



Curtin University

POSTGRADUATE
COURSE GUIDE
2018

COURSEWORK AND
RESEARCH DEGREES

HEALTH SCIENCES

BIOMEDICAL
SCIENCES

Make tomorrow better.



healthsciences.curtin.edu.au



BIOMEDICAL SCIENCES AT CURTIN

The School of Biomedical Sciences is recognised for its innovative and leading-edge teaching, research and consultancy profile.

In this course you will focus on molecular biotechnology including molecular genetics, bioinformatics, the microbiology and immunology of infectious diseases, and stem cell technology. You can choose optional units in these areas according to your interests.

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

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

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.



Curtin University is ranked in the top two per cent of universities worldwide, in the Academic Ranking of World Universities 2016.



Curtin was named the most collaborative university in Australia in the research-focused Nature Index for 2016 and ranked in the top 100 in the world in Nature's Rising Stars supplement, having increased our contributions to science journals by more than 80 per cent.



Curtin proudly celebrates the innovation at its heart. This innovative spirit has seen us mature from the Western Australian Institute of Technology (1967–1986) to the sophisticated global university that we are today.

50years.curtin.edu.au



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

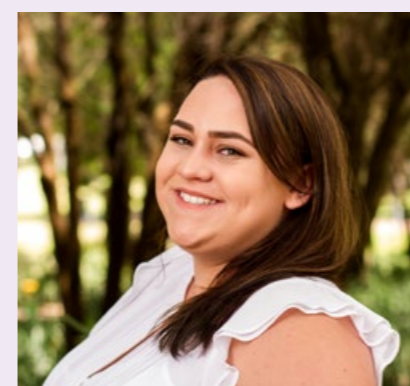
A postgraduate course can add new or specialist skills and knowledge to your repertoire. Our postgraduate coursework and research programs are diverse, ranging from life sciences and clinical sciences to population health sciences.

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 work in a number of countries around the world when you graduate.



Q&A WITH NIKITA WALZ

Postgraduate Biomedical Science Student

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 in Building 305. 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.

MASTER OF BIOMEDICAL SCIENCE

RESEARCH DEGREES

Speaker's Corner

In this course you will focus on molecular biotechnology, including molecular genetics, bioinformatics, the microbiology and immunology of infectious diseases and stem cell technology. You can choose optional units in these areas according to your interests.

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

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

ENTRY REQUIREMENTS

A bachelor degree in a biomedical/life science based discipline or equivalent with a course weighted average (CWA) 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.

INTERNATIONAL STUDENTS

ENGLISH LANGUAGE ENTRY REQUIREMENTS

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's School of Biomedical Sciences conducts research programs in many disciplines. We have a strong and growing research focus, aided by qualified, industry-experienced and professional staff who will help you achieve your goals.

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

BIOMEDICAL RESEARCH PROJECT PROFILE

Curtin biomedical research student Felipe Krupelis is investigating glutamine, a type of amino acid that reportedly assists with muscle repair and immune recovery, and its role in white blood cell metabolism and functional integrity.

The purpose of the project, entitled 'The role of glutamine in neutrophil metabolism and functional integrity', is to provide insights into the uptake of glutamine by neutrophils and how it affects their metabolism, functions, and how they live and die in the presence of different concentrations of glutamine.

The overall goal is to produce results that lead to developing methods to treat the symptoms of autoimmune diseases and other diseases that affect or are affected by the immune system, including Alzheimer's disease, cancer, diabetes, and acquired immune deficiency syndrome (AIDS).

"Autoimmune diseases are all diseases in which the immune system attacks cells of our own body, and these diseases are not unusual," Krupelis says.

"What they all have in common is the fact that the immune system is abnormally activated. If we can control the activation, we might be able to develop better treatments to those diseases, which currently have no cure."

Data was gathered by isolating the peripheral blood of the volunteers – all healthy adults with no history of anaemia, leukaemia or autoimmune disease – using a centrifuge to separate the neutrophils. Cells were then treated with drugs that stimulate the activation of neutrophils in the presence of different concentrations of glutamine.

