintain its real value, by adjusting it in line with changes in the cost of living (as measured by the Consumer Price Index).

FEE-HELP is administered under the Higher Education Support Act 2003 (HESA) by the Department of Education, Employment and Workplace Relations (DEEWR), the Australian Taxation Office, higher education providers and Open Universities Australia.

Am I eligible for FEE-HELP?

You are eligible for FEE-HELP assistance if you:

- » are enrolled in a fee-paying postgraduate coursework program (not research)
- » are not a Commonwealth supported student
- » are an Australian citizen or a holder of an Australian permanent humanitarian visa (who meets eligibility requirements)
- » meet the Tax File Number (TFN) requirements
- » have not exceeded the maximum indexed FEE-HELP limit.

If you obtained a loan under HECS, PELS, BOTPLS or OLDPS prior to 2005, the amount you borrowed does not affect your eligibility for FEE-HELP. Only the amount borrowed to pay tuition fees using FEE-HELP after 1 January 2005 is counted towards the FEE-HELP limit.

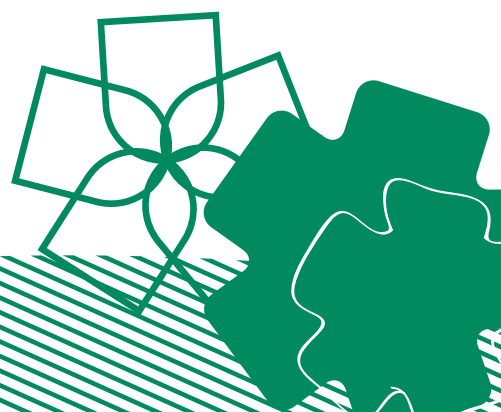
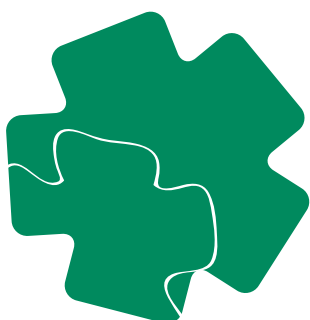
Holders of other permanent visas are not eligible for FEE-HELP unless they are undertaking a bridging course for overseas trained professionals.

When do I start repaying my FEE-HELP loan?

FEE-HELP debts are added to any existing HECS or HECS-HELP debts to form a single HELP debt.

Students repay their loans through the Australian taxation system once their income is above the minimum threshold for compulsory repayment.

For more information you can download the Australian Government's 2011 FEE-HELP information brochure. Alternatively you can visit the Government's *Going to Uni* web site at www.goingtouni.gov.au or phone the new student funding measures enquiry line on 1800 020 108.



Student income support

From 1 January 2012, students enrolled in masters by coursework programs will be eligible to apply for student income support payments such as Youth Allowance via Centrelink.

Masters by coursework students are encouraged to test their eligibility criteria for payments by visiting www.centrelink.gov.au or www.deewr.gov.au.

Scholarship opportunities

Deakin offers a variety of scholarships to help support you financially during your studies, including the Deakin Postgraduate Scholarship which aims to assist students who, because of hardship, disability or other form of disadvantage, may not otherwise be able to further their education in postgraduate studies.

General information about scholarships at Deakin is available at www.deakin.edu.au/scholarships. More detail on scholarships for students enrolling in postgraduate research degrees at Deakin University is available at www.deakin.edu.au/research/admin/scholarships.

You can also visit the Commonwealth Department of Education, Employment and Workplace Relations (DEEWR) web site www.deewr.gov.au for links to a range of scholarships relevant to postgraduate study, including Australian postgraduate awards. Many industry and community scholarships are also available.

International students

For information about fees and courses available to international students, please contact Deakin International for a copy of the *Postgraduate Course Guide for International Students* via email, deakin-international@deakin.edu.au.

Course fees and tax benefits

When you enrol in a postgraduate course you may be entitled to an income tax deduction for your course fees and study-related expenses. You may be able to claim for your course fees, textbooks, stationery, student association fees, depreciation on equipment (for example your computer), or some of your travel expenses between home and the University or between work and the University.

For the Australian Taxation Office (ATO) to allow self-education expenses to be tax deductible a direct connection must exist between your course and your existing work. If you are studying the course in order to maintain or improve a skill or specific knowledge that is required in your existing work, your course expenses might be tax deductible.

To clearly demonstrate to the ATO that a direct connection exists, you might have to provide a supporting statement from your employer.

Please note that this information is provided as a guide only. For more information about study and tax arrangements, please speak with your accountant or tax adviser or visit the ATO web site www.ato.gov.au.

Cost-sharing with employers

Some employers provide financial and other support, such as study leave, for staff members who are completing study that is directly related to their employment and the employer's core business. At Deakin, many people are studying a postgraduate course with their employer's help.

Study support policies benefit both the employer and the employee.

For employers, when they support relevant study programs, they can help attract and retain well-qualified and experienced staff members. Before you approach your employer for study assistance, you should check to see whether a support policy is in place.

Try to give your employer every reason to agree to your application. It can help if you provide your employer with a written submission outlining the benefits and the direct and indirect costs involved. The submission could include information about:

- » the course you wish to study
- » any tax-deductible aspects of the program
- » a summary of the short and long-term benefits that would flow to you and your employer
- » an estimate of the total course costs of fees, textbooks and other materials
- » an estimate of the time you would be required to be away from work in order to attend classes and exams, prepare reports and so on
- » what assistance you are requesting for aspects such as sharing of costs and granting of time off work.

Many employers are willing to share the course costs. They might either reimburse you after you have successfully completed the course or pay a percentage of the individual unit fees at the end of each trimester. If your employer is reluctant to support your study application, consider forming an agreement to cover contingencies. For example, propose that if you withdraw from or fail a subject or leave your job within a year of finishing the course, you will offer to pay back some of the fees your employer has paid.

Your employer might be concerned about how your studies will affect your availability and productivity at work. In the case of off-campus study it is easier to complete your studies outside working hours.

In many on-campus programs, classes are held outside regular working hours.



How to apply

Applying for postgraduate programs at Deakin is easy – you can even track the progress of your application online.

Coursework applications

Most students applying for a postgraduate coursework degree will need to have previously completed an undergraduate degree, however, there are other pathways. If you have considerable work or life experience you may be able to use this to obtain admission into a graduate certificate or graduate diploma course. You may then progress to a masters degree.

A postgraduate qualification can advance your career or you may use it to help change direction to a completely new industry. There are no application fees for Australian students, and if you are an international student there are no application fees if you apply online. Once you have applied, you can track the progress of your application online.

