The best uni in Australia*
JOIN US AT ANU

When you join ANU as a postgraduate student, you join our community of world-leading researchers and academics. You learn from their research as it happens, in state-of-the-art facilities, and as they make breakthroughs which might change the world—and will definitely change yours.

You draw on the expertise of Australia’s leading scientific minds, research institutions, and policy-makers, all located in Canberra, and all your future mentors or employers.

You join the only Australian member of the International Alliance of Research Universities (IARU), a partnership which includes the University of Oxford, the University of Cambridge and the University of California, Berkeley. You have opportunities for international research collaboration and for life-changing international connections.

And you graduate with a qualification recognised globally as one of the best in the world. Doors will open for you, in your career or in your further education, as you join our network of respected and successful alumni.

Welcome to your future with ANU.
Professor Zsuzsóka Kecskés from the ANU Medical School has improved the lives of families with babies in the Canberra Hospital by developing an award-winning webcam streaming service in the Neonatal Intensive Care Unit.

ANU Medical School students complete clinical placements in Indigenous communities around Australia and conduct research projects with a direct benefit to the communities they’re in, while also learning about the importance of Indigenous healthcare.

The work of researchers from the ANU Research School of Biology could save millions of lives. Current research includes developing new drug targets for antimalarial medication and a vaccine for shigellosis, one of the deadliest diseases in the world.

The MoodGYM e-health platform developed by our National Institute for Mental Health Research is now one of the most important online mental health tools in the world, delivering support to over 800,000 people from more than 200 countries.

Epidemiologists from the ANU Research School of Population Health work in humanitarian crises in developing countries. Dr Kamalini Lokuge recently worked in Ebola-affected areas in Africa and conducted research on how to better manage future outbreaks.

ANU works closely with many Federal Government departments and agencies to advise on and influence the development of policy. Currently the ANU Research School of Psychology is working with the Department of Social Services on programs to promote social inclusion.

The ANU Research School of Population Health contributes to the development of more effective, equitable and efficient national health policy through the Menzies Centre for Health Policy and the Australian Primary Health Care Research Institute.

Students and staff from the ANU Medical School and postgraduate psychology programs deliver the highest standard of professional healthcare services to the ACT community through the ANU Psychology Clinic, and the Canberra and Calvary Hospitals.

Students of the rural stream of the MChD work with communities in southeast NSW to improve healthcare and to develop an understanding of the challenges of rural medicine.
Our Microscopy and Cytometry Resource Facility at the John Curtin School of Medical Research provides equipment, support and training to researchers and students.

World-class facilities

Our Research School of Biology Mass Spectrometry Facility is a critical tool for researchers in the biological and biomedical sciences.

The Australian Cancer Research Foundation (ACRF) Biomolecular Resource Facility at ANU investigates cancer biology and provides researchers with access to new technologies.

The Australian Phenomics Facility at ANU specialises in mouse models of human disease and is one of Australia’s foremost genomics and bioinformatics capabilities.

Our new $240-million science precinct on the ANU campus has state-of-the-art biological and chemical research laboratories, as well as a teaching hub.

The fastest supercomputer in the southern hemisphere is found at ANU, in the $50-million National Computational Infrastructure, available for use by our researchers.

ANU Medical School students get hands-on experience under the guidance of our expert clinicians at the Canberra and Calvary Hospitals and in general practices in the Canberra region.

Expert staff at the Genome Discovery Unit of the ACRF Biomolecular Resource Facility provide researchers with bioinformatic data analyses.

The ANU Psychology Clinic is a training centre for psychology students providing the highest standards in psychological assessment and treatment.

ANU College of Medicine, Biology and Environment

Health and Medicine Postgraduate Guide
EMPLOYABILITY

See your future

Learn more, earn more

$80,000
Masters by coursework graduates, research or PhD graduates

$52,500
Bachelor degree graduates

$100,000

Average salary

Source: Graduate Careers Australia, Graduate Salaries report

“My Masters changed my life by guiding me into a career in epidemiology and biostatistics. It gave me the confidence and the practical knowledge I needed to do my job as an expert.”
Ailin Zhong, Master of Public Health – 2015
Section Member, Division of Chronic Disease Management, Central Disease Control (China)

“At ANU I did a placement with refugee survivors of torture, where the theory we learned really came to life. Now I provide NGO staff in developing countries with training on psychological trauma.”
Caitlin Lance, Doctor of Psychology (Clinical) – 2014
Independent Consultant to non-government organisations (NGOs)

