



Curtin University

2019 **POSTGRADUATE**
COURSE GUIDE

BIOMEDICAL SCIENCES

COURSEWORK AND RESEARCH DEGREES

Make tomorrow better.



healthsciences.curtin.edu.au



BIOMEDICAL SCIENCES AT CURTIN



When you undertake a postgraduate coursework or research degree in biomedical sciences at Curtin, you join a community who are at the forefront of healthcare and biotechnology innovations.

We offer a friendly, supportive environment to students, staff and visiting scientists and aspire to graduate biomedical scientists of international standing and recognition.

Our postgraduate courses include master and doctoral degrees by research as well as coursework master degrees.

BIOMEDICAL SCIENCES FACILITIES

Researchers have access to sophisticated and specialised scientific equipment including:

- a genomic facility (including next generation DNA sequencing, real time PCR)
- LC MS mass spectroscopy
- HPLC
- Biacore T200 instrumentation
- radioisotope counters
- three flow cytometers
- a BD FACSJazz cell sorter
- spinning disk and point scanning confocal microscopes
- ultra and high speed centrifuges and cell counting equipment
- advanced microplate readers
- a histopathology suite
- four tissue culture suites
- autoclaves and sterilisation equipment
- oven/incubators
- balances, pH-meters
- gel documentation equipment for data analysis and presentation
- a protein expression and purification facility.



Ranked in the top one per cent of universities worldwide in the Academic Ranking of World Universities 2017.



#3 in the Asia Pacific in the Nature Index 2016 Rising Stars supplement.



An international university, with campuses in Dubai, Malaysia, Singapore and Western Australia.

WHY STUDY A POSTGRADUATE DEGREE AT CURTIN?

ACCESS NEW KNOWLEDGE AND DISCOVERIES

A Curtin health sciences degree can give you access to knowledge and discoveries to help you improve the standard of healthcare in Australia and make a real difference to people's lives, locally and globally.

MOVE UP THE CAREER LADDER

A postgraduate course can add new or specialist skills and knowledge to your repertoire. Our postgraduate coursework and research programs are diverse, ranging from life sciences and clinical sciences to population health sciences.

GET AN EDGE IN THE JOB MARKET

A postgraduate qualification may also help you stand out from other candidates in an increasingly competitive job market.

PROFESSIONALLY RECOGNISED

Many of our courses are accredited nationally and are internationally recognised, allowing you to potentially work in a number of countries around the world when you graduate.



Q&A WITH NIKITA WALZ
Doctor of Philosophy (Biomedical Science)

WHAT COURSE DO YOU STUDY?

I am currently studying my Doctor of Philosophy (Biomedical Science).

HOW MANY DEGREES DO YOU HAVE - WHAT ARE THEY?

I have one completed degree so far, a Bachelor of Science with First Class Honours (Biomedical Science).

WHAT MADE YOU DECIDE TO UNDERTAKE POSTGRADUATE STUDY?

My first exposure to research was in my undergraduate Human Biology Preclinical degree, in which we undertook a short 12-week research project in pairs. The project gave me the opportunity to experience working in the Curtin Health Innovation Research Institute. After finishing this research unit in my last semester I decided to undertake honours, which entailed a year-long research project. I completed my honours under the supervision of a professor whose lab focuses on metabolism, particularly in the context of diabetes. The other researchers were incredibly supportive, and from my time working with them in the lab, I developed a strong passion for research, which inspired me to continue on with my PhD the following year.

Disclaimer

Information in this publication is correct as at December 2017 but may be subject to change.

In particular, the University reserves the right to change the content and/or method of assessment, to change or alter tuition fees of any unit of study, to withdraw any unit of study or program which it offers, to impose limitations on enrolment in any unit or program, and/or to vary arrangements for any program. This material does not purport to constitute legal or professional advice. Curtin accepts no responsibility for and makes no representations, whether express or implied, as to the accuracy or reliability in any respect of any material in this publication. Except to the extent mandated otherwise by legislation, Curtin University does not accept responsibility for the consequences of any reliance which may be placed on this material by any person.

