AT MONASH PHARMACY AND PHARMACEUTICAL SCIENCES

WE’RE ON A MISSION TO MAKE HEALTHCARE BETTER

And our mission begins with what’s most important: educating the next generation of pharmacists and pharmaceutical scientists.

It’s why we focus on small group learning that allows you to receive individual attention from some of the world’s leading educators.

It’s why we focus on equipping you with not just the most up-to-date knowledge but also with the skills you need to put that knowledge into practice.

And it’s why both of our undergraduate degrees offer extensive placements, so you can integrate what you’ve learnt in the classroom with what goes on in the wider world.

It’s the mission we’ve had since 1881, long before we became one of the world’s most highly regarded institutions in our field, when we began serving Victoria as the Victorian College of Pharmacy.

Studying with us offers you a unique opportunity to become part of a tight knit community of people at the highest echelons of their professions, all utterly dedicated to improving the world around them.

Please, join us.
IN ONE WAY, WE’RE SMALL.

We’re a community of about 1500 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. Develop your skills through a student leadership program, relax with your friends at an on-campus festival, or join a student-run club suited to your interests.

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. That comes in handy when it’s time to go on placement.

What will your week look like?

Studying at Parkville involves a mix of interactive lectures, small-group classes, self-directed learning and hands-on practical skill-building in labs and workshops.

In a typical week, you’ll follow our developed instructional model called ‘DEAR’ for ‘Discover, Explore, Apply, Reflect.’

DISCOVERY involves spending time familiarising yourself with key concepts by reading, watching videos and completing exercises online.

You’ll then EXPLORE the ideas further through interactive lectures with skilled teachers, and have the chance to APPLY your new-found knowledge in small group workshops with academics, practitioners and science facilitators.

Finally, you’ll spend some time consolidating what you’ve learnt and ensuring it makes sense in the context of your overall course, by REFLECTING on your plans for continuing development.

The course you’re undertaking will determine exactly how you’ll learn.

For example, our budding pharmaceutical scientists spend more time in the lab than our pharmacists in training, who focus more on developing their clinical skills.

You’ll also have the valuable opportunity to meet regularly with a ‘skills coach’, an academic or practitioner from your course who will help you develop and implement a personalised learning plan and ensure you’re on track.
LIFE AS AN INTERNATIONAL STUDENT IN MELBOURNE

Moving away from home to study is exciting, but it can also be a little scary. The best way to set your mind at ease is to plan ahead and know what support is available. About 30 per cent of our Parkville students come from overseas. We’re well-equipped to support international students, and can direct them to the services of our larger campuses if necessary.
EXPERIENCE MELBOURNE

Consistently ranked one of the world’s most liveable cities, Melbourne is known for welcoming international students and providing them with a memorable experience while they’re here. A vibrant, multicultural city, it has something to offer every lifestyle, no matter what your interests.

It boasts many man-made and natural tourist attractions, plays host to regular sporting and cultural events, 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 our CBD. You’re able to work up to 20 hours per week alongside your studies, 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 gain advice on any issues they may be facing. For more information, visit www.monash.edu/mibs for more information.

If you’re interested in living on campus, there are many options available at our largest campus in Clayton. Many of our international students choose to live at Clayton, however please note that it can mean quite a long journey to get to and from your classes at Parkville. Visit monash.edu/mibs for more information.

Want to live in the Melbourne CBD 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 at our Parkville campus on a regular basis, ensuring you receive ongoing support.

Monash off-campus accommodation
Email: ask@monash | Phone: 1800 666 274
monash.edu/accommodation/off-campus-options

For information about the daily costs of living in Melbourne, visit monash.edu/cost-of-living

ACCOMMODATION AND COST OF LIVING

Melbourne offers a range of accommodation options to suit your lifestyle and budget. Whilst Parkville doesn’t offer on-campus accommodation, affordable rental accommodation is plentiful in our surrounding neighbourhoods, such as Melbourne, Parkville or Brunswick.

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 Index, Melbourne ranks as the tenth safest city 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.