“The unique thing about the ANU Medical School is its research focus. My degree at ANU gave me the experience I needed to pursue a postdoc role at Harvard, as well as the training to become a doctor.”
Dr Danielle Medek, Bachelor of Medicine and Bachelor of Surgery (now MChD) – 2013
Junior Doctor, The Canberra Hospital

“I truly believe my dream job at GlaxoSmithKline wouldn’t have opened up to me without my Masters. It prepared me with knowledge in biotechnology, critical thinking, and research and presentation skills.”
Cheng Sun, Master of Biotechnology – 2009
District Sales Manager, GlaxoSmithKline (China)

“My PhD is on neuroimaging biomarkers in Parkinson’s disease. In my research I use the principles of neuroscience and research skills I learned from the outstanding staff on the Master program on a daily basis.”
Conor Owens-Walton, Master of Neuroscience – 2014
PhD candidate, ANU Medical School

“I did an internship with the World Health Organisation (WHO) during my Masters, and that gave my career a direction. Since then I started consulting, independently and with Deloitte Health Economics, on health funding and policy.”
Julia Baker, Master of Public Health – 2013
Program Coordinator, Queensland Department of Science, Information Technology and Innovation
POSTGRADUATE RESEARCH

We offer Doctor of Philosophy (PhD) and Master of Philosophy (MPhil) postgraduate research programs across a range of disciplines in health and medicine.

Almost half of the ANU student body are PhD students, making for a vibrant research community. Our postgraduate research students have access to cutting-edge research facilities and work alongside some of the world's most influential and innovative academics.

Pathways to a PhD

If you are interested in a PhD but your previous studies do not include a research component, you can consider an advanced Master degree, which combines coursework and research. Upon completion, you will have the skills to continue your research career and the academic qualifications needed to apply for a PhD. You can find more information about our advanced Master programs in the postgraduate coursework section of this guide.

Postgraduate research areas

Applied epidemiology: Our field epidemiology training program produces graduates who can investigate disease outbreaks, as well as establish and evaluate training surveillance systems.

Biomedical science and biochemistry: We offer research projects in a range of biological systems, which involve fundamental investigations and applications of molecular, physiological, cellular, developmental and genetic processes in animals, plants, micro-organisms and viruses.

Culture, health and medicine: Research students in culture, health and medicine at the ANU Medical School work on a range of medical, public and international health topics utilising qualitative anthropological and other social science research methodologies, and drawing on a wide range of social science theoretical perspectives.

Epidemiology and population health: Research in epidemiology and population health covers a range of academic disciplines, including biostatistics, epidemiology, economics, psychology, anthropology, demography, sociology and primary health care policy research.

Evolution, ecology and genetics: Research in evolution, ecology and genetics is a broad-based program that provides students with a diversity of opportunities and training in biological research, and encourages graduates to take advantage of the rich and diverse community of biologists engaged in teaching, research and policy formulation in Canberra.

Medical science and neuroscience: Many of our research projects in medical science are oriented towards specific diseases such as AIDS, cancer and diabetes. In neuroscience, we provide advanced training in research approaches and techniques through laboratory-based work, computer modelling and computational neurobiology. We also offer clinical science, focusing on applied medical research.

Psychology: Our main research themes are clinical and health psychology, cognitive and perceptual psychology, and social psychology. In addition, major strands of research on developmental psychology, the biological basis of behaviour, decision science and research methods are also carried out.

How to apply for a PhD or a MPhil

Step 1: Expression of interest
Prospective research students first need to identify a research project and find an academic supervisor. If you are not sure which area of research or supervisor matches your interest please complete an expression of interest online at science.anu.edu.au/hdr-expression-interest.

Step 2: Academic supervisor
Email your academic supervisor directly to enquire about projects and supervision. You may also submit a short research proposal. Once an academic supervisor has been confirmed to support your application you may proceed to step three.

Step 3: Scholarships
A number of scholarships are available and are awarded on a merit basis. You can also talk to your academic supervisor about other sources of funding you might access to assist with living expenses and tuition fees. Please note, international research scholarships are only awarded to the most outstanding students and are extremely competitive.

Scholarship applications can be made when completing the program application process, step four.

Step 4: Application
Applicants should apply online at applyonline.anu.edu.au.

“I was in a great lab at ANU and if you ask anyone they’ll tell you it was one of the happiest times of my life. But after I finished my PhD, I decided to join private industry. In my role, it’s really inspiring to be pushing the boundaries of science to deliver life-changing medicines.

There are definitely many options to explore after you finish a PhD, and I think it’s a question of trying to understand what you enjoy doing, and marketing your skills in terms of what you can offer.”