After the incubation, samples were tested for the presence of proteins involved in different molecular pathways to discover the mechanisms behind cell activation.

Images were also created in a fluorescence microscope to visualise cell death and formation of extracellular traps, a mechanism for fighting invading microbes.

"Once we understand the mechanisms involved in neutrophil activation and functions, methods can be developed to modulate this activation and treat symptoms of autoimmune diseases and other diseases that affect or are affected by the immune system," Krupelis says.



"I work as a laboratory technologist in Saudi Arabia. I wanted to develop my skills in biotechnology, so I applied for a scholarship for postgraduate study through my employer. Curtin was my university of choice to undertake a Master in Biomedical Sciences because it has a high academic world ranking and strong reputation. The multicultural environment on campus gave me the chance to share and learn many life and study experiences. I highly recommend the quality of the master course and its expert teachers."

Ameen Alhussain
Master of Biomedical Sciences graduate



FEE INFORMATION

AUSTRALIAN AND NEW ZEALAND STUDENTS

Course fee information can be found at courses.curtin.edu.au

STUDENT SERVICES AND AMENITIES FEE

Student Services and Amenities Fees (SSAF) support 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

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.

FEE-HELP

If you are an Australian citizen or hold a permanent humanitarian visa, you have the option of applying for FEE-HELP – this is a loan to help pay for part or all of your tuition fees. You repay the loan when your income is above the minimum repayment threshold.

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

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.

AUSTRALIAN AND NEW ZEALAND STUDENTS

To apply now and for more information, visit curtin.edu.au/hs/pg-apply

INTERNATIONAL STUDENTS

You're considered 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 international.curtin.edu.au/apply

In addition to meeting the entry requirements for your chosen course, you will need to provide evidence of your proficiency in the English language. If you do not have this evidence, consider taking a study program with Curtin English or Curtin College. You can package your English language course with your chosen course to streamline your enrolment and visa application process.

english.curtin.edu.au

RESEARCH DEGREES (ALL STUDENTS)

To find a thesis supervisor, and for information on entry requirements, guidelines and how to apply, 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

ADDITIONAL REQUIREMENTS

Health Sciences students who will be working with children aged from new born to 17 need to have a Working With Children Check. Courses that include supervised practice in a clinical setting require screening for and vaccination against a range of infectious diseases before beginning placement. A criminal record screening is also necessary.

curtin.edu/hs/essential-requirements

SCHOLARSHIPS

Curtin offers a variety of scholarships to students. Some are offered for academic achievement, while others are designed to make university possible for students who face financial hardship.

scholarships.curtin.edu.au

INTERNATIONAL STUDENTS

The tuition fees (shown in Australian dollars) 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 and charged on a semester basis. Individual unit (subject) fees are listed at fees.curtin.edu.au/course_fees.cfm Note: all listed fees are subject to annual increases.

OFFER LETTER (100 CREDITS) PUBLISHED 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.

Some individual units may have optional fees for course materials and other course-related items. The indicative essential incidental fees listed in this guide are correct for 2017 and may be subject to change.

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.

FEES TABLE

COURSE NAME	OFFER LETTER (100 CREDIT) PUBLISHED FEE AUD\$	INDICATIVE YEAR 1 FEE AUD\$	TOTAL INDICATIVE COURSE FEE AUD\$	INDICATIVE ESSENTIAL INCIDENTAL FEE AUD\$
Master of Biomedical Science	18,200	27,300	56,000	100

For more information about health sciences postgraduate courses, visit courses.curtin.edu.au.

Disclaimer

Information in this publication is correct as at April 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.

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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.

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CONTACT US

FUTURE STUDENTS SERVICES

Tel: +61 8 9266 1000

1300 CU1000

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

Switchboard: +61 8 9266 9266

CURTIN INTERNATIONAL

Tel: +61 8 9266 7331

Fax: +61 8 9666 2605

Email: international@curtin.edu.au

Web: international.curtin.edu.au

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