Application process

Step 1 – Choose your program

You can select up to three course preferences.

Step 2 – Register

Register as a user www.deakin.edu.au/apply.

Step 3 – Apply online

Start your online application.

Step 4 – Documentation

Provide supporting documentation including:

- » certified copies of your undergraduate and/or postgraduate qualification/s
- » curriculum vitae detailing work experience applicable to your course application
- » certified copy of name change documentation if you have previously studied at Deakin under a different name.

You may also be asked to provide a personal statement outlining what you hope to obtain from your qualification.

Step 5 – Submit

Submit the completed online application.

Step 6 – Verification

Once the application has been submitted you will receive an email to confirm the successful submission of the application including an application number.

You can track the progress of your application by logging into www.deakin.edu.au/apply where the status of your application will appear.

Step 7 – Accept your offer

If you are offered a place, you will need to accept it online within a specified timeframe.

Step 8 – Enrolment

If you have been offered and subsequently accepted a place you will receive enrolment information with further details in the mail.

Application dates

Applications for enrolment in Trimester 3, 2011 and Trimester 1, 2012 open in August 2011. Applications for Trimester 2, 2012 open in April 2012.

We encourage you to submit your application early because some courses have limited places or quotas. Applications received after the quotas have been filled for Trimester 1 commencement will be considered for a place in Trimester 2.

Some postgraduate courses have alternative application processes and closing dates. For more information, please visit www.deakin.edu.au/apply.

For more information

Please visit our web site www.deakin.edu.au/postgrad or phone our customer service team on 1300 DEGREE (1300 334 733).



FOR MORE INFORMATION VISIT
www.deakin.edu.au/apply

Research applications

To be eligible for admission to a masters by research, you must have completed an honours degree with a minimum second class result or other equivalent qualification.

To be eligible for admission to a PhD, you must have completed an honours degree with a minimum upper second class result, or a relevant masters degree that includes a research thesis component, or other equivalent qualification.

Undertaking a research degree requires the candidate to complete an approved program of research under the guidance of one or more supervisors within a time period. The supervisors will be experienced and active researchers with expertise in the field of study.

Application process

Step 1 – Entry pathways

Demonstrated capacity to undertake significant research in your proposed field is needed. Depending on the type of research you want to undertake, this includes:

- » completion of an honours degree
- » completion of a research or coursework masters degree
- » comparable qualifications from international universities
- » relevant postgraduate research experience
- » independently peer-reviewed journal articles, publications, or conference papers
- » professional reporting or prior learning
- » research related awards or prizes
- » other evidence of research ability.

Step 2 – Find our research strengths

Search our web sites and publications or speak to the relevant School or Faculty to confirm that Deakin has the expertise to supervise your project.

Step 3 – Research proposal

Write a 300-word proposal to demonstrate a clear vision of what you want to study, why this is a topic of personal interest, and how you will approach the research question.

Postgraduate studies at Deakin enable you to expand your professional and social networks, and study with like-minded people who share similar interests.

Step 4 – Further documents

Other documents you are required to submit include:

- » any published research – including the name of the publication and a copy of the contents and abstract pages.

Post a certified copy of:

- » proof of Australian citizenship or permanent residency, or New Zealand citizenship (e.g. birth certificate, passport, citizenship certificate or visa)
- » transcripts of all of your tertiary education studies except those undertaken at Deakin University
- » proof of your start date and evidence of any intermissions or changes of candidature (e.g. from full time to part time) if you are applying to transfer a research degree from another institution
- » proof of any name changes (e.g. marriage certificate).

Step 5 – Academic referees' reports

Confidential reports from two academic referees are required. Request reports from current or former lecturers, or academic or employment supervisors who are able to comment on your research expertise and potential.

Step 6 – Apply now

Once you have the relevant information register your application online. Visit www.deakin.edu.au/research/admin/hdradmin/online-forms/hdr-application.

Step 7 – Enrolment

If you have been offered a place you will receive enrolment information with further details via email.

English language requirements

If your first language is not English, Deakin University reserves the right to seek further documentary evidence of English proficiency. For more information, please visit www.deakin.edu.au/future-students/international/apply-entry/english-req.

Please note, individual Faculties or Schools may have higher requirements. For more information, please phone 1300 DEGREE (1300 334 733).

Application dates

Applications for candidature without scholarship may be made at any time. Applications for scholarships have deadlines. For domestic applicants (citizens and permanent residents of Australia, and citizens of New Zealand) the scholarship round closes at the end of October.

For more information visit www.deakin.edu.au/future-students/research/scholarships.

For more information

If you are interested in a research degree, please contact:
Research Services Division
Phone: +61 3 9251 7124
research-hdr@deakin.edu.au
www.deakin.edu.au/future-students/research.

Unit descriptions

HS724 Local Action for Healthy Cities and Communities **X**

Trimester 2, 1 credit point

This unit will investigate cities from an ecological public health perspective. The unit is concerned with parallel histories of the health of people and their urban environments. The unit will provide students with an understanding of the changing views about people, ecology, politics, cities and health, in different times and places. Topics to be addressed include environments and health, social ecology of cities, urban transformation impact of globalisation on urban design and community life, participation and empowerment, local expressions of grassroots advocacy around health and wellbeing, World Health Organisation Healthy Cities and Urban Governance, government policies and programs impacting on cities and municipalities, monitoring and evaluating and social indicators.

HS736 Community Consultation and Participation **B**

Trimester 3*, 1 credit point

This unit allows students to gain an understanding of the theory, history, contexts, process and outcomes of community consultation and participation. Community consultation and participation will be explored in relation to the health, environment, architecture and urban planning sectors. The unit will focus on developing skills in designing and implementing community consultation programs, and facilitating community participation in policy and decision-making. On completion of the unit students should be able to: explore contexts for consultation with and participation by individuals, households, organisations and communities; understand the process of development of participation and consultation policies and practices affecting individuals, households, organisations and communities; identify the opportunities for individuals, households, organisations and communities to influence policies and decisions affecting their lives; review and evaluate examples of community consultation and participation; develop skills in community consultation; and understand the strategies available to maximise the participation by individuals, households, organisations and communities in policy and decision-making, and develop the skills to utilise these strategies.

* This unit is offered in Trimester 3 every alternate year. Next offered in Trimester 3 2012–2013.

HS740 People, Health and Planning **B**

Trimester 3*, 1 credit point

This unit focuses on the interrelationships between the biophysical environment, environmental and urban planning legislation, policy and planning systems, and wellbeing. It will explore the way in which a range of aspects of our physical and social environment affect our health, and examine the planning and policy implications of this. On completion of the unit students should be able to: understand the links between people, health and place and the connection to planning; identify and apply public health evidence to planning issues; critique planning policy from a public health perspective; critique public health policy from a planning perspective; and present a persuasive argument for integrating public health and planning policy/activity.