Sarojini Balkrishna
Graduated from the ANU Research School of Biology with a PhD.
Now works as a Medical Science Liaison for the cardiovascular portfolio of the pharmaceutical company, AstraZeneca.
What is a postgraduate coursework program?

A major component of a postgraduate coursework degree program is attendance at lectures and tutorials; examinations; and the submission of assessments such as essays and assignments.

Some postgraduate coursework programs also include a research component.

Our postgraduate coursework programs result in the awarding of the following qualifications:

- **Graduate certificate**: approximately 24 units, or six months of full-time study.
- **Graduate diploma**: approximately 48 units or one year of full-time study.
- **Master degree**: approximately 96 units, or two years of full-time study (or less with credit).
- **Master (Advanced) degree**: approximately 96 units, or two years of full-time study (or less with credit), includes a 24-unit equivalent supervised sub-thesis.

Please note, the Doctor of Medicine and Surgery is also a postgraduate coursework Master degree, but is 192 units and four years of full-time study.

Am I qualified to apply?

You need to have a Bachelor (undergraduate) degree or equivalent to apply for a postgraduate coursework program. Each program has specific application requirements. For more information, see the detailed program descriptions in this guide.

When can I start?

Most degree programs have two intakes per year and can be started in either semester one (mid- to late February) or semester two (mid-July). For more information, see the detailed program descriptions in this guide.

How much does it cost?

Fees for domestic and international students can be found in each of the program descriptions in this guide. Please note the fees listed are indicative only as they are dependent on your course selection and are subject to change.

Are scholarships available?

Some of our research schools offer scholarships for specific programs. Information about these scholarships can be found in the program descriptions in this guide.

There are a number of ANU scholarships available to domestic and international students, as well as external scholarships managed by organisations outside of the University. For more information, visit anu.edu.au/students/scholarships-support.

How do I apply?

Domestic students apply for postgraduate coursework programs through the University Admissions Centre at uac.edu.au.

The closing date for semester one entry is the end of January, and closing date for semester two entry is the end of June.

International students apply for postgraduate coursework programs online at applyonline.anu.edu.au.

For international students, the closing date for semester one entry is 15 November, and closing date for semester two entry is 15 April.

How do I apply for the ANU Medical School?

There is a separate application process for the Doctor of Medicine and Surgery (MChD). Please see the next page in this guide for more information.

How long will it take to finish?

A Master degree from ANU usually takes two years of full-time study to complete, but most programs can be fast-tracked with recognition of previous study in a related discipline.

An exception is the Doctor of Medicine and Surgery, which takes four years of full-time study and is not able to be fast-tracked.

Can I get credit for previous study?

Your prior study might count towards your Master degree, meaning you can complete the degree in less than two years.

If you have an undergraduate degree (or Australian equivalent) in a related field, you might get six months’ credit towards your Master degree.

If you have an undergraduate degree with honours (or Australian equivalent) in a related field, or a graduate diploma in a related field, your Master degree might only take one year to complete.

Graduate certificate and graduate diploma awards are available as exit options in circumstances where the two-year Master degree cannot be completed.

For more information about your program, see the detailed descriptions in this guide.
How to apply for the ANU Medical School Doctor of Medicine and Surgery (MChD)

This information is correct at the time of printing, but does change. Please visit the ANU Medical School website at medicalschool.anu.edu.au for the most up-to-date authoritative information. If there are any differences between the information in this printed booklet and the information on the ANU Medical School website, the information on the ANU Medical School website takes precedence.

Domestic students — standard pathway

Step 1: GAMSAT
For domestic applicants, the first step towards studying the MChD is sitting the Graduate Australian Medical School Admissions Test (GAMSAT), held in March each year. Results are released in May.
Applicants must have completed or be in the final year of their Bachelor degree in the year of application. Two-year accelerated Bachelor degrees will be accepted but must be complete at the time of application. ANU will include Masters by coursework results in the 3-year GPA.

Step 2: Application
The second step is to apply for admission to the program through the Graduate Entry Medical School Admission System (GEMSAS) website at gemsas.edu.au

On the application form you will be asked to rank your preference for the types of government-funded places available:

- Commonwealth Supported Places: 64 available to citizens/permanent residents of Australia and citizens of New Zealand who held a New Zealand Special Category Visa on or before 26 February 2001
- Bonded Medical Places: 26 available to citizens/permanent residents of Australia and citizens of New Zealand who held a New Zealand Special Category Visa on or before 26 February 2001

Step 3: Interview
Selection for interview is based on:

- Your weighted grade point average (GPA). Applicants must have a Bachelor degree or be in the final year of a Bachelor degree and the weighted GPA is calculated from the results of the last three years of your most recent bachelor degree (the minimum score for interview consideration is 5.6).
- Your GAMSAT score. You must pass all sections (minimum score of 50) and achieve an Overall Score of 56 or more.