Details: monash.edu/about/safety-security

As an international student, you’re also able to access the Sonder app, a multilingual safety and support service. The provider, Sonder Australia, is a nationwide network of trusted and trained professionals who provide safety and security services, day or night. Its features include 24/7 access to help, ‘Check on me’ and ‘Track my journey’ functions and geo-safety alerts. More information can be found at: monash.edu/students/safety-security/sonder

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. Details: monash.edu/connect

Practice your English

Many international students are able to greatly improve their verbal and spoken English during their time abroad. Much of this improvement happens naturally – from studying in a country with English as a first language – but at our Parkville campus, we also offer a range of free English programs. The Let’s Chat program allows you to practice your conversational English whilst also learning about Australian culture, and the Peer Support program offers one-on-one assistance in written English. Details: 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. Wellbeing Monash 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. Details: monash.edu/health and 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 Officer who’s responsible for your social experience on campus.

During O Week, the Student Experience Officer 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. Details: monash.edu/study/student-life/clubs-and-societies

1 Economist Intelligence Unit 2011-2019.
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. Each year, nearly 700,000 Australians end up in hospital as a result of inappropriate or incorrect medication use. In response to this, in 2019 the Australian government announced medicine safety as a national health priority area. The World Health Organisation has outlined 13 major health challenges for the next decade, and the issues of medicine access, use and safety feature in four of them.

For more information, visit: www.who.int/news-room/photo-story/photo-story-detail/urgent-health-challenges-for-the-next-decade.

Building a better pharmacist
Monash has long been considered the leading pharmacy program provider in Australia. For the last three years we have been consistently ranked within the top three pharmacy and pharmacology schools in the world, amongst universities like Harvard and Oxford. In part, this is because we believe the world doesn’t just deserve more pharmacists; it deserves better pharmacists.

That’s why in 2017 we launched an innovative new course: Australia’s only combined Bachelor of Pharmacy (Honours)/Master of Pharmacy.

It means our graduates go out into the world equipped with a higher level of learning.

You’ll also 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.

Same duration, higher qualification
The pathway to registration as a pharmacist in Australia generally takes five years.

Traditionally, this has been structured as a four-year bachelor degree plus a one-year internship. At Monash, our program takes the same amount of time but instead you’ll graduate with both a master and bachelor. The fifth year of the course combines a year of supervised practice (during which time you are paid as a provisionally registered pharmacist), with intern studies (Intern Training Program and Intern Foundation Program). This intensive combination of learning and working prepares you for registration as a pharmacist. It will be your responsibility to arrange the internship and ensure your workplace is credentialed by the faculty.

Flexible course options
Your Monash BPharm(Hons) is your entry point to an internship in Australia. You don’t have to complete the MPharm during your intern year, especially if you are an international student not requiring completion of an intern year to register in your home country. In that case you can graduate with a standalone, four year Bachelor of Pharmacy (Hons). Only Monash BPharm(Hons) graduates are eligible to undertake the MPharm in their intern year. That’s because our BPharm(Hons) contains some master’s-level material which is credited towards the Master.

A pharmacist in training from day one
From the very beginning, we go beyond ensuring you have a thorough grasp of the underlying scientific disciplines — chemistry, biology, pharmacology and so on. We also focus on the key skills that make the difference between a good pharmacist and a great one. We call these skills your POWERIT-Inq skills and you’ll get a chance to practice them throughout your whole degree.

**P**ROBLEM-SOLVING

**O**RAL **C**OMMUNICATION

**W**RITTEN **C**OMMUNICATION

**E**MPATHY

**R**EFLective **P**RACTICE

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**T**EAMWORK

**INQ** INQUIRY

Since I started at Monash, I’ve seen a big improvement in not only my scientific knowledge but also in my communication skills. Employers want pharmacy graduates who can not only understand how medicines work, but can also work effectively with patients, doctors and other healthcare professionals to get the best outcomes for patients.”

