

PHARMACY AND PHARMACEUTICAL SCIENCES

INTERNATIONAL UNDERGRADUATE COURSE GUIDE 2024







IN ONE WAY, WE'RE SMALL.

We're a community of about 2000 people (researchers, educators, students, administrators) bound together by a shared passion for the transformative power of medicines.

We're fascinated by the biology, chemistry and biomedical science that underpin pharmaceuticals and are dedicated to making sure medicines are used safely, effectively and with maximum benefit for our communities.

Our small size means students get to know each other and their instructors well. At Monash Parkville, it's hard to slip through the cracks.

BUT IN ALL THE WAYS THAT MATTER, WE'RE BIG.

We're part of Monash, Australia's largest university and a highly regarded global brand.

This means you can enjoy the resources of Australia's largest university. We offer many student services and extra-curricular activities on our campus, but you're welcome to take advantage of other opportunities at Monash's larger campuses as well.

Location is everything

Located on the edge of Melbourne's Central Business District (CBD) and easily accessible by tram and train, we're right next door to buzzing inner-city suburbs like Carlton and Brunswick.

We're also in the heart of Melbourne's world-renowned Biomedical Precinct, a global hub for research and healthcare talent. This comes in handy when it's time to go on placement.

Student life at Parkville

Whether or not it's your first time studying at university, transitioning into a new environment and routine can seem daunting. At Parkville, we've got lots of programs in place to make you comfortable and help you get the most out of your time here.

From Day 1, we ensure you have a strong sense of connection and belonging to our campus community. You'll receive a peer mentor, a student who is one step in front of you in your course, and you'll have the opportunity to keep in touch with them and ask any questions throughout your first semester. At the same time, you'll connect personally with an academic member of staff through your 'Skills coach group' - a unique aspect of our teaching method that sees you put in small groups with the aim of developing key soft skills you'll require to succeed in your career.

On top of this, there's the opportunity to join one of our campus' many Clubs and Societies, with groups spanning special interest as well as those intertwined with the pharmacy and pharmaceutical science professions. You may wish to develop your leadership skills by taking on a leadership position in one of these clubs, or through the Faculty's Student Ambassador Program.

We also focus on your preparedness to join the workforce post-study. Throughout your time with us, there's plenty of opportunity to develop your employability skills and grow your professional networks.





EXPERIENCE MELBOURNE

Consistently ranked one of the world's most liveable cities¹, Melbourne is known for welcoming international students and providing them with a memorable experience whilst they're here. A vibrant, multicultural city, it has something to offer every lifestyle, no matter what your interests. It boasts many tourist attractions, plays host to regular sporting and cultural events, is a hub for fashion, and has a thriving food scene that will satisfy any palate and budget.

Life in Melbourne also comes with additional benefits for international students. We have an excellent public transport system, including a 'free tram zone' around Melbourne city. You're able to work while you study, and many of our students pick up casual jobs at local pharmacies to subsidise their expenses.

The City of Melbourne also has a dedicated 'hub' for international students to get advice on any issues they may be facing. For more information, hyperbourne.vic.gov.au/help-and-support/study-melbourne-student-centre

ACCOMMODATION AND COST OF LIVING

Melbourne offers a range of accommodation options to suit your lifestyle and budget. Affordable rental accommodation is plentiful in Parkville and its nearby suburbs, Melbourne city, Carlton and Brunswick.

If you're interested in living on campus, there are many options available at our largest campus in Clayton (Parkville does not have an on campus accommodation option). Some of our international students choose to live at Clayton, however please note that it can mean quite a long journey to get and to and from your classes at Parkville. The monash.edu/mrs for more information.

Want to live in Melbourne city or near our Parkville campus but not sure where to start? Contact our off-campus accommodation unit in the first instance. Dedicated staff can advise you on appropriate options, including Monash-preferred suppliers, and look out for your legal interests before you sign a contract. If you're looking for a full residential college experience, they can also tell you about your options with University of Melbourne Residential Colleges.

Once you're studying with us, the off-campus accommodation unit is available for consultation, ensuring you receive ongoing support.

Monash off-campus accommodation

Email: ask@monash | Phone: 1800 666 274

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For information about the daily costs of living in Melbourne,

monash.edu/cost-of-living

SETTLING IN TO YOUR NEW LIFE ABROAD

Everyone experiences different feelings and concerns when they move country, and it's important to know what support is available to help you manage how you're feeling at any given time. Below are a range of Monash-delivered support services and programs to assist in your academic and social success during your time with us.

24-hour security

According to the latest Safe Cities Index², Melbourne ranks in the top 10 safest cities in the world. When on campus, your safety is our responsibility. We have a visible 24-hour security desk on campus, and many students know our security personnel by name. They're friendly and always on hand to walk you to nearby public transport or your car, should you wish.

monash.edu/about/safety-security

Monash students are also encouraged to use the bSafe app that provides quick access to emergency services, urgent on-campus assistance, counselling, incident reporting tools and more. $\begin{tabular}{l} \frown \end{tabular}$ monash.edu/students/safety-security/bsafe-app

One place, all your questions answered

One of the most important places on campus for you will be our Monash Connect Student Services desk. Whatever your question, it's a great place to start. Staff can directly assist with a range of matters about admissions, enrolment, fees, student visas, accommodation, language support, academic support, graduations, scholarships and finding your way around campus. The monash.edu/connect

Practise your English

Many international students are able to greatly improve their spoken and written English during their time abroad. Much of this improvement happens naturally – from studying in a country with English as a first language – but Monash also offers a range of free English programs. The Let's Chat program allows you to practise your conversational English whilst also learning about Australian culture, and there's also a program that focuses on your presentation and group-work skills.

monash.edu/english-connect

Be happy and healthy

At Parkville, we're in the business of healthcare, so we know that it's important to look after our students' physical and mental wellbeing at all times. Monash Wellbeing offers expert services in health and wellbeing on a range of matters from physical health, counselling and religious services. We also provide assistance to students living with a disability.