Your GPA and Overall GAMSAT score will be weighted 50:50 to produce a ranked list of applicants. Interviews are offered to applicants with a range of GPA/GAMSAT score combinations. A percentage bonus for one of the following degrees: Honours, Masters by Research, or PhD (if applicable), may be applied to the combined weighted GPA and Overall GAMSAT score.

Applicants should be aware that meeting the minimum criteria does not guarantee an interview.

The interview takes place at the ANU Medical School, ANU Acton campus, and covers several topics and scenarios.

Step 4: Offers
Offers of a place will be based on a total score of 50:50 weighting of the composite score (used for the interview ranking) and the interview score.
For further enquiries, please contact medadmissions@anu.edu.au

International students — standard pathway

Step 1: GAMSAT or MCAT
For international applicants, the first step towards the MChD is sitting the Medical College Admissions Test (MCAT) or the Graduate Australian Medical School Admissions Test (GAMSAT).

The MCAT is held at various times from January each year. The GAMSAT is held in March each year and results are released in May.

Applicants must have completed or be in the final year of their Bachelor degree in the year of application. Two-year accelerated Bachelor degrees will be accepted but must be complete at the time of application. ANU will include Masters by coursework results in the 3-year GPA.

Step 2: Written application
The second step is to apply for admission to the program directly to the ANU Medical School.
Applicants may apply online through the ANU website and must include the following documentation in their application:

- Original transcript for your Bachelor degree
- Your official MCAT or GAMSAT results
- Proof of English language proficiency.

Up to 20 full-fee paying places are available.

Note: international students should be aware of the Medical Board of Australia’s English requirements for internship registration in Australia, which requires a minimum of IELTS level 7 in all four components.

Step 3: Interview
Selection for interview is based on:

- Your weighted grade point average (GPA). This is calculated from the results of the last three years of your most recent bachelor degree (the minimum score for interview considerations is usually 5.6)
- Your MCAT score. You must achieve a minimum score of 8/8/8 or your GAMSAT score. You must pass all sections (minimum score of 50) and achieve an Overall Score of 55 or more.

Your GPA and MCAT/GAMSAT score will be weighted 50:50 to produce a ranked list of applicants. Interviews will be offered to applicants with a range of weighted GPA/MCAT/GAMSAT score combinations. A percentage bonus for one of the following degrees: Honours, Masters by Research, or PhD (if applicable), may be applied to the combined weighted GPA and Overall GAMSAT score.

Applicants should be aware that meeting the minimum criteria does not guarantee interview.
International applicants will be interviewed via Skype.
MEDICINE

The doctor you won’t forget

“Keeping outward calm is an imperative when you have someone’s life hanging in the balance.”

If you’re in hospital, you don’t want to meet Professor Imogen Mitchell. And if you do, whether you’re her patient or one of their loved ones, you won’t forget it.

Professor Mitchell is an intensive care specialist at The Canberra Hospital and her patients and their families are, she says, “probably at one of the worst times in their lives.”

“Being in hospital is stressful, but being in intensive care is a milestone that’s never forgotten.”

For Professor Mitchell, this isn’t a doctor’s burden, but a privilege.

“If you can make the experience just one bit better, I think that’s really important.

“One of the ways of doing that is by being able to communicate well when you’re having a difficult conversation.

“This is a skill you develop as a clinician which is a good life skill too. I find I can more easily talk with people because I’ve had so many challenging conversations in the intensive care unit.”

There’s also a skill in being able to attract future doctors to one of the most high-stress specialisations in medicine, which Professor Mitchell does in her teaching role at the ANU Medical School.

“The intensive care unit can be a very intimidating environment, but it’s a very rewarding environment.

“There’s a huge variation in patients with a large number of diagnoses, so we interact with a whole range of other specialists across the hospital.”

But, she admits, “My memory of being new to intensive care is of being terrified.”

“Luckily I had an extraordinary senior registrar who supported me.

“Similarly, if a student is ever concerned I’d rather know and be a guiding hand, and since ANU is a small medical school there is much more individualised attention to students.

“Plus there are more supports around for medical students these days than there has ever been in my lifetime.”

This is not to say that Professor Mitchell is no longer terrified. Appearing otherwise is just another necessary skill for managing patients in intensive care.