KEVIN WU
Bachelor of Pharmacy (Honours) / Master of Pharmacy student

Pharmacy graduates almost universally get jobs straight out of university, with 95.7 per cent in full-time employment within four months of graduating.*

*Source: Graduate Outcomes Survey 2019
BECOME A PHARMACIST FASTER: GRADUATE ENTRY PATHWAY

Graduate Entry Pharmacy is for those of you who choose to study a more general science 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/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. You may be eligible for graduate entry if you have a minimum distinction average of 70% (or equivalent) and have graduated from a relevant degree in the last ten years.

Relevant degrees include:
- Bachelor of Biomedical Science/Bachelor of Biomedicine
- Bachelor of Health Sciences
- Bachelor of Pharmaceutical Sciences
- Bachelor of Science

In assessing your eligibility we’ll take into account the number of relevant subjects you’ve completed. The units completed in the degree should be appropriate and science based. As shown below, you’ll have to complete and pass a 6.5 week summer school before entering into the course, as well as an overload unit on top of your Year 3.

For more information about Graduate Entry Pharmacy, including eligibility and application information, visit: monash.edu/graduate-pharmacy

How do I apply?
Applications for 2021 entry open on our website from 3 August, 2020 and close on 15 November, 2020.

Apply at: applicant.connect.monash.edu.au/connect/webconnect

BACHELOR OF PHARMACY (HONOURS)/MASTERS OF PHARMACY

COURSE MAP

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Inquiry units
- How the body works
- How medicines work
- Applied pharmacy practice

Comprehensive Care units
- Foundation practice
- Professional practice

Placement units
- Bridge to Practice units

Key: Inquiry units, Comprehensive Care units, How the Body Works units, How the Body works units, Bridge to Practice units

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: 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.

We have had the opportunity to work collaboratively with both medical and nursing students, which has been a highlight of my degree so far. Not only were we able to work through a clinical case together, we were also able to better understand one another’s scope of knowledge and unique skill sets.”
OLIVIA DE GIOVINE
CAREERS IN PHARMACY
A 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 to 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 reconciliation 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 are 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.

Speciality 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 is 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 specialised 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 is 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 pain sufferers to manage their medications and coordinate other forms of treatment.

Pharmacy roles are evolving to better meet healthcare and community needs, as well as adapt to advances in technology. By the time you graduate, your job could look more like what is detailed in the Pharmaceutical Society of Australia’s recent report: Pharmacists in 2023: Roles and Remuneration.

Read the report at: www.psa.org.au/advocacy/working-for-our-profession/pharmacists-in-2023-roles-and-remuneration
Have an international experience whilst you study

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, the UK and a number of developing countries. We work closely with preferred partners at the University of North Carolina, University College London, and Work the World to ensure that our international activities are interesting and ethical.

All eligible Monash students who are accepted into an international program will receive some financial aid towards the cost of their experience.

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 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.
A pharmaceutical science degree from Monash will springboard you into an exciting career. Your understanding of the powerful interplay between chemistry and biology will set you apart from the crowd.

Learn what it takes to invent, develop and approve a new medicine from internationally renowned scientists. You’ll also 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 growing and prominent sector**
In early 2020 the World Health Organisation released a report detailing urgent global health challenges for the next decade. Many are problems for pharmaceutical scientists to solve, ranging from Stopping infectious diseases, Preparing for epidemics and Protecting the medicines that protect us. For more information, visit: www.who.int/news-room/photo-story/photo-story-detail/urgent-health-challenges-for-the-next-decade.

Victoria is a global centre of excellence in medical technology and pharmaceuticals. In 2018 Victoria exported medtech and pharmaceutical products worth over $2.4 billion, an increase of 145% since 2014. With significant support from the government in such initiatives as the Medicines Manufacturing Innovation Centre (head-quartered at our Parkville campus) the opportunity to interact with industry and undertake placements will allow you to start developing your networks early.

**Flexible course and career options**
During the course, you’ll have the opportunity to align your interests with particular aspects of the drug discovery pipeline.

For example, you might be attracted to **Drug discovery biology**, Drug discovery 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. Regardless of the area you choose to focus on, the Bachelor of Pharmaceutical Science is designed to enable you to work, collaborate and explore different areas of the drug discovery pipeline upon graduation.