The monash.edu/health and The monash.edu/disability

Make like-minded friends for life

Research shows that if you're socially connected to your peers outside the classroom, you're more likely to perform better academically. We have more than 100 student-run clubs and societies across our campuses that you can get involved with. A number of these clubs are based at Parkville, and we even have a dedicated Student Experience Coordinator who's responsible for your social experience on campus. During Orientation Week, the Student Experience Coordinator will put you into a group with a current Parkville student and a number of other new students, allowing you to kick-start your university friendships from day one. The monash.edu/study/student-life/clubs-and-societies

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¹ Economist Intelligence Unit 2022.

² The Economist Intelligence Unit.

PHARMACY ESSENTIAL WORKERS, SUPPORTING HEALTHIER COMMUNITIES

Now, more than ever, the world needs pharmacists. As the experts in medicines and the way they interact with the body, pharmacists play a vital role in healthcare teams. Medicationrelated problems account for around 750,000 hospital admissions in Australia each year, and in 2019 medicine safety became a national health priority. In 2021, community pharmacists joined the nation-wide taskforce to vaccinate millions of Australians against COVID-19 and help protect our communities.

JOB PROSPECTS ARE BRIGHT

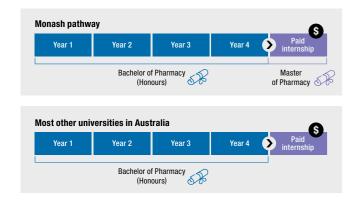
In Australia, an ageing population combined with more and more people living with chronic health conditions, means that health professionals are in constant demand. The number of job ads for pharmacists has grown exponentially in recent years, with a study led by Monash University concluding that Australia could in fact face a pharmacist shortage.

If you're looking to become a healthcare professional within a highly in-demand profession – and also love the idea of making a true difference to people's lives – then a career as a pharmacist might be for you.

SAME DURATION, HIGHER QUALIFICATION

Five years ago, Monash launched Australia's first combined Bachelor of Pharmacy (Honours) / Master of Pharmacy program.

In Australia, it typically takes a minimum of five years to become a registered pharmacist. Whilst most other pharmacy programs around the country offer students the chance to complete a bachelor program (four years) and then an internship year, this flagship Monash pathway graduates students with a bachelor's and master's degree.



Real world experience: placements and internship

As part of the program you'll undertake work placements in community pharmacies, hospitals and other environments, practicing your new skills while learning from some of Australia's best pharmacists about areas such as primary health care, medicines information, and patient-focused pharmacy services.

Earn while you learn: how does the intern year work?

During your intern year (fifth year), you'll combine supervised practice (for which you'll be paid), with intern studies (Intern Training Program and Intern Foundation Program). This intensive combination of learning and working will ensure you're well prepared for your final registration exams and. arguably more importantly, confident to qualify as a practicing pharmacist.

Whilst all your placements are organised for you by the faculty, you're required to secure your own internship - just as you would your first job. But don't worry - historically, students rarely struggle to find internships, as intern pharmacists are in-demand. Further, you'll have developed a network of pharmacy practitioners through your placements in earlier years.

Flexibility to suit your needs

If you aim to register and work as a pharmacist in Australia, our Bachelor of Pharmacy (Honours) / Master of Pharmacy is a direct pathway to registration. However, we understand that everyone has different circumstances; you may not be willing to commit to five years of study quite yet, or you could be an international student aiming to work back in your home country. If this sounds like you, we have provision for students to enrol in our four-year Bachelor of Pharmacy (Honours) in the first instance, with the ability to automatically qualify for a place in the Master's program upon completion.





In my first year of the program I was so pleasantly surprised by the flexibility and practicality of the program - I was given the opportunity to contribute to a journal, gain hands on experience through working in a community pharmacy and I even participated in a global competition which has led me to working with Australia's Immunisation Coalition to help educate Australians on the flu vaccine. The educators really help you to find your own path."

YANNEE LIU

Bachelor of Pharmacy (Honours) / Master of Pharmacy student





I decided to move from Vietnam to Melbourne four years ago, mainly to pursue a better education. But now looking back, I realised it was a life-altering decision that exposed me to an exciting new culture, new people, and a new life with amazing opportunities.

Living in a completely new city was and is still challenging, but it made me become more courageous, independent and mature. In addition to adjusting to different environments and cultures, I learned to sharpen my soft skills through team-based activities, presentations and oral exams.

I am now in my intern year at Western Health – one of the public hospitals in metropolitan Victoria. I have aspired to be a clinical pharmacist in a hospital for a very long time, so I am very excited to commence on this new path.

For any students considering pharmacy at Monash, it will be challenging but also worthwhile. Be proactive and have a positive attitude! During your studies, try to remind yourself of your aspirations and directions, which will help you gain more strength and motivation to make a difference."