“Although from time to time I’ve felt terrified, my team has never said that I look terrified, so I’m lucky to have developed a skill of masking it well.

“Keeping outward calm is an imperative when you have someone’s life hanging in the balance.”
MEDICINE

At the ANU Medical School, we are committed to providing an environment that fosters excellence and creativity in our future doctors, health professionals and medical scientists. As part of Australia’s national university, our reputation for excellence attracts a high-calibre and vibrant student body.

Our class sizes are among the smallest of any medical school in Australasia, offering students a personal, supportive environment and ready access to our teaching staff, who include ACT Health and Calvary Hospital specialist medical and other clinical staff, together with GPs and other health professionals from our healthcare partners, as well as leading researchers from across ANU.

We enjoy partnerships with the Canberra Hospital, Calvary Health Care and many general practices, providing students with early and regular access to excellent clinical teaching facilities.

Doctor of Medicine and Surgery (MChD)

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**INDICATIVE ANNUAL DOMESTIC FEE**
Commonwealth Supported Places (HECS), plus bonded places

**INDICATIVE ANNUAL INTERNATIONAL FEE**
$72,480

Admission requirements: For more detailed, up-to-date admission information, visit the ANU Medical School at medicalschool.anu.edu.au

Applicants must have completed or be studying the final year of an AQF Level 7 Bachelor Degree or AQF Level 8 Bachelor Honours Degree.

All applicants must meet the University’s English Language Admission Requirements for Students.

Admission is based on: weighted grade point average (GPA) calculated from the results of the last three years of the most recent Bachelor Degree (25%); GAMSAT score (25%); and; Interview (50%).

The minimum GPA for interview consideration is 5.6.

All sections of the GAMSAT must be passed and an Overall Score of 55 or more achieved.

A bonus for completed graduate study will be added to the combined score GPA and GAMSAT scores when ranking applicants for interview.

Meeting the minimum criteria does not guarantee an interview.

**Program description:** The Doctor of Medicine and Surgery or Medicinae ac Chirurgiae Doctoranda (MChD) is a comprehensive and varied program for graduate students looking to enter the rewarding field of medicine as professional medical practitioners.

The MChD is underpinned by four themes: Medical sciences, covering a vast scope of ever-changing and expanding knowledge that forms the basis of modern medicine; clinical skills, which ensures the acquisition of knowledge is accompanied by communication skills, the ability to examine patients and critically appraise information; population health, addressing the relationship between humans, their society and environment; and professionalism and leadership, developing these vital skills of a good doctor.

The curriculum is built on important frameworks that explore the social foundations of medicine, develop understanding of the Indigenous health context in Australia, and provide insights and experience in health care in rural and/or remote Australian settings.

Consistent with the research focus of ANU, the program also develops our students’ research skills.

“I couldn’t be happier with my choice to come to the ANU Medical School. As students we are supported, we are heard, and we are given the chance to offer feedback and direct change within the school.

I chose medicine because of the challenge I saw in it. I always want to be challenged. I write, I run, I learn, I’m always after improvement, and I’m always willing work for it. I’m not alone among MChD students in this regard. Most of us have some extra years under our belts, and in many cases a past career to look back on, so we know where we’ve been and where we want to go.”

Chris Wilder
Doctor of Medicine and Surgery (MChD)
One shot to save millions of lives

“The idea is to develop a vaccine to protect these kids against the disease.”

“You have many different serotypes of Shigella, just like you have many types and subtypes of viruses and flu, so if a person gets shigellosis by one type of strain, they get immune to that particular serotype, but the person can get infected by other serotypes.

“What we have discovered is the genetic basis of the serotype variation.

“Now we know that, it’s basically opened future avenues for research into development of a vaccine against multiple serotypes.”

Postgraduate students from around the world have come to work in Associate Professor Verma’s lab, and so can students from the Master of Biological Sciences (Advanced).

Everyone in the lab is conducting research that “ultimately leads into the vaccine design and development,” he says.

And you could be the student there when a breakthrough occurs.

“Hopefully there will be a successful vaccine not too far in the future.

“I would love to see that happen.”

Until then, stay away from the raw vegetables.

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“I would love to see that happen.”

Until then, stay away from the raw vegetables.
Researchers in the biological sciences at ANU work on issues of global importance, including food security in both Australia and the developing world, new treatments for cancer and type 2 diabetes, and fighting malaria drug resistance.

Our Master programs are research-led and feature teaching contributions from more than 60 academics, leading scientists in their fields, who bring their experience and current breakthroughs to the classroom.