* This unit is offered in Trimester 3 every alternate year. Next offered in Trimester 3 2013–2014.

MPM704 Managing for Environmental Sustainability **B**

Trimester 3, 1 credit point

Managing for Environmental Sustainability is designed to give students an integrated understanding of environmental sustainability issues as they relate to business management. The unit will provide managers with a conceptual framework for analysing and developing a strategic response to environmental issues and an understanding of the potential business case for sustainability. An integrated overview of human, business and ecological sustainability is presented during the course. Students will address a series of environmental issues and analyse case studies. A problem-based learning approach will guide students to examine critically current business principles and practices as they relate to environmental sustainability.

SEN701 Professional Project 1 **G X**

Trimester 1, 2 or 3, 1 credit point

In this unit and SEN702, students will carry out their capstone Professional Practice Project relevant to their specialism using knowledge gained in previous study. Students are advised to have an approved proposal before enrolment in this unit. The unit forms the foundation for a major project or a design component allocated to, or proposed by, the student in a specialised area. The project or the design exercise entails research investigation involving a critical review and interpretation of literature on a selected topic, and provides an opportunity for the formulation of a detailed project proposal and plan. The unit requires a commitment equivalent to around one trimester's work on a part-time basis and will earn one credit point. A project supervisor will be assigned to each candidate. Once a project is started, frequent feedback to the University supervisor in the form of progress reports is essential.

SEN702 Professional Project 2 **G X**

Trimester 1, 2 or 3, 1 credit point

In this unit and SEN701, students will carry out their capstone Professional Practice Project relevant to their specialism using knowledge gained in previous study. Students are advised to have an approved proposal before enrolment in this unit. The unit forms the implementation stage of an approved project plan in a specialised area. The project entails research investigation involving an analysis and interpretation of data, or a critical review and interpretation of literature on a selected topic, and provides an opportunity for the practical application and integration of the professional background and skills studied in other units. The unit requires a commitment equivalent to around one trimester's work on a part-time basis and will earn one credit point. Frequent feedback to the University supervisor in the form of progress reports is essential. Students will be required to submit a minor thesis or a dissertation fully documenting the work carried out. Students are also required to present their work at a seminar arranged at a suitable venue.

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SEN719 Industry Project 1 **G X***Trimester 1, 2 or 3, 2 credit points*

Students will be required to undertake an approved study plan related to their individual research interests. Students are advised to have an approved proposal before enrolment in this unit. This unit and SEN720 Industry Project 2, form a major research project proposed by the student in a specialised area of engineering. The project entails research investigation involving an analysis and interpretation of data, or a critical review and interpretation of literature on a selected topic, and provides an opportunity for the practical application and integration of the professional background and skills studied in other units of the masters degree. Research project proposals must be formally approved by a University-allocated supervisor prior to commencement of work. Once a project is started, frequent feedback to the University supervisor in the form of progress reports is essential. At the completion of the research work, the student will be required to submit a minor thesis fully documenting the work carried out and present his or her work at a seminar.

SEN720 Industry Project 2 **G X***Trimester 1, 2 or 3, 2 credit points*

This unit forms a major research project proposed by the student in a specialised area of engineering. The project entails research investigation involving an analysis and interpretation of data, or a critical review and interpretation of literature on a selected topic, and provides an opportunity for the practical application and integration of the professional background and skills studied in other units of the masters degree. Frequent feedback to the University supervisor in the form of progress reports is essential. At the completion of the research work, the student will be required to submit a minor thesis fully documenting the work carried out and present his or her work at a seminar.

SEN740 Water Treatment Processes **G X***Trimester 2, 1 credit point*

Topics to be addressed in this unit include: introduction to water treatment; historical development of water treatment technology; health and environmental concerns; evolution of water treatment technology; water quality – water pollutants and their sources; physical and chemical quality; characterisation of water and sampling; physical, chemical and microbiological characteristics; Australian drinking water guidelines 2004 and WHO guidelines for drinking water 2004; water treatment: conventional processes, screening and grit removal; sedimentation; coagulation and flocculation; flotation; rapid sand filtration; slow sand filtration and pressure filtration; disinfection and oxidation by-products; aeration; and softening; water treatment - advanced processes, membrane processes; micro-, nano- and ultra-filtration, reverse osmosis, electro-dialysis; absorption; ion exchange; oxidation; residual management – thickening, dewatering, resource recovery, beneficial usage.

SEN741 Wastewater Treatment Processes **G X***Trimester 1, 1 credit point*

Topics to be covered in this unit include: introduction: wastewater systems, impact of regulations on wastewater engineering, health and environmental concerns, wastewater characteristics, wastewater treatment systems, new directions and concerns wastewater constituents: physical, inorganic and organic chemical and biological characteristics, constituents of concern, sampling wastewater flow rates and constituent loadings; analysis of wastewater flow rate data, analysis of constituents mass loading data process analysis and selection: types of reactors; mass balance analysis; flow/mixing conditions in reactors; reactions and reaction rates; process selection, reaction kinetics, fundamentals of biological treatment: objectives, definitions, role of micro-organisms, composition and classification of micro-organisms, microbial growth kinetics, biomass growth and substrate utilisation, aerobic biological treatment processes: suspended growth processes: activated sludge process and its modifications; aerated lagoons; sequencing batch reactors; aeration theory and practice; attached growth processes: trickling filter, rotating biological contactors; aerobic bio-filters, combined aerobic processes; waste stabilisation ponds; biological nutrient removal processes; membrane bio-reactors, anaerobic biological treatment processes: process selection, process microbiology, kinetics and models, types of processes; anaerobic digesters, contact processes, (USAB), anaerobic bio-filters, fluidised bed reactors bio-solids treatment, disposal, and reuse: sources, characteristics, and quantities of sludge; sludge thickening: gravity and flotation; sludge digestion and process design; sludge dewatering: vacuum filtration, centrifugation, and filter presses; incineration; reuse and disposal of sludge; small and decentralised systems: alternative collection systems, lagoon treatment systems, wetland and aquatic treatment systems, land treatment systems, on-site systems, packaged plants.

Whale watching platform in Warrnambool.