2021 Bachelor of Pharmacy (Hons) / Master of Pharmacy student, and Pharmacy intern at Western Health

Bachelor of PHARMACY (Honours) • PHARMACY

UNITS

Master of

COURSE MAP

YEAR 1

YEAR 1	UNIIS			
Semester 1 24 credit points	PHR1011 Professional practice I 6 credit points	PHR1021 How medicines work I 6 credit points	PHR1031 How the body works 12 credit points	
Semester 2 24 credit points	PHR1012 Professional practice II 6 credit points	PHR1022 How medicines work II 18 credit points		
EAR 2				
Semester 1 24 credit points	PHR2011 Professional practice III 6 credit points	PHR2021 How medicines work III 6 credit points	PHR2041 Respiratory and gastrointestinal 6 credit points	PHR2141 Dermatology and pain 6 credit points
Semester 2 24 credit points	PHR2012 Professional practice IV 12 credit points		PHR2042 Endocrinology and renal 6 credit points	PHR2142 Cardiovascular 6 credit points
'EAR 3				
Summer semester 12 credit points	PHR1001 Bridge to practice I (Graduate 12 credit points	Entry Pharmacy students only)		
Semester 1 30 credit points	PHR1101 Bridge to practice II (Bridge to practice students only) 6 credit points	PHR3041 Blood, brain and cancers 12 credit points		PHR3141 Pathogens, host defence and 12 credit points
Semester 2 24 credit points	PHR3042 Acute care 12 credit points		PHR3062 Student experiential placements 6 credit points	PHR5052 Inquiry and innovation methods 6 credit points
/EAR 4				
Semester 1 24 credit points	PHR4061 Student experiential placemen 12 credit points	ts	PHR5051 Inquiry and innovation projec 12 credit points	ts
Semester 2 24 credit points	PHR4012 Professional Practice V 6 credit points	PHR4042 Integrated care 12 credit points		PHR5152 Inquiry and innovation communication 6 credit points
/EAR 5			_	
Semester 1 12 credit points	PHR5061 Applied pharmacy practice I 6 credit points	PHR5161 Foundation practice I 6 credit points	49 wook noi	d internship*
Semester 2 12 credit points	PHR5062 Applied pharmacy practice II 6 credit points	PHR5162 Foundation practice II 6 credit points	+o-week pai	u mee namp
Professional practice units Inquiry units Placement	Comprehensive care units Hounits Bridge to Practice units	w the body works unit How medi	cines works units	
	ntern training program and intern founda	ation program, you must have arranged	to undertake your internship under the	e supervision of a preceptor approved b

Themed, integrated units

Like many primary healthcare courses, your units are taught thematically, ensuring you'll gain knowledge in an applied and engaging way. They also integrate with each other, meaning your knowledge will consolidate and build as you progress through the course.

If you want details about what you'll specifically be learning in your units, you'll find them in our online handbook: A handbook.monash.edu

Earlier and enhanced placements

You'll be exposed to real-life practice environments as early as possible. Right from first year, you'll spend time in experiential placement sites working with some of the best pharmacists in Australia.

To ensure you're ready for placement, we credential you to provide appropriate patient services, allowing you to assist in contributing to patient care throughout your degree.

GRADUATE ENTRY PATHWAY BECOME A PHARMACIST FASTER

Graduate Entry Pharmacy is for students who choose to study a more general science-based degree after high school, or didn't meet our pharmacy course requirements at the end of Year 12. You'll commence into third year of our Bachelor of Pharmacy (Honours) / Master of Pharmacy program, eligible for registration as a pharmacist in just three years, including a paid internship.

Who's eligible?

It's important you know our eligibility requirements for Graduate Entry Pharmacy and build them into your course progression if necessary. To be eligible for the program, you need to have completed a relevant degree in the last ten years with a minimum average of 70% (or equivalent) across your whole degree.

Relevant degrees include:

- · Bachelor of Biomedical Science/Bachelor of Biomedicine
- Bachelor of Health Sciences
- Bachelor of Pharmaceutical Science
- Bachelor of Science

In assessing your eligibility, we'll take into account the number of relevant subjects you've completed. The units completed in your degree should be appropriate and science based.

For more information about Graduate Entry Pharmacy, including eligibility and application information visit

√ monash.edu/graduate-pharmacy

Summer school: Bridge to practice I

Once you're accepted into the program, you'll need to complete a 6.5 week intensive summer school, commencing in early January. This program helps you start to transition your science knowledge to a pharmacy context.

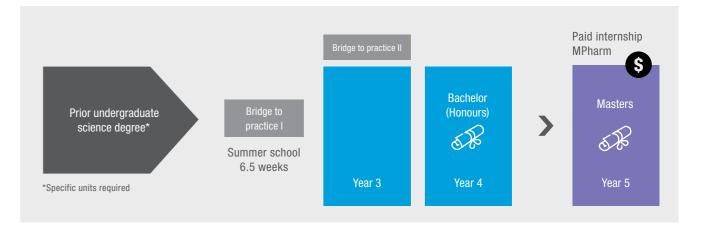
Upon successful completion of summer school, you'll commence into Year Three of the program, essentially being awarded two years of credit. You'll need to complete one additional overload unit, Bridge to practice II, which continues to further the application of your science knowledge to pharmacy.

How do I apply?

Applications for 2024 entry are now open and close on

15 November, 2023. Apply at:

monash.edu/study/how-to-apply





The Graduate Entry Pharmacy program was challenging at times, but it was also rewarding to see how far we all came in a short period. Although the course was structured quite differently to my previous Commerce/Science degree, it was designed to allow us to learn new information in lectures, and then further consolidate our knowledge and understanding.

I undertook my paid internship in a hospital setting at Monash Health. The process of applying for hospital internships is streamlined, and the exposure Monash gave us through placements, as well as the experience gained gave me the confidence to apply to these organisations. I would highly recommend the Graduate Entry program at Monash!'

