AT MONASH PHARMACY AND PHARMACEUTICAL SCIENCES WE’RE ON A MISSION TO MAKE HEALTHCARE BETTER.

From developing new medicines to improving old ones to – perhaps most importantly – educating the next generation of pharmacists and pharmaceutical scientists, everything bends towards this simple goal.

It’s why we focus on small group learning that allows our students 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 action.

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 Melbourne College of Pharmacy.

Studying here offers 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 them and we’re dedicated to making sure they’re 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. Student leadership and professional development programs. Festivals. Clubs and societies.

Location is everything

Perched on the edge of Melbourne’s CBD and easily accessible by tram and train, we’re a stone’s throw from buzzing inner-city suburbs like Carlton and Brunswick.

We’re also in the heart of Melbourne’s world-renowned Biomedical Precinct, a mecca for research and healthcare talent the world over. 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 lots and lots of hands-on practical skill-building in labs and workshops.

In a typical week, you’ll spend time familiarising yourself with the key concepts by reading, or 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 pharmacists and scientist 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 exact make-up depends on which course you’re in – our budding pharmaceutical scientists spend more time in the lab than our pharmacists in training, who focus more on developing their clinical skills.

Students in both courses also meet regularly with a ‘skills coach’ who help them develop and implement personalised learning plans and ensure they’re on track.

We call this model “DEAR”, for Discover, Explore, Apply, Reflect. If you can make sure you do each of these for every unit you’re enrolled in every week, you’ll be well on track for academic success!
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 a 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.studymelbourne.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. Whilst Parkville doesn’t offer on-campus accommodation, affordable rental accommodation is plentiful in our surrounding neighbourhoods, such as Melbourne, Parkville or Brunswick.

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 and to and from your classes at Parkville. Visit monash.edu/mrs 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/accommodation/off-campus-options

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

1 Economist Intelligence Unit 2011-2018.

DID YOU KNOW?

Monash University welcomes all new international students with a free airport pick-up service to take you to your accommodation. To arrange a pick-up, you must submit an airport pick-up request form at least three working days before you arrive in Australia. Details: monash.edu/study/international/preparing/reception
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 campus security
According to the latest Safe Cities Index, Melbourne ranks as the fifth 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

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
The world needs pharmacists. As the experts in medicines and the way they interact with the body, pharmacists play a vital role in improving the health of their communities. As the global population grows and ages, and as medicines become more complex, the need for pharmacists intensifies. The World Health Organisation estimates that there is the potential for creation of some 40 million additional healthcare jobs across the world by 2030 – almost double the current number. Pharmacists figure prominently amongst them.

**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 (Hons)/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 a master as well as a 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.
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
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. Note that summer school requires you to be in Australia in early January.

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

How do I apply?
Applications for 2020 are now open, and close on the 15 November 2019. Apply at: applicant.connect.monash.edu.au/connect/webconnect

Right from day one, I’ve been learning how to treat patients. Not just the science that underpins the medicines that pharmacists dispense, but the communication skills required to help patients understand what’s going on and to work effectively with other healthcare professionals.

TAYYABAH MAHMOOD SHEIKH
Bachelor of Pharmacy (Honours)/Master of Pharmacy student
**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: [monash.edu/pubs/2019handbooks/](http://monash.edu/pubs/2019handbooks/)

**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.
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.

Any place there are medicines, there are pharmacists. Here are a few places you’ll find both.

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 job 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.

PHARMACISTS IN INTERNATIONAL DEVELOPMENT

Monash alumna Erin Nunan has used her pharmacy training to improve health in various lower resource countries. She says she never planned to work in these settings, “but the opportunity came up and it was a wonderful chance to do something different”.

In the Solomon Islands Erin worked with the World Health Organisation on the country’s National Medicines Policy. Her work with resource-poor and remote communities has had a valuable impact on the advancement of global health practices.
**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 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.

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

- Mental Health pharmacist
- Women’s and newborn’s pharmacist
- Antimicrobial steward
- Pain educator and consultant

**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 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 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.

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**A VARIED, FLEXIBLE CAREER**

Monash alumnus Mounir Mina now works for pharmaceutical company Novartis, but previously spent a number of years working for the Therapeutic Goods Administration (TGA).

He found the role brought together the clinical, legal and regulatory aspects of his pharmacy studies.

The TGA is responsible for regulating therapeutic goods, including medicines, medical devices, blood and blood products," says Mounir. “My role involved preparing reports that examined the chemistry, quality control, bioequivalence and clinical data supplied by pharmaceutical companies.”
DID YOU KNOW?
Pharmacy graduates almost universally get jobs straight out of university, with 97.2 per cent in full-time employment within four months of graduating.*

*Source: Graduate Outcomes Survey 2018
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
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 your data.