Unit descriptions

SEN744 Water Supply and Wastewater Removal **G X**

Trimester 2, 1 credit point

Topics to be covered in this unit include: water supply systems – types of water supply systems, assessment of water demand, sources of water, elements of hydrology, surface water collection, ground water collection, head works development, water transmission and distribution systems: demand variations and design flows in pipes; pipelines and valves, hydraulics of pipelines, head loss, network analysis; pumps and pumping installation; service reservoirs wastewater collection systems – collection of sewage and stormwater; sewer materials and appurtenances; flow measurements in sewers; sewer installations and testing design of sewer systems – basic design principles, design of sanitary and stormwater sewers; concept of model based design, dynamic programming, design models; stormwater management systems – non-point source pollution, stormwater quality, retention facilities, objective in best management practices, non-structural best management practices, structural best management practices, and treatment technologies.

SEN745 Water Reclamation and Reuse **G X**

Trimester 2, 1 credit point

Topics to be covered in his unit include: sources of water for reclamation: storm water, grey water, industrial process water, domestic and industrial wastewater; reclaimed water quality: criteria, standards and guidelines advanced water recovery processes: physico-chemical processes (such as filtration, adsorption and oxidation), membrane technologies (micro-, nano-, ultra-filtration and reverse osmosis), disinfection and disinfection by products, biological processes (nutrient removal, membrane bio-reactors) reclaimed water storage and distribution; wastewater reuse applications – principles and cases studies: agricultural and landscape irrigation, aquaculture, industrial reuse, groundwater recharge, aquifer storage, urban and domestic reuse, reuse in decentralised systems and potable water reuse; environmental and public health associated with water reuse; risk assessment.; legal and economical aspects of water reuse sociological aspects of water reuse; case studies (Australian and international).

SEN752 Engineering Management and the Environment **G X**

Trimester 2, 1 credit point

The topics addressed in this unit are engineering management systems; corporate governance; environmental audits and assessments; waste reduction audits; due diligence audits; environmental impact statements; life cycle assessment; understanding and using ISO14001; hazard and operability studies (HAZOP) integrating engineering, quality and environmental management systems; integrating economic, design and environmental priorities.

SHD701 Creating Sustainable Futures **G**

Trimester 1 or 2, 1 credit point

Students will work in a multidisciplinary team to draw on their respective fields of knowledge and background to address current and future environmental problems as they impact on human, natural and built environments. These issues addressed include climate change, waste, water, food, energy, the natural environment, and the built environment

The unit entails activity based learning, opportunities for creative expression and employment preparation relevant to the student's area of study. Teaching will be conducted in a variety of mediums including lectures, workshops and small group work.

SLE701 Foundations of Biotechnology **G**

Trimester 1, 1 credit point

Biology

Enabling technologies in the following areas: eukaryote and prokaryote cell biology, structure and function, the immune system and the use of antibodies, signal transduction, DNA technology and immunoassays, gene expression, transformation and analysis, proteomics and genetics, health and disease, high throughput systems and bioinformatics.

Chemistry

Spectroscopy and the principles of separation science, chemical syntheses, chemical structure, applications of chemiluminescence, analytical tools such as mass spectrometry and flow injection technologies, applications of microfluidic technology in protein and enzyme analysis.

Microbiology

Principles of microbiology, growth of bacterial populations and environmental effects, viruses, bacteria, the archaea, eukaryotic microorganisms, metabolic diversity, microbial bioremediation, industrial microbiology.

SLE702 Bioinformatics, Proteomics and Genomics **G**

Trimester 1, 1 credit point

Bioinformatics

Sequence Information and Analysis: this unit provides an overview of bioinformatics, focusing on problem solving and experimental design.

Genome Analysis: this unit provides an overview and analysis of the theory and practice of genome sequence analysis and the expression of the genome.

Database Construction and Information Retrieval: This unit examines relational databases.

Statistics in Genetics: this unit details modern statistical computing and graphics environments. Students will gain skills in implementation, application and interpretation of statistical methods.

Proteomics

Electrophoresis: this unit covers basic theory and practical techniques of SDS-PAGE and 2-D PAGE electrophoresis.

Protein Detection and Quantitation: this unit covers the theory and practice of chromatography and Mass Spectrometry (MS).

Protein expression: This unit covers the theory and practical techniques of recombinant protein production and protein/peptide synthesis.

Genomics

What is a gene?: this unit details the structure and organisation of the genome in the context of protein and non-protein coding genes (such as micro RNAs) and how these genes are transcribed and regulated within the cell.

Genome sequencing: this unit covers basic theory and practical methods for sequencing genomes (including high throughput, multi-parallel platforms) and the discovery and annotation of protein and non-protein coding genes.

Gene expression: this unit provides an overview of the theoretical and practical aspects of transcriptomics, such as microarrays and quantitative PCR.

Functional Genomics

This unit covers the theory and practical use of RNA interference and cell based assays to study and identify the function of newly discovered genes. The role of knock-out and knock-in transgenic techniques will also be covered.

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SLE703 Agricultural Biotechnology **G***Trimester 1, 1 credit point*

This advanced unit embraces advanced topics in plant and animal biotechnology as it relates to agriculture. Topics will include genomes and genome organisation, the regulation of gene expression, plant and animal cell and tissue culture methodologies, gene transformation techniques, the application of transgenic technology for crop and livestock improvement (including the production of transgenic plants resistant to abiotic and biotic stresses and with enhanced nutritional value) and the use of transgenic plants as bioreactors for the production of novel proteins in medicine and industry and including the production of mammalian cell-lines and monoclonal antibodies. Other topics include the use and development of vaccines and their commercialisation, new vaccine technologies, global challenges in immunisation, mammalian cloning, stem cells and xenotransplantation.

SLE704 Cellular Biology and Immunology **G***Trimester 2, 1 credit point*

This unit will cover aspects of cellular biology and immunology that are important areas common to many biotechnological processes. Students will gain a deeper understanding of cell structure and function. Topics in cell biology will include structures of eukaryotic and prokaryotic cells, membrane structure and function, cell signalling and signal transduction, control of the cell cycle and apoptosis. The immunology module will focus on key aspects of cellular and innate immunology. The innate immunology unit will cover the role of Toll like receptors and cytokines, and the cellular immunology unit will cover the role of B and T cells in adaptive immune response to disease. The module will also cover immunological techniques that are of particular value in biotechnology, including stem cells, transplantation and rejection, production of antibodies to specific proteins including phage display approaches and uses of antibodies in biotechnology.

SLE705 Biopharmaceuticals and Medical Devices **G***Trimester 2, 1 credit point*

Biopharmaceuticals: Types of commercial biopharmaceuticals, drug development, cytokines, haemopoietic growth factors, growth factors, hormones of therapeutic interest, blood products and therapeutic enzymes, antibodies, vaccines, adjuvants, nucleic acid therapeutics, protein based New Chemical Entities (NCEs), small molecule based New Chemical Entities (NCEs), combinatorial synthesis and computational chemistry in medicinal chemistry; specific drugs such as antibacterials, opium analgesics, etc.; case, pre-clinical development, formulation, Phase 1 Trails, Phase 2 Trials, Phase 3 Trials, regulatory approval, product labeling, marketing and launch, product monitoring and improvement.