MADELEINE LACK

Graduate Entry Pharmacy graduate and



CAREERS IN PHARMACYA DEGREE OF OPPORTUNITY

If you've ever had a prescription filled at your local community pharmacy, you probably think you know what pharmacists do. The fact is, community pharmacy represents only one of dozens of career paths our graduates pursue, and many others are listed below.

AGED CARE PHARMACIST

Older people often have complex needs when it comes to medications. They are frequently taking a number of different medications and can be more susceptible to side effects. They may also need adjustments to their medications to accommodate difficulties with vision, hearing, memory or cognitive function.

CLINICAL TRIALS PHARMACIST

Pharmacists in this area support the management and delivery of clinical trials of new medicines. The role involves coordinating studies from a medicinal perspective, ensuring that drugs used in the trials are imported, stored, accounted for, compounded, dispensed and used in accordance with strict protocols. It may involve liaising with hospital staff, counselling participants and carers, and educating medical and nursing staff.

COMPLEX CARE COORDINATOR

A relatively new career path, complex care coordination involves working with a hospital healthcare team and is often combined with consultant pharmacy work. The role involves providing early post-discharge medication review and follow-up plans for patients identified as being 'high risk' by hospital clinicians.

CONSULTANT PHARMACIST

Accredited consultant pharmacists conduct home medicines reviews and residential medication management reviews. As with many roles, consultant pharmacists often work part time undertaking medication reviews, while also working in other healthcare settings such as working at a community health centre, working with chronic disease management groups, or providing nurse education.

DRUG SAFETY OFFICER

Pharmacovigilance is an area focusing on monitoring drug safety. A pharmacist working as a drug safety officer liaises regularly with government and industry bodies, consumers and other healthcare professionals. Their responsibilities include receiving and processing reports of adverse drug events and conducting regular conciliation with health authorities. They use their skills and qualifications to ensure the public has access to safe and reliable medications.

HOSPITAL PHARMACIST

Hospital pharmacy involves a lot of collaboration as you find yourself working closely with a team of other healthcare professionals, including doctors and nurses, to provide the best care for patients.

According to the Society of Hospital Pharmacists of Australia (SHPA), "...it offers variety, both in the roles you can have, such as clinical [i.e. direct patient care] or management, and in the types of hospitals you can work in – city or country, small or large, general or specialist."

Working as a hospital pharmacist helps you develop valuable skills that are highly sought after in other pharmacy settings. Many pharmacists will spend some part of their career in a hospital environment.

PRIMARY CARE PHARMACIST

A practice pharmacist doesn't dispense medicines. Instead, they work within a general medical practice to deliver direct support to general practitioners, practice nurses, and patients. They can often give more time and attention to individual cases, providing quality care and specialised services such as smoking cessation.

PUBLIC HEALTH ADVISOR

Pharmacists have knowledge, skills and experience that can contribute to advisory roles, both for the government as well as non-government institutions, such as health funds and private hospitals. The range of possible roles in this area is extensive, including medicines access, public health, developing eHealth services and more.

REGULATORY AFFAIRS ASSOCIATE

Working in regulation involves ensuring the appropriate licensing of and legal compliance by pharmaceutical and medical products. Following this career path, you're involved in ensuring that a company's products comply with regulations and legislation.

RESEARCHER / ACADEMIC

Many students find their passion for research while studying, and go on to make a career of exploring and developing ideas in pharmacy. Through research and evaluation, pharmacists can make a huge practical difference to health policy and services. Common research areas for pharmacy graduates include pharmacy practice, pharmacotherapy, drug discovery, toxicology, clinical sciences, public health and much more.

SPECIALTY PRACTICE PHARMACISTS

There are many different types of specialty practice pharmacists, below are just a few of the most common.

Mental health pharmacist

Mental health pharmacists in hospitals are responsible for providing clinical pharmacy services to the adult mental health in-patient wards, and psychiatric assessment and planning units. It's a highly specialised career path that includes managing the supply of anti-psychotic medications to mental health patients in government units, outpatient clinics, community centres and specialist hospitals.

Women's and newborns' pharmacist

Providing safe and effective dosing and administration of medications during pregnancy and for infants is the focus of the role. One of the biggest challenges can be assisting in the care of babies born prematurely. But it's also a highly rewarding area to work in; a skilled pharmacist can play a crucial role in giving a baby a better chance at a healthy life.

Antimicrobial steward

Antimicrobial stewardship is a vital role in any hospital and health facility, with responsibilities that include promoting the appropriate use of antimicrobials (including antibiotics), reducing microbial resistance, and decreasing the spread of drug resistant infections.

Pain educator and consultant

Chronic and acute pain are fascinating areas to work in. Pain management is a constantly evolving field that encompasses many areas of treatment, not just pharmacy and pain medications. Pharmacists work with patients to manage their medications and coordinate other forms of treatment.





I was considering many study options: biochemistry in the States, medicine in Vietnam or pharmacy in Australia. I decided to join the pharmacy faculty at Monash since I was good at chemistry but also wanted to contribute to healthcare, so either pharmacy or pharmaceutical sciences would work for me. I ultimately chose pharmacy due to the scope of future career prospects, and because I thought clinical practice would be fun.

Studying in Australia was not as lonely as I thought it would be. It was really nice to have other international students with whom I could make friends, as well as Australian students. Pharmacy has a relatively small cohort, which I loved, as it allows you to know everyone and create a more concentrated circle of connections. Also, there are wonderful teachers who are willing to help and even create opportunities to accelerate your study and career.

Apart from university life, I love the Melbourne coffee culture. There are always many local coffee shops to try out! I also enjoy playing classical guitar; I once played at the Melbourne Guitar Festival in 2018, which helped me relive the time when I was performing.