**A growing sector**

The global pharmaceutical sector is rapidly expanding, with the World Health Organization projecting a 33 per cent growth between 2016 and 2019, from $US300 billion a year to $US400 billion. Victoria is a global centre of excellence in medical technology and pharmaceuticals. This sector is our most valuable high-tech export, worth almost $10 billion in 2013–14. 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.

**The chance to specialise**

During the course, you’ll choose one of three specialisations:

**Drug discovery biology**

This focuses on the biomedical science and pharmacology of drug discovery.

You’ll learn about the biotechnological aspects of drug design that lead to:

- discovering and evaluating new targets for testing drugs
- investigating the biological effects of drug candidates
- translating outcomes into pharmaceutical products.

You’ll develop expert knowledge of biological drug targets and their modulation by different types of active drug compounds, a concept that’s at the core of innovative drug discoveries.

**Medicinal chemistry**

This 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.

**Formulation science**

This 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.

**Flexible pathways: three-year bachelor vs the four-year advanced (honours)**

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 leads them on to further study, such as a PhD. For those students, the Bachelor of Pharmaceutical Science Advanced (Honours) is excellent preparation. 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.

Don’t know which of these categories you fall into? Don’t worry — as long as you have a sufficient grade point average, you can transfer between the two courses.
## Bachelor of Pharmaceutical Science Course Map (3 Years)

### Year 1

#### 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: Absorption pathways

#### Semester 2
- **BPS2012** Pharmacology II: Drug action
- **BPS2022** Drug discovery and design
- **BPS2032** Analytical methods II: Investigation design
- **BPS2042** Drug development

### Major Specialisations

#### Year 3 Drug Discovery Biology

##### Semester 1
- **BPS3111** Pharmacology III: Advanced concepts
- **BPS3121** Disease-focused pharmacology – Peripheral
- **BPS3131** Microbiology and immunology
- Elective unit – Choose one of:
  - BPS3211 Advanced drug discovery biology
  - BPS3221 Biotechnology products
  - BPS3311 Applied pharmacokinetics and pharmacodynamics
  - BPS3711 Analysis of drug-receptor interactions

##### Semester 2
- **BPS3112** Professional experience in drug discovery biology
- **BPS3122** Disease-focused pharmacology – CNS
- **BPS3132** Toxicology
- Elective unit – Choose one of:
  - BPS3232 Molecular basis of drug action
  - BPS3322 Drug delivery nanotechnology

#### Year 3 Medicinal Chemistry

##### Semester 1
- **BPS3211** Computational drug design
- **BPS3221** Synthetic chemistry II: Emerging methods
- **BPS3231** Advanced experimental spectroscopy
- Elective unit – Choose one of:
  - BPS3121 Disease-focused pharmacology – peripheral
  - BPS3131 Microbiology & immunology
  - BPS3221 Biotechnology products
  - BPS3711 Analysis of drug-receptor interactions

##### Semester 2
- **BPS3212** Professional experience in medicinal chemistry
- **BPS3222** Synthetic strategies for drug design
- **BPS3232** Molecular basis of drug action
- Elective unit – Choose one of:
  - BPS3122 Disease-focused pharmacology – CNS
  - BPS3322 Drug delivery nanotechnology

#### Year 3 Formulation Science

##### Semester 1
- **BPS3311** Applied pharmacokinetics and pharmacodynamics
- **BPS3321** Biotechnology products
- **BPS3331** Pharmaceutical product development and manufacture
- Elective unit – Choose one of:
  - BPS3121 Disease-focused pharmacology – peripheral
  - BPS3131 Microbiology & immunology
  - BPS3221 Biotechnology products
  - BPS3711 Analysis of drug-receptor interactions

##### Semester 2
- **BPS3312** Professional experience in formulation science
- **BPS3322** Drug delivery nanotechnology
- **BPS3332** Industrial formulation
- Elective unit – Choose one of:
  - BPS3122 Disease-focused pharmacology – CNS
  - BPS3322 Drug delivery nanotechnology
  - BPS3332 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

##### Semester 1
- **PSC4311** Advanced drug discovery biology (12 points)
- **PSC4111** Advanced medicinal chemistry (12 points)
- **PSC4211** Advanced formulation science (12 points)

##### Semester 2
- **PSC4312** Research in drug discovery biology (36 points)
- **PSC4112** Research in medicinal chemistry (36 points)
- **PSC4212** Research in formulation science (36 points)
BACHELOR OF PHARMACEUTICAL 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
- develop methods for the treatment of by-products
- devise production processes that are safe, efficient, profitable and environmentally sound
- develop and implement cleaner production technologies.