Medical Devices: Introduction to medical devices, types (any article, including software, intended to be used by human beings for the prevention, monitoring or treatment of a disease, injury or physiological process – including the control of conception), regulatory aspects of the various types of medical devices, experimental design, device discovery, device engineering, device electronics, device materials, device pre-clinical development, testing, clinical trials, regulatory approval, product labelling, marketing and launch and product monitoring and improvement.

Nutraceuticals: Functional foods, additives, nutraceuticals (e.g. Probiotics, unsaturated fatty acids)

SLE706 Frontier Techniques in Biotechnology and Nanotechnology **G***Trimester 2, 1 credit point*

Advanced study of the science underpinning frontier biotechnologies. Topics will include chemistry of materials, molecular diagnostics, emerging trends in bionanotechnology including nanomaterial application, the use of biomolecules in templating, developments in experimental techniques including imaging at the nano scale and key development in food processing.

SLE708 Professional Practice Project **G***Trimester 1 or 2, 2 credit points*

In this unit students will carry out their professional practice relevant to their Biotechnology course using knowledge gained in previous study. The project entails research investigation involving an analysis and interpretation of data, or a critical review and interpretation of literature on a selected topic, and provides an opportunity for the practical application and integration of the professional background and skills studied in other units of the master's degree. The unit requires a commitment equivalent to around one trimester's work on a part-time basis and will earn two credit points. Frequent feedback to the University supervisor in the form of progress reports is essential. Students will be required to submit a minor thesis fully documenting the work carried out. Students are also required to present their work at a seminar arranged at a suitable venue.

SLE710 Industry-Linked Research Project A **G X***Trimester 1 or 2, 4 credit points*

Prerequisite: Students would normally be expected to have an approved academic standard of 65 per cent and above and an available project and supervisor. Please contact the Unit Chair prior to enrolling in this unit.

Corequisite: Students must be enrolled in the Master of Biotechnology (Honours) S771.

This applied biotechnology research project is designed for students to undertake following the successful completion of the Master of Biotechnology core units. Projects are conducted over two subsequent trimesters. Students will be required to undertake a significant body of work giving them an opportunity to apply knowledge gained through units of study. Each student will be assigned an academic supervisor and an industry supervisor during the project. The comprehensive assessment system includes the preparation of a final report, conducting a research seminar and being assessed by the industry and academic supervisors.

Unit descriptions

SLE712 Laboratory Techniques for Cellular and Molecular Biotechnology

Trimester 1, 1 credit point

Corequisites: One of SLE701, SLE702, SLE703, SLE704, SLE705 or SLE706.

This practical-based unit provides students with fundamental skills in cellular and molecular biology which are essential for both research and commercial applications of Biotechnology. Students will be provided with the opportunity to individually and in groups undertake a variety of laboratory-based procedures. These include many sought after techniques in molecular biology involving DNA and RNA such as isolation, purification, amplification, restriction enzyme digestion, cloning, ligation, vector construction and agarose gel electrophoresis. In addition, students will also gain an understanding of the rapidly advancing field of Bioinformatics through computer-based workshops. Techniques required for protein analysis such as poly acrylamide gel electrophoresis, enzyme-linked immunosorbent assays (ELISA) and immunofluorescence microscopy will also form part of the practical program.

SLE713 Industrial and Analytical Techniques in Biotechnology

Trimester 2, 1 credit point

This practical-based unit provides students with exposure to advanced technical skills applicable to many fields within biotechnology. This will include techniques commonly used in industrial and medical microbiology, synthetic chemistry, agricultural and medical biotechnology and nanotechnology. Analytical skills will be developed through practical classes relating to spectroscopy and separation science techniques such as capillary electrophoresis, luminescence spectroscopy, atomic emission spectroscopy, flow injection and sequential injection analysis. This unit will also feature the demonstration and use of industry-standard cutting edge instrumentation.

SLE718 Chemical Hazards

Trimester 1, 1 credit point

This unit examines chemicals in the workplace, including chemical principles, legislation, exposure standards, hazardous substances and material safety data sheets; air sampling, including particulates, gases and vapours, sampling equipment and calibration; the basics of selected methods of chemical analysis, including spectrometry, chromatography, asbestos counting and direct reading instruments; exposure assessment, including 'the walk through survey', sampling strategies and basic statistics.

SLE719 Toxicology and Biohazards

Trimester 1, 1 credit point

The unit provides a basic understanding of the science of toxicology and an appreciation of important toxic agents encountered in occupations. Major topics covered are: introduction to human physiology; absorption, distribution, metabolism and excretion of toxins; mutagenesis and carcinogenesis; immune system; respiratory systems; hepato and nephrotoxicity; skin and eyes; nervous system; reproductive system; blood and cardiotoxicity; toxicity testing; introduction to epidemiology; risk assessment; biological monitoring; and biological hazards.

SLE720 Risk Assessment and Control (Online)

Trimester 2, 1 credit point

This unit is to be delivered in a modular approach. Students will complete a common core that provides students with an understanding of risk assessment and management principles. Following this common core, students will, based on their enrolments select one of the following modules: environment and occupational hygiene and engineering.

Students will discuss selection of the module with the course coordinator.

Environment

This module provides a combination of theory and practical case studies, designed to provide students with the understanding and hands-on experience necessary to identify and address risks to healthy environments. This module includes: case studies of urban, industrial, agricultural and/or natural environments at risk; the role of techniques such as indices of environmental health, epidemiology, toxicology and statistics in evaluating environmental and health concerns – data analysis and interpretation – the limitations associated with the various risk assessment techniques; approaches to risk management through policy, legislation, planning and management; risk management principles and planning; appropriate risk avoidance and minimisation for the case studies utilised; integration of risk management with environmental management principles.

This module is designed to enable environmental objectives to be identified and implemented within a broad range of industry sectors in line with ecological sustainability principles. Tools such as life cycle analysis and risk assessment, used to measure environmental performance will be described and opportunity provided to utilise these in the development of a site specific environmental management system. Systems that assist organisations meet environmental management requirements that are used internationally and within Australia will be examined as will the potential to link in with other management systems commonly used within organisations.

Occupational hygiene

This module uses a simulated (multimedia) workplace to provide experience of conducting a walk through survey, undertaking a risk assessment, communicating the results, designing an exposure monitoring exercise, and designing a control strategy including engineering and non-engineering controls.