My internship at the Royal Hobart Hospital went very well. Every day, I was immersed in a pool of valuable knowledge and feedback, which helped me feel more prepared for the end-of-year intern exam. If you're considering pharmacy, I would suggest that you do research about the profession. Pharmacy is not for everyone, but for those passionate about it, pharmacy is truly rewarding. Further, seek a mentor, ask for help when you need it, and don't just limit university life to university. Grades are not the only important thing; foster your communication, interpersonal, and organisational skills. These are the skills that will greatly increase your employability."

THOMAS DUONG

Bachelor of Pharmacy (Honours) and

Master of Pharmacy graduate and

Clinical Pharmacist, St Vincent's Hospital, Melbouri





IBERTAS

An international career

Margaret Louey currently works as a Senior Technical Manager, Product Development and Regulatory Affairs at Clinton Health Access Initiative (CHAI) CHAI is a non-profit organisation founded by US President Clinton in 2002 with the aim of helping save the lives of millions of people living with HIV/AIDS in the developing world. CHAI has now expanded its goals to include access to critical medicines and diagnostics for HIV/AIDS, TB, malaria and other diseases in low- and middle-income countries (LMICs).

After completing her Bachelor of Pharmacy degree at Monash University Margaret worked in community and hospital pharmacies in London. She returned to Melbourne a couple of years later to do her honours and PhD at Monash.

To read more about Margaret's journey, visit: A monash.edu/pharm/alchemy-33/ special-feature-pharmacy-gone-global/our-international-alumni/margaret-louey

Pharmacy is a global profession and we want you to experience that in your degree.

As part of our program, you can apply for exchange opportunities at our Malaysia campus. You can also apply to complete projects and elective placements in the US, and the UK. We work closely with preferred partners at the University of North Carolina, University College London, to ensure that our international activities are interesting and ethical.

DID YOU KNOW? The first Australian COVID mRNA vaccine candidate was developed right here at Monash Parkville. I've done so many great things in this course. Last year I made an anti-epileptic drug from scratch. And the lecturers are so approachable. When you're struggling with something, it's amazing to be able to walk along the hall and knock on the door of someone who is one of the world-leading researchers in the area." **JOMO KIGOTHO** Bachelor of Pharmaceutical Science studen

PHARMACEUTICAL SCIENCE

MAKE A GLOBAL IMPACT TO HEALTHCARE

A degree in pharmaceutical science will equip you for an exciting and diverse career, enabling you to make a genuine impact to human health and wellbeing. Your understanding of the powerful interplay between chemistry and biology will set you apart from the crowd.

You'll be taught by internationally renowned scientists at the forefront of tackling global health challenges. From them you'll learn what it takes to invent, develop and approve a new medicine to improve health outcomes around the world.

Hands-on experience

You'll get lots of time in the lab, working with industry-standard research instrumentation. When you accept your first job offer after graduation, you'll hit the ground running. And because the faculty has long standing relationships with employers in the sector, you'll emerge armed with the skills employers are looking for.

Use industry-standard instrumentation

As well as gaining a deep understanding of the fundamental concepts in chemistry, biology and product formulation, you'll learn how to design and conduct experiments using sophisticated instrumentation and, most importantly, how to interpret and effectively communicate your data.

A future-proofed sector brimming with opportunity

As the world continues to face a number of urgent health challenges, pharmaceutical scientists will play an important and central role in helping to solve these problems over the next decade and beyond. Victoria is the heart of Australia's pharmaceutical sector, contributing more than \$2.2 billion in exports in 2018 compared to just \$873 million in 2014.

The upshot is that it's a great time to be studying in this field. Globally, pharmaceuticals is a growth sector and — with many industries being majorly disrupted by technology — this future-proofed career path means that your skills will still be relevant in 20 years' time.

Victoria is a global hub for biomedical research, medical technology and pharmaceutical manufacturing

With one of the world's largest life science clusters, Victoria's pharmaceutical industry is highly sought after on a global scale. According to the governments' 2017 State of the Sector Medical Technologies and Pharmaceuticals report, Melbourne-based companies currently make up over 40% of all ASX-listed medtech and pharmaceutical firms in Australia. With companies such as CSL, Pfizer, Novartis, Merck, Bristol Myers Squibb and GSK located in Victoria, there's a strong demand for biomedical and pharmaceutical graduates in the state.

What you will actually study

A career in pharmaceutical sciences can take you in a number of exciting directions.

During the course, you'll have the opportunity to align your interests with particular aspects of the drug discovery pipeline.

You might be attracted to drug discovery biology, which is about gaining an understanding of what causes different types of diseases and how current medicines work at a molecular level to treat them. You'll get hands-on experience designing experiments to identify and test new biological targets for the development of novel drugs.

Or you might be drawn to medicinal chemistry, which represents the intersection of biology and chemistry, and involves the development of potential pharmaceutical compounds from conception through to their clinical use. You'll study how drugs work, and how they're designed and made. By applying the principles and techniques of organic chemistry, medicinal chemists discover and develop compounds that prevent, treat or cure disease.

There's also formulation science, which enables you to understand the principles of designing pharmaceutical products and how medicines are absorbed and travel around the body to the site of action.

Drawing on techniques used in the pharmaceutical industry, you'll also learn how to formulate chemical products in a wide range of applications, such as consumer products, cosmetics, paints and food.

Three-year BPharmSci vs four-year BPharmSciAdvHons: what's the difference?

Some of our students want to complete their degree, get out there and start working.

For them, the three-year Bachelor of Pharmaceutical Science is the perfect pathway into a career in the pharmaceutical sector or any of its allied industries such as skincare, cosmetics, chemicals or even food manufacturing, just to name a few.