**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.

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 one of our world-class pharmaceutical research groups, 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.

Don’t know which of these categories you fall into? Don’t worry – no matter which course you start in, there are options for you to transfer out of the Advanced (Honours) program, or complete a standalone Honours year after three years of study.

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**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 student
### BACHELOR OF PHARMACEUTICAL SCIENCE / BACHELOR OF PHARMACEUTICAL SCIENCE ADVANCED (HONOURS)

#### BACHELOR OF PHARMACEUTICAL SCIENCE COURSE MAP (3 YEARS)

| YEAR 1 UNITS | SEMESTER 1 | BPS1011 | Human physiology I: Cells to systems | BPS1021 | Medical chemistry I: Equilibria and change | BPS1041 | Scientific inquiry |
| | Semester 1 | | | BPS1012 | Human physiology II: Body systems | BPS1042 | Pharmaceutical science in context |
| | | | | BPS1022 | Medical chemistry II: Reactivity and biomolecules | |
| | | | | BPS1031 | Physical chemistry I: Solids, surfaces and solids | |
| | | | | BPS1043 | Analytical methods I: Principles and applications | |
| | | | | BPS1044 | Drug delivery: Absorption pathways | |
| | | | | BPS1045 | Drug development | |

#### MAJOR SPECIALISATIONS

**YEAR 2 DRUG DISCOVERY BIOLOGY**

| SEMESTER 1 | BPS2011 | Pharmacology I: Biophysical signalling | BPS2012 | Pharmacology II: Drug action | BPS2021 | Synthetic chemistry I: Structure and reactivity | BPS2022 | Drug discovery and design |
| | | | | | | | | BPS2023 | Analysis of drug-receptor interactions |

**YEAR 3 MEDICINAL CHEMISTRY**

| SEMESTER 1 | BPS3011 | Pharmacology III: Advanced concepts | BPS3021 | Disease-focused pharmacology – CNS | BPS3031 | Microbiology and immunology | BPS3041 | Advanced experimental spectroscopy |
| | | | | | | | | BPS3042 | Drug delivery nanotechnology | BPS3051 | Molecular basis of drug action |

| SEMESTER 2 | BPS3012 | Professional experience in drug discovery biology | BPS3022 | Synthetic chemistry II: Emerging methods | BPS3032 | Toxicology | BPS3042 | Drug discovery and design |
| | | | | | | | | BPS3052 | Molecular basis of drug action |

**YEAR 3 FORMULATION SCIENCE**

| SEMESTER 1 | BPS3031 | Applied pharmaceutics and pharmaceutics | BPS3032 | Biotechnology products | BPS3041 | Pharmaceutical product development and manufacture | BPS3051 | Microbiology & immunology |
| | | | | | | | | BPS3052 | Molecular basis of drug action |

| SEMESTER 2 | BPS3031 | Applied pharmaceutics and pharmaceutics | BPS3032 | Biotechnology products | BPS3041 | Pharmaceutical product development and manufacture | BPS3051 | Microbiology & immunology |
| | | | | | | | | BPS3052 | Molecular basis of drug action |

### BACHELOR OF PHARMACEUTICAL SCIENCE (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 units**

- BPS4001 - Coursework in Pharmaceutical Science (52 points)
- BPS4002 - Research in Pharmaceutical Science (38 points)

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**BACHELOR OF PHARMACEUTICAL SCIENCE SCIENCE/ BACHELOR OF ENGINEERING (HONOURS)**

Combining chemical engineering with pharmaceutical science, this double degree is unique in Australia and rare worldwide.

Not only will you learn how to invent and test new products such as pharmaceuticals, food and cosmetics, but you will have the know-how to manage the product process beyond the laboratory stage.

This double degree allows you to graduate as a qualified engineer capable of covering the full spectrum of the pharmaceutical product design and production process.