Curtin will not be liable to you or to any other person for any loss or damage (including direct, consequential or economic loss or damage) however caused and whether by negligence or otherwise which may result directly or indirectly from the use of this publication.

This publication is available in alternative formats on request.

International students

International students studying in Australia on a student visa can only study full-time and there are also specific entry requirements that must be met. As some information contained in this publication may not be applicable to international students, see international.curtin.edu.au for further information. Australian citizens, permanent residents and international students studying outside Australia may have the choice of full-time, part-time and external study, depending on course availability and in-country requirements.

Copyright Curtin University
© Curtin University 2018.

Except as permitted by the Copyright Act 1968, this material may not be reproduced, stored or transmitted without the permission of the copyright owner. All enquiries must be directed to Curtin University.

Published by Curtin University 2018.
CRICOS Provider code 003013
ADV103250

MASTER OF BIOMEDICAL SCIENCE

RESEARCH DEGREES

In this course you will focus on molecular biotechnology, including molecular genetics, bioinformatics, the microbiology and immunology of infectious diseases and stem cell technology. Core units in these topics provide relevant preparation for your applied research training in the second year of the course.

Laboratory classes will help improve your research capabilities and technical skills, such as DNA cloning and sequencing. An advanced laboratory unit and/or individual research projects will further hone your laboratory skills for a professional research environment.

Your practical work may also include real-life situations involving experimental design, technique selection and solving practical problems in the laboratory.

Alternatively, project units can be used for biological and medical research at a theoretical level, fostering critical analysis of scientific literature and the formulation of novel hypotheses and research proposals.

You will graduate with the knowledge and practical skills required to work at an advanced level in the biomedical sector and other biotechnology-related industries.

COURSE ESSENTIALS

CRICOS CODE 058864F	INTAKE Feb	DURATION 2 years full-time
LOCATION Perth	STUDY MODE Full time, Part-time	

International students: if you are studying in Australia on a student visa, you must study on-campus and full-time.

ADMISSION CRITERIA

A bachelor degree in a biomedical/life science based discipline or equivalent with a course weighted average of 65 per cent.

Graduates from other science disciplines are considered and assessed on an individual basis, but you should have sound knowledge in biochemistry, molecular genetics and microbiology.

ENGLISH LANGUAGE PROFICIENCY

This course requires a higher level of English language proficiency: IELTS (Academic) overall band of 7.0 with a minimum of 6.5 in each band (or equivalent English test).

PROFESSIONAL RECOGNITION

Graduates are eligible for membership of the Australian Biotechnology Association and equivalent industry organisations internationally.

Curtin has a strong biomedical science profile in a diverse range of disciplines, and has significant research expertise and global recognition in the biosciences and metabolic health areas.

Our biomedical science research priority areas include:

- biotechnology
- cancer – diagnosis and immunotherapy
- cell biology and signalling
- biomolecular modelling, bioinformatics, systems biology and drug discovery
- metabolic health, disease and pathogenesis (including neurodegenerative diseases)
- microbiology (including infectious disease control and environmental microbiology)
- molecular genetics
- stem cell biology and tissue regeneration.

We offer the following biomedical postgraduate research courses:

- Master of Philosophy (MPhil) in Biomedical Science
- Doctor of Philosophy (PhD) in Biomedical Science

WHAT DOESN'T KILL YOU MAKES YOU STRONGER

Over millions of years, some fauna have evolved an array of chemical compounds to target the nervous or cardiovascular systems of their predators and prey. These compounds are fast-acting, extremely potent and incredibly selective in their action – exactly the qualities required in pharmaceuticals.

Dr Evelyne Deplazes, a Curtin researcher, is investigating how venom peptides bind to cell membranes, with a view towards peptide-based drug design.