Other students find that their natural curiosity and passion to work on innovative research attracts them to a degree with a significant research component. For those students, the Bachelor of Pharmaceutical Science Advanced (Honours) is ideal. The third year of the degree includes an extended placement in either research or industry, which will give you the skills and independence to conduct a substantial research project in your fourth (honours) year.

Upon completion of an honours year, students are eligible to apply for a PhD.

Bachelor of

PHARMACEUTICAL • PHARMACEUTICAL **SCIENCE**

Bachelor of SCIENCE ADVANCED (Honours)

BACHELOR OF PHARMACEUTICAL SCIENCE COURSE MAP (3 YEARS)

YEAR		UNITS

Semester 1	BPS1011 Human physiology I: Cells to systems	BPS1021 Medicinal chemistry I: Structure	BPS1031 Physical chemistry I: Equilibria and change	BPS1041 Scientific Inquiry
Semester 2	BPS1012 Human physiology II: Body systems	BPS1022 Medicinal chemistry II: Reactivity and biomolecules	BPS1032 Physical chemistry II: Solutions, surfaces and solids	BPS1042 Pharmaceutical science in context

YEAR 2

Semester 1	BPS2011 Pharmacology I: Biochemical signalling	BPS2021 Synthetic chemistry I: Structure and reactivity	BPS2031 Analytical methods I: Principles and applications	BPS2041 Drug delivery and pharmacokinetics
Semester 2	BPS2012 Pharmacology II: Drug action	BPS2022 Drug discovery and design	BPS2032 Analytical methods II: Investigation design	BPS2042 Drug development

VEAD 2

Semester 1	Elective unit – Choose four uni BPS3011 Disease-focused ph BPS3021 Biotechnology BPS3031 Computational drug BPS3041 Synthetic chemistry BPS3051 Pharmaceutical proc BPS3061 Industrial formulatio	design II: Advanced methods duct development	
Semester 2	BPS3012 Applied pharmaceutical science: from concept to market	Elective unit – Choose two units from the following four: BPS3022 Microbiology and immunology BPS3032 Toxicology and advanced pharmacology BPS3042 Advanced experimental spectroscopy BPS3052 Applied pharmacokinetics/dynamics and nanotechnology	BPS3062 Professional experience

BACHELOR OF PHARMACEUTICAL SCIENCE ADVANCED HONOURS YEAR

An Honours year gives you a taste of a research career and enhances your job prospects upon graduation. The Bachelor of Pharmaceutical Science Advanced (Honours) contains a Year 4, shown below.

YEAR 4

Full year	BPS4001 – Advanced Pharmaceutical Science (coursework) — 12 points
Full year subjects	BPS4002 – Research in Pharmaceutical Science — 36 points

If you want details about what you'll be specifically learning in each of your units, you'll find them in our online handbook:) handbook.monash.edu



CAREERS IN PHARMACEUTICAL SCIENCE

The course material sounds fascinating, all that time using high-tech lab equipment seems really fun, and the placement and industry experience opportunities mean you'll graduate ready for the workforce. But where can a pharmaceutical science degree actually lead?

That's a trickier question to answer than you might think. Although the course is primarily focused on understanding medicines, the skills you learn will translate to a range of chemistry-related or biomedical research opportunities. Our graduates can be found in industries from paint and coatings to cosmetics to food manufacturing.

Here are some of our more common graduate destinations.

BIOMEDICAL RESEARCHER

Biomedical researchers investigate how the human body works with the aim of finding new ways to improve health. Usually based in a laboratory, you'll conduct experiments and clinical tests to record and report on

In general, biomedical researchers within a university focus on improving tools and techniques, studying biological processes and the causes and progression of diseases. Private sector labs develop high value products that generate considerable income for the company.

CLINICAL RESEARCH ASSOCIATE

As a clinical research associate you'll use your experience in running experiments, gathering data and documenting the results during clinical trials. Typical employers for this role include clinical research organisations. pharmaceutical and biotechnology companies and even hospitals and universities. There is growing demand for this role in Australia, as we are one of the leading countries for phase one clinical trials.

FORENSIC SCIENTIST

Forensic science is the application of scientific techniques to help investigate crimes, accidents and other incidents. It's not always like what you see on your favourite crime investigation TV shows, but can entail tasks such as analysing illicit drugs or suspect situations.









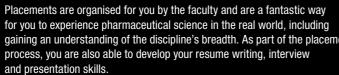


gaining an understanding of the discipline's breadth. As part of the placement process, you are also able to develop your resume writing, interview and presentation skills.





All our pharmaceutical science degrees offer the opportunity for a placement in research or industry in third year. Placements are compulsory for single degrees (with the Bachelor of Pharmaceutical Science Advanced Honours offering an extended placement) and optional for students studying the double degree with Engineering.





In 2022, we launched a new coursework Masters program: the Master of Pharmaceutical Science. The program aims to provide students with a sophisticated knowledge of pharmaceutical science, as well as an advanced skill set, that will equip students for a career in the pharmaceutical sector, as well as in related industries.

The program has a number of entry levels, and is suitable for graduates of undergraduate pharmaceutical science degrees, as well as science, biomedical science and engineering degrees.

nonash.edu/pharm/future/courses/master-ofpharmaceutical-science



INTERNATIONAL DEVELOPMENT OFFICER

For graduates with a desire to work in the social advancement field, one career path is to work with an International Non-Governmental Organization (INGO), like the World Health Organization (WHO).

With a goal to build a better, healthier future for people all over the world, WHO staff work side by side with governments and other partners to ensure the highest attainable level of health for all people.