Engineering

This module will enable students to understand risk issues associated with enterprises, understand the links between the environment and economics, understand how innovation and sustainable development may impact on each other, apply the principles of sustainable development within an enterprise, and recognise the benefits, and the costs, associated with risk management and sustainable development. The topics addressed include risk management, ecologically sustainable development, green design, economics and sustainability, and population and sustainability.

SLE721 Policy and Planning for Sustainable Development

Trimester 1, 1 credit point

This unit focuses on the synthesis, interpretation and analysis of information in regards to environmental policy at all levels of government and other public or private organisations. The need for global co-operation and action in responding to environmental issues is becoming more important. Air quality, land management, resource use and water quality are some of the myriad of issues that can only be resolved with greater understanding of local issues to enable targeted responses at the global level. Due to lack of agreement in policy aims and specific objectives, it has been argued that the current approaches to environmental management have not been as effective in achieving desired environmental outcomes. Practitioners need to understand the process of policy development in order to fully realise the potential outcomes as well as to be able to input into the process to achieve sustainable outcomes. Policy objectives need to be fully cognisant of the environmental, political, economic and social influences that must be addressed if change is to occur.



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SLE723 Physical Hazards X*Trimester 2, 1 credit point*

This unit covers the characteristics of radiation (energy, frequency, wavelength and the electromagnetic spectrum); non-ionising radiation ranging from static fields, through ELF, radio, microwave, infra-red, and visible frequencies to ultra-violet radiation is studied from the viewpoint of interaction with matter, measurement, health effects, exposure standards and controls. Emphasis is given to industrial sources of non-ionising radiation and special attention is given to lasers and the administrative controls to which they are subject. Similarly, ionising radiation, including electromagnetic (X and g) and particulate (a, b and n) radiation is considered, giving emphasis to commonly encountered sources of such radiation in industry and laboratories and with reference to the relevant legislation. The unit also looks at noise: the underlying physics of sound, hearing, physiological effects, noise induced hearing loss, audiometry, methods of monitoring noise levels and exposure, exposure standards, regulations and noise control; and vibration: underlying physics, physiological and medical effects, and measurement of vibration, exposure standards, regulations and vibration control.

SLE724 Human Factors X*Trimester 2, 1 credit point*

This unit covers both human factors and workplace control. Major topics covered are the philosophy and principles of ergonomics, including fitting the task to the worker; applied occupational anthropometry and biomechanics and its application to hazards such as manual handling; work physiology and work rate assessment; the thermal environment, heat stress and heat stress indices including Wet Bulb Globe Temperature (WBGT), the Heat Stress Index (HSI), predicted sweat rates and the ISO methods (ISO 7243 and ISO 7933); workplace lighting, glare and discomfort, task lighting and methods of assessment. Control topics include the hierarchy of control, engineering controls and personal protective clothing and equipment.

SLE725 Environmental Management Systems X*Trimester 1, 1 credit point*

This unit is designed to enable environmental objectives to be identified and implemented within a broad range of industry sectors in line with ecological sustainability principles. Tools such as life cycle analysis and risk assessment, used to measure environmental performance will be described and opportunity provided to utilise these in the development of a site specific environmental management system. Systems that assist organisations meet environmental management requirements that are used internationally and within Australia will be examined as will the potential to link in with other management systems commonly used within organisations.

SLE727 Environment Protection and Occupational Health and Safety X*Trimester 2, 1 credit point*

The unit aims to provide students with knowledge on a wide range of Australian and International environmental impacts and contemporary approaches to protect people and their environments by reducing environmental pollution in the first instance and how these issues are managed by environment protection agencies.

Topics addressed in this unit include: air pollution causes and effects, noise impacts on the environment and workplace, noise control options, solid and liquid waste generation sources, wastewater management, environment and OHS audit techniques, ecologically sustainable development, eco-design, life cycle analysis and risk assessment, environmental and OH&S legislation and Australian and International approaches, management strategies such as works approvals and licencing.

SLE728 Oceans, Coasts and Climate Change X*Trimester 2, 1 credit point*

The internationally accepted concept of integrated coastal management (ICM) is introduced, described and analysed. International advances and initiatives in marine and coastal affairs such as conventions and agreements, for example the United Nations Convention on the Law of the Sea (UNCLOS), are described and analysed. The varying approaches adopted towards ocean and marine policy and implementation of chapter 17 of Agenda 21 (Rio Convention) will be covered. Australia's approach to marine and coastal policy and management will be concentrated on as an example of a national approach towards implementing integrated marine and coastal management. Topics covered will include Australia's ocean policy and the emphasis placed on community involvement, in particular through such approaches as the Marine and Coastal Community Network and Coastcare. An overview of the approaches taken in various Australian states towards implementing integrated coastal management will be described and analysed.

SLE730 Industry-Linked Research Project B G X*Trimester 1 or 2, 4 credit points*

This applied biotechnology research project is designed for students to undertake following the successful completion of the Master of Biotechnology core units. Projects are conducted over two subsequent trimesters. Students will be required to undertake a significant body of work giving them an opportunity to apply knowledge gained through units of study. Each student will be assigned an academic supervisor and an industry supervisor during the project. The comprehensive assessment system includes the preparation of a final report, conducting a research seminar and being assessed by the industry and academic supervisors.

Unit descriptions

SLE731 Occupational Hygiene Practice **X**

Trimester 1, 1 credit point

Practical topics include sampling and analysis of dusts, gases and vapours; direct reading instruments; execution of an occupational hygiene survey; ventilation assessment and design; assessment of ionising and non-ionising radiation; noise measurement; audiometry; lighting; and work physiology and databases and online resources covering occupational hygiene methods, legislation and practice.

SLE732 Geographic Information Systems **B**

Trimester 2, 1 credit point

The principles of spatial analysis and mapping using GIS will be described. The unit will cover data collection, input, storage and retrieval, analysis and display. Students should achieve basic software competency based on exercises using widely used software packages. Practical exercises will demonstrate the application of GIS to a range of ecological applications. Applications involving integration of GPS, GIS and remote sensing will be emphasised.

SLE755 Catchment and Coastal Management **B**

Trimester 2, 1 credit point

Global concepts and the theoretical basis of integrated land and sea management, e.g. Integrated Catchment Management and Integrated Coastal Zone Management are introduced. A case study of a global leader in integrated natural resources management (Victoria) is used to illustrate the implementation of the concepts. Approaches taken to the integrated management of catchments and coasts and the roles of government, semi-government and local government authorities, and non-government organisation in management are described and discussed. Overlaps of responsibility, possible conflicts of interest, and unclear boundaries of responsibility are identified. The State of Victoria is to be used as a case study of an attempt to integrate catchment and coastal management. The logic of the catchment as an area for both and management and planning purposes is discussed. Methods used to evaluate the social, biophysical and land-use characteristics and to develop community awareness and involvement in problems with catchment associated with catchments and coasts are described.