We offer our Master students state-of-the-art laboratories, research infrastructure, and flexible learning facilities. We pride ourselves on the support we give students, so we’ll help you design your degree to complement your prior study and to suit your interests.

Master of Biological Sciences

Master of Biological Sciences (Advanced)

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<th>INDICATIVE ANNUAL DOMESTIC FEE</th>
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<tr>
<td>Two years full-time (or less with credit)</td>
<td>$29,280</td>
<td>082277A (Advanced)</td>
</tr>
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**Cognate disciplines:** Biology, Biomedical Sciences, Biochemistry, Genetics, Evolution, Ecology, and Plant Sciences.

**Admission requirements:** A Bachelor degree or international equivalent with a GPA of 5.0 and at least eight courses in cognate disciplines. Applicants with a Bachelor degree or Graduate Certificate in a cognate discipline may be eligible for 24 units (one semester) of credit. Applicants with a Graduate Diploma or Honours in a cognate discipline may be eligible for 48 units (one year) of credit.

**Advanced:** A Bachelor degree or international equivalent with a GPA of 5.0 and at least eight courses in cognate disciplines and two courses in the field of chemistry. Applicants with a Bachelor degree or Graduate Certificate in a cognate discipline may be eligible for 24 units (one semester) of credit. Applicants with a Graduate Diploma or Honours in a cognate discipline may be eligible for 48 units (one year) of credit.

**Program description:** The Master of Biological Sciences is a coursework program allowing you to specialise in areas such as biomedical sciences, ecology and evolution, genetics, plant sciences and biochemistry. Alternatively, you can choose a broad overview of biological sciences today.

Our practical classes refresh your skills, while developing your expertise in new, cutting-edge techniques.

The Advanced program includes a research project and a thesis. A scholarship is offered to international students who receive the highest mark in the Advanced program.

**Career opportunities:** A degree in biological science provides students with a solid background to pursue career goals in diverse fields, including food security in Australia and the developing world, new treatments for cancer and type 2 diabetes, and fighting malaria drug resistance.

**Master of Biotechnology**

**Master of Biotechnology (Advanced)**

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<th>DURATION</th>
<th>INDICATIVE ANNUAL DOMESTIC FEE</th>
<th>CRICOS CODE</th>
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<tr>
<td>Two years full-time (or less with credit)</td>
<td>$29,280</td>
<td>082280G (Advanced)</td>
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</table>

**Cognate disciplines:** Biochemistry, Molecular Biology and Gene Technology.

**Admission requirements:** A Bachelor degree or international equivalent with a GPA of 5.0 and at least eight courses in cognate disciplines and two courses in the field of chemistry. Applicants with a Bachelor degree or Graduate Certificate in a cognate discipline may be eligible for 24 units (one semester) of credit. Applicants with a Graduate Diploma or Honours in a cognate discipline may be eligible for 48 units (one year) of credit.

**Advanced:** A Bachelor degree or international equivalent with a GPA of 5.0 and at least eight courses in cognate disciplines and two courses in the field of chemistry. Applicants with a Bachelor Degree, Honours, Graduate Diploma or Graduate Certificate in a cognate discipline may be eligible for 24 units (one semester) of credit. Students must achieve a minimum 70% average mark in all the coursework and have the approval of the supervisor for the research project. Students who do not achieve a minimum 70% average mark in the coursework component or who do not have the approval of the supervisor for the research project will be transferred to the Master of Biological Sciences program.

**Program description:** The Master of Biotechnology is a coursework program that provides a pathway for science graduates with background knowledge in biochemistry, molecular biology and chemistry to acquire new knowledge, or extend and update their theoretical and practical understanding of modern biotechnology. Throughout the program, students have many opportunities to interface with scientists who are advancing research in areas of biochemistry and molecular biology in the biomedical, animal and plant sciences.

The Advanced program incorporates a research project and thesis, and is a gateway to further research, such as a PhD. A scholarship is offered to international students who receive the highest mark in the Advanced program.

**Career opportunities:** A Master of Biotechnology degree provides students with opportunities to carry out research in basic, medical or agricultural sciences in university, industry or government research institutions. Opportunities exist in scientific sales, pharmaceutical and pathology companies, or in government and public service positions. A Master of Biotechnology (Advanced) can lead to a PhD.
When neurons go wrong

“And actually, it worked!”

An excited grin comes over Dr Nathalie Dehorter’s face as she says these words, the significance of which would resonate with anyone who’s ever undertaken research.

But the significance is even greater when you consider the potential impact of Dr Dehorter’s findings.