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.

“I’m continually impressed with the labs and equipment we get to use. The research opportunities are incredible – you get to study under internationally-renowned academics, and from as early as third year I’ve had the opportunity to undertake original research.”

MICHAELA VERMEULEN
Bachelor of Pharmaceutical Science student
CAREERS IN PHARMACEUTICAL SCIENCE

The course material sounds fascinating, all that time using high-tech lab equipment sounds 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 will conduct experiments and clinical tests and record and report on the findings.

In general, biomedical researchers within a university will tend to focus on improving tools and techniques, studying biological processes and the causes and progress of diseases, whilst private sector labs are usually developing 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 research 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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**A SURPRISING CAREER, IN A GOOD WAY**

After graduating from Monash, Reshma Prakash worked as an R&D chemist in the cosmetics and mining explosives sectors. However she soon discovered that her degree could open up many doors. Reshma now works in marketing as a product support manager for a mining company, Orica Mining Services.

“I never imagined working in the mining industry,” she says. “My job involves product support for packaged explosives and initiating systems in the mining industry throughout Australia and Asia.”

She enjoys the challenge of combining commercialisation with technical knowledge while developing her marketing skills.
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 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 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 control and quality assurance 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 is 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 is ripe for entrepreneurs.

ENSURING QUALITY MEDICINES
Jeremy Shonberg works for the Therapeutic Goods Administration as a pharmaceutical evaluator. He was originally drawn to medicinal chemistry because 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.
# 2020 INTERNATIONAL ENTRY REQUIREMENTS

## Pharmaceutical Science

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Entry Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>All India Senior School Certificate</td>
<td>78.50%</td>
</tr>
<tr>
<td>2020 ATAR For International Students (Australian Year 12)</td>
<td>82.50</td>
</tr>
<tr>
<td>GCE A Level</td>
<td>9.5</td>
</tr>
<tr>
<td>Hong Kong Diploma of Secondary Education</td>
<td>18</td>
</tr>
<tr>
<td>Indian School Certificate Examination</td>
<td>72.50%</td>
</tr>
<tr>
<td>International Baccalaureate (IB) Diploma</td>
<td>29</td>
</tr>
<tr>
<td>Monash University Foundation Year (MUFY)</td>
<td>72.50%</td>
</tr>
<tr>
<td>Ontario Secondary School Diploma – Grade 12, Canada</td>
<td>83.20%</td>
</tr>
<tr>
<td>High School Diploma, Vietnam</td>
<td>8.35</td>
</tr>
<tr>
<td>SAT (Scholastic Aptitude Test) (Total Score out of 2400)</td>
<td>1700</td>
</tr>
<tr>
<td>SAT (Scholastic Aptitude Test) (Total Score out of 1600)</td>
<td>1220</td>
</tr>
<tr>
<td>SMA3, Indonesia – on a 100% scale where 60% is a pass.</td>
<td>8.4 or 84%</td>
</tr>
<tr>
<td>STPM, Malaysia</td>
<td>8.8</td>
</tr>
<tr>
<td>UEC, Malaysia</td>
<td>3.8</td>
</tr>
<tr>
<td>UNSW Foundation Studies</td>
<td>7.76</td>
</tr>
<tr>
<td>University of Melbourne Trinity College Foundation Studies</td>
<td>79%</td>
</tr>
</tbody>
</table>

1. Duration is based on a standard full-time load of 48 credit points per annum.
**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 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**

A $5000 study grant is available for most international students living offshore who are to commence in first year of one of our degrees. 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.
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
Keen to find out more? Snap this for a link to our website, which includes lots of videos.

Join us at our 2019 Open Days
• 4 August – Monash Clayton
• 18 August – Monash Parkville
To register and plan your day, visit monash.edu/open-day

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monash.edu/offcampus
MONASH ON YOUTUBE
youtube.com/monashunivideo
FUTURE STUDENT ENQUIRIES
Australian citizens, permanent residents and New Zealand citizens
T 1800 MONASH (666 274)
E future@monash.edu
monash.edu/study/contact

International students
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T +61 3 9903 4788 (outside Australia)
E study@monash.edu
Wechat: MonashUniAus
Youku: Monash蒙纳士大学

The information in this brochure was correct at the time of publication (June 2019). Monash University reserves the right to alter this information should the need arise. You should always check with the relevant faculty office when considering a course.
CRICOS provider: Monash University 00008C Monash College 01857J