Pharmaceutical engineers work in all aspects of the design and production process, from experimenting with innovative formulations to manufacturing commercialised products. A pharmaceutical engineer might:

- design, develop and improve industrial processes and equipment for large-scale chemical and pharmaceutical manufacturing
- plan and test methods of manufacturing
- devise production processes that are safe, efficient, profitable and environmentally sound
- develop and implement cleaner production technologies.

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**DID YOU KNOW?**

Bachelor of Pharmaceutical Science/Bachelor of Engineering (Honours) is taught between two Monash campuses – Parkville and Clayton. You’ll study Year 1 and 3 at Parkville, and Years 2, 4 and 5 at Clayton.
CAREERS IN PHARMACEUTICAL SCIENCE

The course material sounds fascinating, all that time using high-tech lab equipment seems really fun, and the internship opportunities mean you’ll graduate ready for the workforce. So what exactly does a pharmaceutical scientist do?

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 the findings.

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 will 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.

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**Ensuring quality medicines**

Jeremy Shonberg works for the Therapeutic Goods Administration as a pharmaceutical evaluator. He was originally drawn to medicinal chemistry as it involves a lot of problem solving and can deliver interesting results and great benefits in terms of drug design.

With both a bachelor and a PhD from Monash, Jeremy’s current role involves evaluating the chemistry, manufacture, quality controls and bioavailability data supplied by pharmaceutical companies to support the products they submit for government approval.
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.

**Quality assurance and quality control 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 and products meet government regulations. For companies producing new products, it is a crucial discipline. A skilled regulatory affairs associate can become a difference maker finding the product reach the market or not. Regulatory professionals are expected to keep the ins and outs of the medical regulations, 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 is ripe for entrepreneurs.

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**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 (‘NGO’), 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 safety.

**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 are 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 protected, and a company's intellectual property protected. That's where a patent attorney comes in. A skilled patent attorney studies them and be sure that they are safe.

We are exposed to them on a regular basis, so manufacturers must study them and be sure that they are safe.

**Advantages of Monash’s Bachelor of Pharmaceutical Science**

- **International Development Officer**
- **Medicinal Chemist**
- **Paints and Protective Coatings Scientist**
- **Patent Attorney**
- **Skincare and Cosmetics Developer**
- **Regulatory Affairs Associate**
- **Quality Assurance and Quality Control Chemist**
- **Regulatory Affairs Representative**
- **Skincare and Cosmetics Developer**
- **Quality Assurance and Quality Control Chemist**

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**2021 INTERNATIONAL ENTRY REQUIREMENTS**

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**Pharmaceutical Science**

**Bachelor of Pharmaceutical Science (Honours)**

- **Chemistry**
- **Mathematics**

**Bachelor of Pharmaceutical Science (Scholars Program)**

- **Chemistry**

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**Pharmacy**

**Bachelor of Pharmacy (Honours)**

- **Chemistry**

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**Mathematical Methods**

- **Chemistry**

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**English Requirements and Prerequisites**

**English proficiency test:**

- IELTS (Academic): 7.0 (no band lower than 6.5) (or equivalent approved English proficiency test)

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**Other qualifications:**

- Higher score in English (Australian Year 12 equivalent)

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**Qualification**

- **Pharmaceutical Science**

- **Pharmacy**

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**Other qualifications:**

- Higher level mathematics (Australian Year 12 equivalent)

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- Higher level mathematics (Australian Year 12 equivalent)
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 Sciences after completing the first year in another degree if you achieve a minimum 70 per cent 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.

In addition, a number of scholarships are available to international students. To browse for scholarships, visit 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 CBD, Indonesia, Malaysia, Sri Lanka, China. January and July intakes are available.

Details: monashcollege.edu.au/study-areas/pharmacy-and-pharmaceutical-sciences

Monash College also offers a number of English courses to help prepare you for your future studies. For further information, visit monashcollege.edu.au/courses/english

CRICOS: Standard 071178G; Intensive 071180C; Extended 072824G.

Details: monashcollege.edu.au/foundation-year
Head to our youtube channel to view a ton of interesting videos about our courses, research and career outcomes.