MEDICINAL CHEMIST

Medicinal chemistry is an interdisciplinary science, drawing graduates from a range of different fields. A career in this area usually involves working on the development and testing of potentially therapeutic compounds. This might be within a company that is developing new products, for a research facility exploring new compounds, or at a regulatory agency testing pharmaceuticals for compliance.

PAINTS AND PROTECTIVE COATINGS SCIENTIST

Not all pharmaceutical science graduates go on to work with products for human consumption. Graduates can find a role working on the development of many of the products we come into daily contact with, such as paints, pigments and protective coatings.

These compounds are present in our living and working spaces, our clothing, our food packaging and many, many other products and environments. We're exposed to them on a regular basis, so manufacturers must study them and be sure that they are safe.

PATENT ATTORNEY

To be successfully taken to market, new discoveries need to be commercialised and a company's intellectual property protected. That's where a patent attorney comes in.

A patent attorney will typically work for a specialist consultancy, advising a range of clients. A law degree is not required, but patent attorneys do need a deep understanding of relevant legislation, potentially across a number of different countries and regions.

PHARMACEUTICAL SALESPERSON

The best people for selling the benefits of a product are often those with the deepest understanding of how it works. For complex products developed and manufactured using pharmaceutical or chemical science, there is often a need for sales and marketing representatives able to talk with authority about the science behind the product.

This is a skill many graduates have and for some, sales and marketing can be their next step beyond the lab after working in research and development.

PRODUCT DEVELOPER/FORMULATION SCIENTIST

Product development scientists work in a variety of industries, including food, biotechnology, pharmaceutical science, and medical device manufacturing. They are typically based in the lab, developing new foods, drugs, and medical technologies or researching and developing ways to enhance existing products.

QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC) CHEMIST

These two areas in manufacturing are closely related, but they have important differences. Where QA is about ensuring that development and maintenance processes are adequate in order for a system to meet its objectives, QC is a set of activities designed to evaluate the developed products.

QA is a systems-based career, often focused on designing, implementing and managing new systems for the manufacturing process to ensure their quality.

A QC chemist is responsible for testing the products themselves. They prepare and test samples from all phases of a manufacturing or other handling process, with the goal of determining if the substance meets particular standards or requirements.

REGULATORY AFFAIRS ASSOCIATE

Regulatory affairs involves ensuring a company and its products meet government regulations. For companies producing new products, it's a crucial discipline. A skilled regulatory affairs associate can be the difference an effective product reaching the market or not. Regulatory professionals are expected to know the ins and outs of the medical regulation, and to understand how changing regulations will impact their industry.

SKINCARE AND COSMETICS DEVELOPER

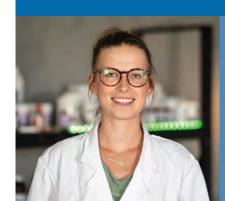
Youthful, clear skin is big business, with skin care and cosmetic companies around the world spending millions on researching and developing new products. There are plenty of opportunities in this fast-moving industry, with competing companies striving for the next breakthrough that will give them the edge.

It's not just big name international cosmetic brands that offer employment though. Many smaller companies exist in the field and it's ripe for entrepreneurs.

The beauty of pharmaceutical sciences

At the end of 2020 Georgie graduated from the Bachelor of Pharmaceutical Science, an area she chose to pursue after watching the movie Contagion.

In the end, Georgie chose not to tackle the spread of a deadly virus and is now immersed in the wonderful world of cosmetics, whilst lapping up the warm weather on the Sunshine Coast where the company she works for is based. Skincare and cosmetics are a booming business, and for pharmaceutical science graduates interested in this field there are plenty of opportunities.



(ii)

When I was a student I loved being in the lab because it's so hands on and satisfying when it leads to a result. That's why I enjoy cosmetics — it's all about working towards a final product and getting that product out into the world within a set timeframe."

GEORGIE PERCIVAL

Production and New Product Development Scientist, Milkman Grooming Co

2024 INTERNATIONAL ENTRY REQUIREMENTS

	Pharmaceutical Science F			Pharmacy			
	Bachelor of Pharmaceutical Science	Bachelor of Pharmaceutical Science Advanced (Honours)	Bachelor of Pharmaceutical Science Advanced Honours (Scholars Program)	Bachelor of Chemical Engineering (Honours) and Bachelor of Pharmaceutical Science	Bachelor of Pharmacy (Honours)	Bachelor of Pharmacy (Honours) and Master of Pharmacy	Bachelor of Pharmacy (Honours) (Scholars Program) and Master of Pharmacy
Duration (years)	3	4	4	5	4	5	5
Monash code	P2001	P3002	P3002	E3008	P3001	P6001	P6001
Location	PA	PA	PA	CL1	PA	PA	PA
Intake (semester)	Feb	Feb	Feb	Feb	Feb	Feb	Feb