“I was looking at Parkinson’s Disease, working on detecting early signs of neuronal impairment. We found that some specific neurons were displaying aberrant oscillations really early on, and well before the first motor symptoms appear.

“What we proposed was to block such aberrant oscillations with specific drugs and”—cue grin—“actually it worked! It worked on our mouse models in vitro and in trials on patients, it improved their motor symptoms by 30 percent.”

Dr Dehorter, who undertook this research in France and the UK, has come to the John Curtin School of Medical Research (JCSMR) at ANU to apply the same concept to the research of other neurodevelopmental disorders.

“Neuronal activity is clearly different in an autistic brain, but we lack information about how neurons change their activity. We know genes and environmental factors are involved, but the mechanisms underlying the adaptation of neuronal activity, and all the steps from the starting point to the behavioural outcomes, are what we need to work out.

“In autistic children you have stereotypic repetitive movements, so we want to decipher the mechanisms underlying the emergence of motor symptoms. We are using a model of autism in mice to study early neuronal alterations which then later leads to impairments.

“It’s really interesting because detecting the molecules involved in early impairment of neuronal activity will open the path to novel therapeutic strategies. We could target new genes which may be really important for the treatment of these diseases.”

Dr Dehorter says she chose JCSMR for her research because of the facilities, particularly the Australian Phenomics Facility, the multidisciplinary approach, and the opportunities for internal collaboration.

Her research students work alongside her, benefiting from the same environment.

“They also get to work on research which could make a real difference.

“That really motivates me, the outcomes. I’m driven by the hope we can add a piece to the puzzle.”

“NEUROSCIENCE

“This will open the path to novel therapeutic strategies.”
"I’ve just started my research project, using neuroimaging to look at whether poor cardiovascular health affects a loss of myelin in the brain, and vice versa. In the future I’d like to go into research on Alzheimer’s or abnormal brain functioning. I didn’t have undergraduate training in cellular neuroscience so the Master program was challenging at first, but it’s exactly what I want to do, so that’s kept me motivated. The teachers have all been great and very supportive too.

I moved to Canberra because of ANU. Looking at these amazing facilities, and the research that’s going on here, it’s definitely been worth it.”

Tom Shaw
Master of Neuroscience (Advanced)
“There is a series of tests you can do using these dolls to assess knowledge about emotions.”

Looking at the exaggerated expressions on the faces of the dolls in Associate Professor Richard O'Kearney’s lab, it’s hard to imagine that anyone could have difficulty reading the emotions behind them.

Or that these dolls could lead to social change.

For Associate Professor O’Kearney, from the ANU Research School of Psychology, the dolls are an important tool in his research on children with disruptive behaviour.

“There is a series of tests you can do using these dolls to assess knowledge about emotions, recognising different emotions and their causes,” he explains.

“Many of the children I’m studying have low prosocial skills.

“They find it difficult to learn and understand feelings like guilt, so as a result they find it difficult to inhibit their hostile behaviour to other children.

“It’s believed these kids don’t attend to faces as well as others.

“Child’s play changing lives

“They end up not being able to read emotions well because they’re not attending to the important cues in a face, like the eyes in particular.

“When you get them to start attending to these cues, you can actually start to improve their capacity to recognise emotions.”

It seems like a simple change, but the results of studying and trying to manage the behaviour of children with low prosocial skills can have far-reaching consequences.

“Parents can be really struggling with these kids, and many of them are what we call ‘early starting’ in terms of persistent disruptive and non-compliant behaviours, which can progress to antisocial outcomes such as delinquency.

“We believe we can have a social impact if the link between their behaviour and their knowledge of emotions is better understood.”

Associate Professor O’Kearney’s study is an example of the research projects on offer to students in the Masters and PhD programs in clinical psychology.

“Students can collect their own data, or use existing data, such as ours from this study.

“For example, we have a PhD student who will be using the sessions we recorded with parents and children to look at the prosody of their vocal exchanges to see if they have difficulty attuning to one another’s interactions.

“There’s some really interesting research coming out of our postgraduate programs.

“We’re lucky to have small classes, so we can really nurture our students.”
In my thesis, I’m looking at the relationship between imaginative play and language acquisition in childhood. You know how kids use bananas as telephones and saucepan lids as steering wheels? I have been studying how that’s important in terms of how children learn language.

I really enjoyed the coursework component too. I don’t know if I’m unique in this respect, but I really loved everything. I’ve been to two other universities and compared to them, the academics at ANU aren’t just teaching the subject, they are passionate about it.”

Sara Quinn
PhD in Clinical Psychology
For most people, working as a doctor in humanitarian crises would be enough. But Dr Kamalini Lokuge wanted to do more.