SLE791 Interpreting Natural and Cultural Landscapes **G**

Trimester 1 or 2, 1 credit point

The unit begins with a discussion of natural and cultural heritage values as expressed in the terms 'cultural landscapes' and 'country'. Students consider different ways of knowing and understanding in the context of the conversation across knowledge systems. The unit examines the idea of the Australian landscape as a cultural construction embodying complex human relationships connecting nature, human nature and the environment. The use of interpretation in the process of assessing heritage 'significance' is examined with reference to current international and national practice. The unit continues with an examination of the theory and principles of heritage interpretation in conservation, and highlights the importance of linking the communication of meaning and significance to the special experiences and opportunities available for visitors to heritage sites.

The contemporary international discourse on interpreting cultural landscapes will be considered, as well as The Burra Charter. Throughout this unit students are challenged to consider the potential of interpretative theory and technique in analysing and communicating heritage significance. The need for creative and innovative thinking in interpreting landscape and seascape heritage values to the wider public is emphasised.

SLE792 Knowledge for Natural and Cultural Environments **G**

Trimester 1 or 2, 1 credit point

The Australian environment as we see it today is a reflection of historical and ongoing interactions between its peoples, their actions and knowledge base. Recent management of the Australian environment has been largely underpinned by western science. This dominance however, is being challenged both theoretically and practically by the acceptance of a more holistic and integrated approach to managing land, water and resources. This unit explores the current and emerging perspectives and knowledge that are influencing current management of Australian natural and cultural environments.

Ecological, environmental, economic and community development understandings of environmental management provide a starting point to examine the importance of cultural influences on community based natural and cultural resource management. The unit focuses on the connection between knowledge and management of natural and cultural environments and aims to develop foundational skills by analysing and creatively responding to natural and cultural resource management theory and practice.

SLE793 Environmental Policy, Frameworks and Issues **G**

Trimester 1 or 2, 1 credit point

The unit will introduce students to:

- » the National Policy context that drives the delivery of natural resource management in Australia
- » the key policy instruments that are used to manage land, water and soil conservation management
- » key legislation that regulates natural and cultural resource management in Australia
- » the management of Aboriginal owned lands and Indigenous protected areas
- » issues current in the application of natural resource management program.

SLE794 Sustainability and Waste Management **G X**

Trimester 1, 2 or 3, 1 credit point

The preferred approach to the production of wastes such as waste avoidance, reduction, reuse and recycling as well as the philosophy of cleaner production will be discussed in detail together with considerations of on-site or off-site treatment. Techniques of minimising waste by conducting audits and evaluating alternatives based on economic, technical and social aspects will be covered in greater detail. This will be linked to the development and implementation of waste management plans. The various disposal techniques available for a range of hazardous materials will be discussed, e.g. burial, incineration, co-generation, pre-treatment, storage and immobilisation. In addition, the issues relating to the collection, transport and disposal of municipal wastes will be examined in the context of their contribution to the overall waste problem in Australia. Various alternatives for reducing and disposing of this waste stream will be examined. Students will undertake a research project consisting of a detailed plan for evaluating waste production and developing options for minimising and/or recycling wastes.

KEY

- B** Melbourne Burwood Campus
- F** Geelong Waterfront Campus
- G** Geelong Waurin Ponds Campus
- W** Warrnambool Campus
- X** Off campus



Shyamalie Senadheera
PhD – School of Life and Environmental Sciences
Warrnambool Campus

Shyamalie Senadheera, a recipient of an AusAID Australian Leadership Awards Scholarship, is a PhD student at Deakin’s School of Life and Environmental Sciences at the Warrnambool Campus.

Arriving in Australia in 2008, Shyamalie was previously a research officer at Sri Lanka’s National Aquatic Resources Research and Development Agency and a lecturer in the fisheries science.

Now, her research is testing a variety of alternative diets – vegetable oils instead of fish oils – for farmed Murray Cod with the aim to create a diet for farmed fish that replaces expensive fish oils with cheaper alternatives. ‘Global supplies of fish oil are very low ...

so we are looking for alternatives and what triggers conversion of essential fatty acids into health-beneficial long chain omega-3 PUFA,’ she explains. ‘The long term goal is to find an

‘It’s a very good place for this research with excellent labs and a large facility for us to feed and observe the fish.’

alternative source of fish oil ... if we find good feeding formulation regimes then we can sell to the industry to reduce feed cost and the same technology can be applied to other species.’

Shyamalie was encouraged to apply for PhD study at Deakin by academics in both Sri Lanka

and Australia who knew of the research of Warrnambool-based Dr Giovanni Turchini, who is working on innovative natural methods of producing fish still rich in Omega-3 fatty acids without using fish oil.

In her three years at Deakin, Shyamalie has settled into life in Warrnambool and, despite the huge differences between the Victorian coastal city and Sri Lanka’s largest city, she says it is an ideal location for aquaculture study.

‘It really is the best place for this field of study. It’s a very good place for this research with excellent labs and a large facility for us to feed and observe the fish.’

Unit descriptions

SLE795 Planning and Techniques for Interpretation **G**

Trimester 1 or 2, 1 credit point

This unit begins by considering the role and relationship of interpretation in communicating the values and significance of a heritage site and its conservation management. This is followed by discussing the ideas, principles, strategies and stages of interpretive planning, and then examining the range of communications and techniques available to the heritage interpreter. These include face-to-face presentations such as talks, demonstrations and tour guiding, as well as interpretation based on the written word, such as signs and brochures. We also consider the role and design of web sites and online information, audiovisuals, interactives and the visual and performance arts. The process of interpretation planning for a heritage place is examined, including assessment of significance, the visitor experience, concept development and design. Throughout the whole process students are reminded of the importance of constant evaluation and reflection. Issues of the control and representation of Aboriginal and Torres Strait Islander heritage are considered in relation to community cultural protocols.

SLE797 Community Project Management **G**

Trimester 1 or 2, 1 credit point

The unit will introduce students to:

- » contemporary practice in strategic planning
- » project management principles
- » effective consultative practices
- » basic budgeting for small-scale projects
- » timelines and implementation of projects
- » risk analysis for projects
- » communication strategies for project management.