ENGLISH REQUIREMENTS AND PREREQUISITES

ENGLISH REQUIREMENTS AND PREREQUISIT	153	
English	VCE: Units 3 and 4: a study score of at least 30 in English (EAL) or 25 in English other than EAL IB: At least 4 in one of the following SL subjects: English A: Literature English A: Language and Literature Literature and Performance, OR At least 3 in one of the following HL subjects: English A: Literature English A: Language and Literature, OR At least 5 in one of the following SL subjects: English A: Language and Literature, OR At least 5 in one of the following SL subjects: English B English B Other qualifications: English (Australian Year 12 equivalent) English test: IELTS (Academic): 6.5 overall (no band lower than 6.0) (or equivalent approved English test)	VCE: Units 3 and 4: a study score of at least 30 in English (EAL) or 25 in English other than EAL IB: At least 4 in one of the following SL subjects: English A: Literature, OR English A: Language and Literature Literature and Performance, OR At least 3 in one of the following HL subjects: English A: Literature English A: Language and Literature, OR At least 5 in one of the following SL subjects: English A: Language and Literature, OR At least 5 in one of the following SL subjects: English B English B, OR At least 4 in the following HL subject: English B Other qualifications: English (Australian Year 12 equivalent) English test: IELTS (Academic): 6.5 overall (no band lower than 6.0) (or equivalent approved English test)
Chemistry	VCE: Units 3 and 4: a study score of at least 25 in Chemistry. IB: At least 4 at Standard Level (SL) or 3 at Higher Level (HL) Chemistry Other qualifications: Chemistry (Australian Year 12 equivalent).	VCE: Units 3 and 4: a study score of at least 25 in Chemistry. IB: At least 4 at Standard Level (SL) or 3 at Higher Level (HL) Chemistr Other qualifications: Chemistry (Australian Year 12 equivalent).
Mathematics	VCE: Units 3 and 4: a study score of at least 25 in one of Mathematical Methods (any) or Specialist Mathematics. IB: At least 4 in one of the following SL subjects: Mathematics. OR Mathematics: Analysis and Approaches, OR At least 3 in one of the following HL subjects: Mathematics: Applications and Interpretations, OR Mathematics: Applications and Interpretations, OR Mathematics: OR Further Mathematics, OR Mathematics: Analysis and Approaches. Other qualifications: Higher level mathematics (Australian Year 12 equivalent).	VCE: Units 3 and 4: a study score of at least 25 in one of Mathematical Methods (any) or Specialist Mathematics. IB: At least 4 in one of the following SL subjects: Mathematics: Analysis and Approaches, OR At least 3 in one of the following HL subjects: Mathematics: Applications and Interpretations, OR Mathematics: Applications and Interpretations, OR Mathematics: OR Further Mathematics, OR Mathematics: Applications: Higher level mathematics (Australian Year 12 equivalent).

QUALIFICATION	Entry Score ²						
ACT	25	27	32	27	27	27	32
Advanced Placement	7	8	10	7	8	8	10
All India Senior School Certificate	78.50%	83%	90%	81%	83%	83%	90%
2024 ATAR for International Students (Australian Year 12)	82.50	90	97.50	87.50	90	90	97.50
GCE A Level	9.5	12	15	11	12	12	15
Hong Kong Diploma of Secondary Education	18	21	25	20	21	21	25
Indian School Certificate Examination	72.50%	77%	85%	76%	77%	77%	85%
International Baccalaureate (IB) Diploma	29	33	39	31	33	33	39
Monash University Foundation Year (commencing MUFY in 2024)	72.50%	75%	85%	76.25%	75%	75%	85%
Ontario Secondary School Diploma – Grade 12, Canada	83.20%	87.90%	92.50%	86.30%	87.90%	87.90%	92.50%
High School Diploma, Vietnam	8.35	8.56	9	8.49	8.56	8.56	9
SAT (Scholastic Aptitude Test) (Total Score out of 1600)	1220	1290	1420	1270	1290	1290	1420
SMA3, Indonesia – 10-point scale (6 pass)	8.0	8.8	9.5	8.3	8.8	8.8	9.5
STPM, Malaysia	8.8	9.7	11	9.4	9.7	9.7	11
UEC, Malaysia	3.8	2.6	1	3	2.6	2.6	1
UNSW Foundation Studies	7.75	8.5	9.5	8.25	8.5	8.5	9.5
University of Melbourne Trinity College Foundation Studies	79%	86%	95%	83%	86%	86%	95%

¹ Pharmaceutical Science subjects will be taken at Parkville campus.

² For information on how to calculate your entry score for the listed qualifications, refer to page 88 – 89 of the 2024 international undergraduate course guide located at:

 $^{{\}color{red} {^{\wedge}}} \textbf{monash.edu/study/why-choose-monash/information-for-schools-and-teachers/publications}$

PATHWAYS

If you didn't meet our course requirements at the end of high school, we offer a number of pathway options. You may be able to move into either Pharmacy or Pharmaceutical Science after completing the first year in another degree if you achieve a minimum GPA and meet course prerequisites. Monash College Foundation Year, detailed on the next page, is also a popular pathway.

SCHOLARSHIPS AND STUDY GRANTS

Study grants may be available for commencing international students living offshore. This grant will be applied as a fee discount.

A number of scholarships are available to international students.
The monash.edu/scholarships, select 'I'm an international student' and search by faculty.

FOUNDATION YEAR

Monash University Foundation Year is a pre-university program that helps you develop academic and English skills to the level expected of first-year Pharmacy and Pharmaceutical Science students, providing you with an easier transition to Monash University.

Even if you don't have our subject prerequisites of English, Chemistry and Maths to the required standard, these can be made up during Foundation Year. And if you apply and are accepted into Monash College, you'll receive a packaged offer to your preferred destination degree, conditional on achieving certain grades.

Monash University Foundation Year is offered in the following locations: Melbourne city, Indonesia, Malaysia, Sri Lanka, China. January and July intakes are available. The monashcollege.edu.au/study-areas/pharmacy-and-pharmaceutical-sciences

HOW TO APPLY

To apply to Monash University, lodge your application online and use the step-by-step guide found at

monash.edu/admissions/apply/online

If you're applying through a Monash agent, please contact them for assistance. Some agents may charge a fee for additional services, so please be aware of any additional fees before you make an appointment. Please ensure your agent is an authorised Monash agent by visiting

monash.edu/study/agents-database