"I loved being a doctor in the field," she says. "But what I realised is that as a doctor, if you don’t understand the lives of your patients, you don’t give them good care."

"Knowing they’ve got diarrhoea is not enough. You need to understand where they get their water supply, what they’re eating, how they’re living.

"Unless you then take that knowledge and find a way to advocate for a policy to support services that address those gaps, you’re not doing your job as a doctor."

"That’s why I became an epidemiologist and came to the ANU Research School of Population Health.

"Because I believe evidence-based advocacy is the way to make change."

Dr Lokuge now teaches on the Master of Public Health, but still works in humanitarian crises and what she understatedly refers to as “complex settings”.

This gives her, she says, a unique view of “understanding by doing”.

Working in collaboration with Médecins Sans Frontières, Dr Lokuge can learn from individual cases in the field and “provide a voice” for them where it needs to be heard.

“One of the first patients I saw during the Ebola outbreak in Sierra Leone was a nine year-old boy,” she explains.

“His whole family had died, and he came to our treatment centre, and died two days later.

“How will he ever have a voice? Unless his experience contributes to change, we will continue to make the same mistakes. And that’s not right.

“Being based at ANU, I can bring the problems my implementing colleagues are encountering in the field and utilise the research resources here to fix those problems.

“I can do what I think is needed for that little boy and bring that knowledge back to a setting where it can be potentially translated into something that’s going to have benefit at a population level.

“That’s the power of the research I do.”
At ANU we are committed to training the next generation of researchers and population health practitioners, who will improve the population’s mental and physical health through discovery, education and the translation of research into effective health policy and practice.

Our work spans the full range of population health research, including non-communicable disease epidemiology, infectious disease surveillance and outbreak investigation, global health, health services research, social and cultural determinants of health, environmental health, healthy ageing and mental health.

Master of Public Health
Master of Public Health (Advanced)

Program description: Our Master programs draw on many different areas of population health giving you a comprehensive understanding of the field. They provide real experience in public health through core courses designed to give you the skills you need, and electives that suit your additional interests. Workplace-related learning can be readily incorporated for those who work in relevant public health jobs.

The Advanced program provides you with the opportunity to extend your practical, coursework experience in public health with the development and implementation of a research project and is now available to be studied online. It is particularly relevant to those who wish to benefit from the research strengths of ANU and its ready access to the local and national health administration and policy scenes. You will be required to develop expertise in a nominated area through independent research and completion of a dissertation.

Career opportunities: These programs are designed for health professionals seeking a qualification to equip them for management; graduates wanting a qualification in public health practice; and health administrators and policy workers needing a qualification to assist their career.

Cognate disciplines: Health, Medical Sciences, Biological Sciences, Psychology, Social Sciences

Admission requirements: A Bachelor degree or international equivalent with a GPA of 5.0. Applicants with a Bachelor Degree or Graduate Certificate in a cognate discipline may be eligible for 24 units (one semester) of credit. Applicants with a Graduate Diploma or Honours in a cognate discipline may be eligible for 48 units (one year) of credit.

Advanced: A Bachelor degree or international equivalent with a GPA of 5.5 and the approval of an identified supervisor for the research project/thesis. Applicants with a Bachelor Degree or Graduate Certificate in a cognate discipline may be eligible for 24 units (one semester) of credit. Applicants with a Graduate Diploma or Honours in a cognate discipline may be eligible for 48 units (one year) of credit. Students must achieve a minimum 70% average mark in the first 48 units of coursework and have the approval of the supervisor for the research project.

“Doing my Masters absolutely helped me get a job at the Department of Foreign Affairs and Trade (DFAT). You need to be a well-rounded person to get into DFAT right now. Having a Master degree is part of the package, and helps you to tick all the boxes they’re looking for.

My work and ANU have a really close relationship since DFAT would be crazy not to tap into the resources and expertise of ANU. Sometimes I’d be in a workshop or lecture at ANU and hear about the stuff I was doing at work!”

Emeline Cammack
Master of Public Health
ANU SCIENCE, MEDICINE, HEALTH & ENVIRONMENT UNDER THE MICROSCOPE

Number 1 university in the country

Number 1 most employable graduates in Australia

Number 22 university in the world

21,218

Number of alumni

31

Alumni over 35 in leadership positions

797

Number of academic staff

680

Number of graduate coursework students

1,183

Number of graduate research students

21%

Percentage of students who are international

1. The Global Employability University Ranking 2016

2. QS World Rankings

Number of Nobel Prize winners