“We have only been able to study spider venoms more recently – you get a lot less venom milking a spider than you do milking a snake”, says Dr Deplazes. “We have only recently had chromatographic techniques sensitive enough to separate out the venoms into their individual components and analytical techniques to characterise their structures routinely. Spider venoms are very complex mixtures and contain hundreds of distinct components, most of which are peptides that target the nervous system.”

As knowledge of the nervous system develops, and the actions of the various ion channels in cell membranes become better understood, new therapeutic targets are emerging that spider venoms may be able to unlock. Specific ion channels have been identified for their involvement in pain sensation, so peptides that selectively inhibit these channels might be useful leads in the development of novel painkillers. Equally, as the neurological basis for blood pressure regulation, cardiac

arrhythmia, epilepsy, multiple sclerosis and stroke become better understood, venom peptides that interact with these pathways will become a basis for new treatments.

“Most of these venom peptides involve interactions with receptors in cell membranes”, says Dr Deplazes. “Understanding that interaction is the key to understanding how they work, and which bits of the peptide structure are important for that activity.”

“Once we have that understanding, we can start tweaking the peptide properties to suit our purpose. The aim is to use rational design approaches to create a venom peptide analogue with all of the potency, selectivity and specificity of the original venom, but the activity we want to be therapeutically useful.”

Dr Deplazes is working on venom peptides from the Peruvian green velvet tarantula as a lead for chronic pain treatment, and venom from the Trinidad tarantula with potential for stroke treatment.



Image provided by the Cancer Council



“A major reason for pursuing my Master of Biomedical Science stemmed from working in the field of breast cancer clinical trials for several years after completing my bachelor degree. Working with patients in a clinical setting, I realised I needed a deeper understanding of the human body in order to better understand disease processes, with the hope of making a difference in the future.”

I want to be involved in research that improves the quality of life and extends the lives of breast cancer patients. Eventually I'd like to run my own research department with the aim to improve our understanding of cancer biology and discover the therapies of the future. I would also like to teach, and I would love to have the opportunity to inspire the scientists of tomorrow.”

Naomi Brook
Master of Biomedical Science



FEE INFORMATION

DOMESTIC STUDENTS

TUITION FEES

Your tuition fee is calculated and charged on a semester basis.

Indicative course fees for the 2018 commencement year are available at courses.curtin.edu.au. Indicative course fees for the 2019 commencement year will be available from September 2018.

For more information on individual unit (subject) fees, visit fees.curtin.edu.au/course_fees.cfm

STUDENT SERVICES AND AMENITIES FEE

Your Student Services and Amenities Fee (SSAF) supports a range of non-academic services and amenities at Curtin. For information on the cost and services covered by the SSAF, visit fees.curtin.edu.au/amenities.cfm

INTERNATIONAL STUDENTS

Tuition fees are based on a normal full-time workload of 100 credits per semester (200 credits per year) unless otherwise stated. If you study more than 100 credits per semester, you will have a higher annual tuition fee. The tuition fee is calculated in Australian dollars and is charged on a semester basis. Course and individual unit (subject) fees are listed at fees.curtin.edu.au/course_fees.cfm

Please note: all listed fees are subject to annual increases.

COMMONWEALTH SUPPORTED PLACE

A number of our postgraduate health sciences courses are commonwealth supported. A Commonwealth Supported Place (CSP) is subsidised by the Australian Government and is available to Australian and New Zealand applicants only. For more information about CSPs and whether you are eligible, visit studyassist.gov.au

EMPLOYER-PAID STUDY

Your employer may be able to help you with the cost of postgraduate study. Many employers have developed formal employee education assistance policies in which education costs may be shared.

OFFER LETTER (100 CREDITS) FEE

As an international student, you need to pay the fees for your first study period (one semester or 100 credits) before arriving in Australia in order to receive a confirmation of enrolment. The fee quoted on the international offer letter is only an approximation and may differ slightly in accordance with the units you choose to study upon your enrolment.