SLE798 Researching for Country **G**

Trimester 1 or 2, 1 credit point

The unit begins by discussing the importance and contribution that research can make to the knowledge needs of natural and cultural environments. This discussion will also include issues such as the protocols required to engage in such research, community consultation processes and the intellectual property rights that protect such research. The unit then examines the various methods for locating, gathering, interpreting and writing research. This includes a critical analysis of the source materials and an understanding of the context in which they will be presented. Students will then construct a viable research question and write to their question and present this research to a small forum of peers. The unit will be enhanced by a field visit to the Koorie Heritage Trust which has an Oral History Unit that conducts history recording and archiving of Victorian Koorie Histories.

SLE799 Essential Skills for Natural and Cultural Resource Management **G**

Trimester 1, 2 or 3, 1 credit point

Corequisite: SLE798

The focus of the unit is on the advancement of practical and professional skills that will enable graduates to work in multiple agency, consultancy and workplace settings. The five skill areas concentrated on will include:

- » development of proposals, consultation processes and outcomes for NCRM projects
- » facilitation of information sessions and consultation processes
- » compilation and writing of needs analyses using databases
- » construction of a map from data base sources
- » construction or media presentations related to NCRM issues
- » interpretation and analysis of statistical data used in NCRM projects.

The unit will be undertaken during the three intensives scheduled for the trimester. A combination of computer laboratory instruction, exercises and workshops will be the main methods of tuition.

Find out more

Where to get more information

Web site

Deakin on the web, www.deakin.edu.au, contains detailed information on everything at Deakin, including:

- » courses
- » unit descriptions
- » student profiles
- » campuses
- » facilities and services
- » applications and scholarships
- » research.

To find detailed course information, including unit descriptions, you can visit the following sites:

- » course search – search for Deakin's courses online www.deakin.edu.au/courses, find the course you are looking for and view a full description of that unit
- » *Postgraduate Studies Handbook* – the handbook provides a listing and description of all units and course structures www.deakin.edu.au/handbook.

Other useful web sites

Fees

www.deakin.edu.au/future-students/fees

Library

www.deakin.edu.au/library

Research scholarships

www.deakin.edu.au/future-students/research/scholarships

Study skills

www.deakin.edu.au/future-students/services-facilities

Course enquiries

For additional course guides and brochures or more information about application, selection and enrolment, as well as fees and charges, please contact:

1300 DEGREE (1300 334 733)

enquire@deakin.edu.au

www.deakin.edu.au/courses

Research degree enquiries

Research Services Division

Phone: +61 3 9251 7124

research-hdr@deakin.edu.au

www.deakin.edu.au/research

Disability services

For details, phone:

- » Geelong 03 5227 1221
- » Melbourne 03 9244 6255
- » Warrnambool 03 5563 3256

visit www.deakin.edu.au/disability

or email drcentre@deakin.edu.au.

International student enquiries

Deakin University also produces course guides specifically for international students.

To request a copy phone Deakin International on +61 3 9627 4877, email deakin-international@deakin.edu.au or visit www.deakin.edu.au/international.

Further reading

Postgraduate study area booklets:

- » Architecture and Built Environment
- » Arts, Humanities and Social Sciences
- » Business and Law
- » Education
- » Engineering
- » Health
- » Information Technology
- » Media, Communication and Creative Arts
- » Medicine
- » Nursing and Midwifery
- » Nutrition and Dietetics
- » Optometry
- » Psychology
- » Science and Environment.

To request a copy of any of the above publications please email enquire@deakin.edu.au, phone 1300 DEGREE (1300 334 733), or download at

www.deakin.edu.au/future-students/brochures.

Open Days 2011

Warrnambool Campus

Sunday 14 August

Geelong Waurm Ponds Campus

Sunday 21 August

Geelong Waterfront Campus

Sunday 21 August

Melbourne Burwood Campus

Sunday 28 August

www.deakin.edu.au/openday

Social media@Deakin

You can find us on social media sites Facebook, Twitter and YouTube using the links on our social media page.

Keep in-the-know about all things Deakin, including upcoming events and general information, and have your questions answered.

We also have an iTunesU channel, where you can learn about our research activities, teaching and learning initiatives and view highlights of student work, training guides and videos of public lectures.

Visit www.deakin.edu.au/socialmedia to get connected with Deakin.



Postgraduate Information Nights

RACV Club, Melbourne

Tuesday 4 October 2011, 5–7 pm

Melbourne Burwood Campus

Tuesday 11 October 2011, 5–7 pm

Postgraduate Information Nights will also be held in February and May 2012. Please visit www.deakin.edu.au/postgrad or phone 1300 DEGREE (1300 334 733) closer to the time for specific dates and event details.

Important dates

2011

14 August

Open Day at Warrnambool Campus

21 August

Open Day at Geelong Wairn Ponds Campus
Open Day at Geelong Waterfront Campus

28 August

Open Day at Melbourne Burwood Campus

4 October

Postgraduate Information Night, 5–7 pm
RACV Club, Melbourne
To register visit www.deakin.edu.au/pgevents.

11 October

Postgraduate Information Night, 5–7 pm
Melbourne Burwood Campus
To register visit www.deakin.edu.au/pgevents.

31 October

Closing date for applications for research
scholarships – Australian and New Zealand citizens
and Australian permanent residents.

14 November

Trimester 3 begins

Application closing dates

Trimester 3, 2011

30 October 2011

Off campus

Trimester 1, 2012

19 February 2012

Off campus

6 November 2011

On campus

26 February 2012

On campus

Note: Research degree applications can be made at any time. Some postgraduate courses have alternative application requirements and closing dates. For more information, please visit www.deakin.edu.au/apply.

2012

Trimester 1

Teaching period 5 March–1 June
Easter holiday/intra-trimester break 6–15 April
Examination period 7–15 June
Trimester break 18 June–6 July

Trimester 2

Teaching period 9 July–5 October
Intra-trimester break 24–30 September
Examination period 11–19 October
Trimester break 22 October–9 November

Trimester 3

Teaching period 12 November–15 February 2013
Intra-trimester break 24 December–2 January 2013
Examination period 21 February–1 March 2013
Trimester break 4–8 March 2013

For details, please visit www.deakin.edu.au/future-students.



More information

1300 DEGREE (1300 334 733) | www.deakin.edu.au | enquire@deakin.edu.au

2011 DEAKIN UNIVERSITY POSTGRADUATE INFORMATION NIGHTS

RACV CLUB, MELBOURNE

Tuesday 4 October 2011

5.00–7.00 pm

Level 2, 501 Bourke Street
Melbourne VIC 3000

MELBOURNE BURWOOD CAMPUS

Tuesday 11 October 2011

5.00–7.00 pm

Building LB, 70 Elgar Road
Burwood VIC 3125