INDICATIVE ESSENTIAL INCIDENTAL FEES

Some courses require compulsory additional payment for retainable materials and course-related fees, known as essential incidental fees.

FEE-HELP

If you are an Australian citizen or hold a permanent humanitarian visa, you have the option of applying for FEE-HELP – a loan to help pay for part or all of your tuition fees. For more information, visit fees.curtin.edu.au/feeHELP.cfm

TAX BENEFITS

You may be entitled to an income tax deduction for tuition fees and related expenses, if there is a direct connection between your course and your current work. For more information, please consult the Australian Tax Office at ato.gov.au

Some individual units may have optional fees for course materials and other course-related items.

REFUND AGREEMENT

The categories under which the University Fees Centre will assess an application for refund are laid out in the University's International Student Refund Agreement. The agreement is supplied to you with your Letter of Offer and can also be accessed online at fees.curtin.edu.au/refunds.cfm, where you can also view the most up-to-date information as the policy is subject to change.



HOW TO APPLY AND SCHOLARSHIPS

COURSEWORK DEGREES

To make applying to Curtin as easy as possible, we have put together online guides and services to help you.

DOMESTIC STUDENTS

You are a domestic student if you are:

- an Australian citizen or Australian dual citizen
- a permanent resident of Australia
- a holder of an Australian permanent humanitarian visa
- a New Zealand citizen.

To apply now or for more information, visit curtin.edu/pg-apply

INTERNATIONAL STUDENTS

You are an international student if you are required to hold a student visa to study in Australia. This includes temporary residents, and non-residents of Australia and New Zealand.

To apply now and for more information, visit curtin.edu/int-apply

RESEARCH STUDENTS

To find a thesis supervisor and for information on how to apply for both domestic and international students, visit howtoapply.curtin.edu.au/research

Alternatively, you can contact our Graduate Research School for more information:

Tel: +61 8 9266 3337
Email: GRS.FutureStudents@curtin.edu.au
Web: curtin.edu/postgrad-research

ENGLISH LANGUAGE PROFICIENCY

Curtin requires all students to demonstrate proficiency in English. You will meet the English language proficiency requirements by demonstrated completion of at least one year full-time of an undergraduate or postgraduate coursework degree at recognised universities in Canada, New Zealand, Republic of Ireland, Singapore, South Africa, United Kingdom or United States of America.

Alternatively, you can demonstrate your English language proficiency via other tests, such as the International English Language Testing System (IELTS) or Test of English as a Foreign Language (TOEFL).

For further information on the postgraduate English language proficiency requirements, visit curtin.edu/pg-english

ADDITIONAL REQUIREMENTS

Health sciences students who will be working with children aged from newborn to 17 need to have a Working With Children Check. Your course coordinator will advise you when this is required. Courses that include supervised practice in a clinical setting require screening for and vaccination against a range of infectious diseases before beginning placement. A recognised first aid certificate and a criminal record screening are also necessary.

curtin.edu/hs-fieldwork-requirements

SCHOLARSHIPS

You may be able to apply for a scholarship to support your study. To find out more and sign up to the scholarships email alert, visit scholarships.curtin.edu.au

CONTACT US

CURTIN CONNECT

Tel: 1300 222 888

Email: futurestudents@curtin.edu.au

Web: futurestudents.curtin.edu.au

CURTIN UNIVERSITY

Bentley Campus

Kent Street Bentley WA 6102

GPO Box U1987 Perth WA 6845

Tel: +61 8 9266 1000

Web: healthsciences.curtin.edu.au

INTERNATIONAL STUDENTS

CURTIN INTERNATIONAL

Tel: +61 8 9266 7331

Fax: +61 8 9666 2605

Email: study@curtin.edu.au

Web: international.curtin.edu.au

Join the conversation!



facebook.com/curtinuniversity



[@curtinuniversity](https://instagram.com/curtinuniversity)



[@CurtinUni](https://twitter.com/CurtinUni)



youtube.com/curtinuniversity

healthsciences.curtin.edu.au