

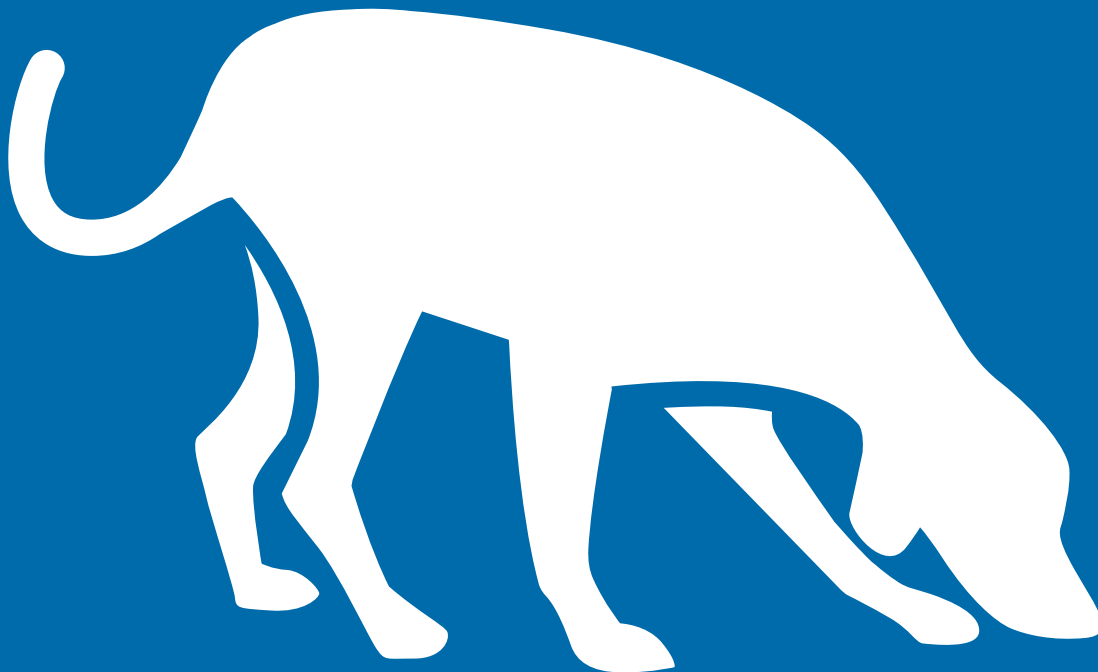


**MONASH**  
University

**Science**

Undergraduate Courses | 2016

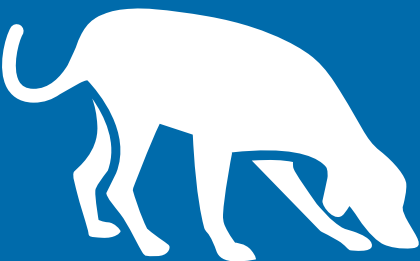
[monash.edu/science](http://monash.edu/science)



*[ it's more than you think ]*



What do sniffer dogs and fruit flies have in common?  
Find out more inside.



# Could sniffer dogs detecting illegal drugs or explosives one day be made obsolete... by flies?

Before you swat the irritating fruit fly that has just landed on your dinner, spare a thought for the critical role that this humble fly has played and continues to play in science and medical research. 75% of our genes that cause disease are shared with the fruit fly (*Drosophila melanogaster*), and it is widely used for research in areas such as genetics, developmental biology, immunology, disease research and evolutionary biology.

At Monash, scientists across a wide range of disciplines are using fruit flies in their research; from studying the molecules they use to detect odours that could act as olfactory biosensors and possibly replace sniffer dogs, to work on understanding neurodegenerative and infectious diseases, ageing and adaptation to environmental change.

Study science at Monash and join one of the many teams whose research scientists are conducting pioneering research. You too could make a difference.




For more information  
visit [monash.edu](http://monash.edu)

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# Where will your Monash Science degree *take you?*

The world needs scientists more than ever.

In the twenty-first century, we face a wide range of complex challenges – environmental pressure, climate change, booming population and an ever-changing technological, economic and social landscape.

These challenges bring with them exciting opportunities – to innovate, collaborate, and create solutions that will change the world.

That's where you come in.

We need you to be a leader, innovator, thinker, doer or inventor. With a degree in science from Monash University, you could influence government policy on waterways management, be out in the field searching for fossils in Antarctica, work on manufacturing the bionic eye or develop a ground breaking new vaccine.

The possibilities are limitless.

“The future needs fast movers and big ideas. Above all, it needs people who can grasp a complex problem and build the solution required – with talent, creativity and flair.”

—  
Professor Ian Chubb AC  
Australia's Chief Scientist



# Why choose *science* at Monash University?

If you want to make a difference, studying science at Monash will give you the opportunity to learn from leading experts whose cutting-edge research is influencing the world's future.

Science at Monash is at the forefront of teaching and research in both pure and applied sciences. You will develop both academically and personally in a dynamic and stimulating environment, with access to brilliant minds and exceptional facilities.

Added to this, your entire experience as a science student at Monash will be enriched by a choice of extracurricular programs that will enhance your personal development, honing the skills you will need when you take that first step into your career after university.

With a huge range of choice and flexibility across the many science disciplines and from areas of study outside science, you will graduate with a degree unique to you, tailored to your individual interests and career aspirations.





“I want to change the way we educate Chemistry students – to help them become professional scientists who are trained to think independently; to ask clever questions and devise solutions.”

—  
Chris Thompson  
Chemist and Specialist Educator

## Flexibility and choice

By studying science at Monash you can choose from a wide range of majors from within science and other areas of the University, such as arts.

You have the option of choosing an area of specialisation right away, or taking time to explore your interests before specialising. At Monash, the choice is yours.

► [See page 34 to explore our majors.](#)

## Get career-ready from day one

Monash Science has a range of unique programs and resources to prepare you for your career. All of our courses include essential training in key areas such as communications, teamwork, critical thinking and leadership – skills that employers look for in new graduates.

► [See page 18 for more career information.](#)

## Learning designed with you in mind

Long gone are the days when science students sat in large halls, taking down copious notes from a lecturer writing on a black board. Learning is now all about active participation, collaboration and a two-way engagement between the student and lecturer. At Monash we employ specialist educators who are constantly developing new and innovative approaches to teaching science.

One of our major learning initiatives is *IDEA experiments* (Inquiry, Design, Explore, Answer), a problem-based learning approach. In small teams, over a two-week period, students work through a problem and design an experiment to assist in finding a solution. *IDEA experiments* are coordinated across Biological sciences, Chemistry and Physics.

► [See page 10 for more information on our dynamic learning spaces.](#)

From Biological sciences to Physics and Astronomy, we're committed to continuously improving the learning environment of our students. Depending on your chosen area of study, you could be:

- working in teams to tackle physics problems in specially designed classrooms
- conducting experiments in state-of-the-art chemistry laboratories
- working from stone benches that actually form part of your studies in earth, atmosphere and environment
- writing formulae on the walls in mathematics
- studying biology in an outdoor classroom at the Jock Marshall Reserve on the Clayton campus.



# World-leading teaching

Study science at Monash and you will learn from and engage with pioneering researchers at the forefront of their fields who are actively shaping debate and influencing change.

Learn from people who change lives, shape our conversations and provide new ways to understand the world.

Our world-leading academics are passionate about their research and about engaging students in their research through dynamic teaching. You could even help influence that research yourself; some of our exceptional undergraduate science students have been published in prestigious academic journals.

## Emma Sutton

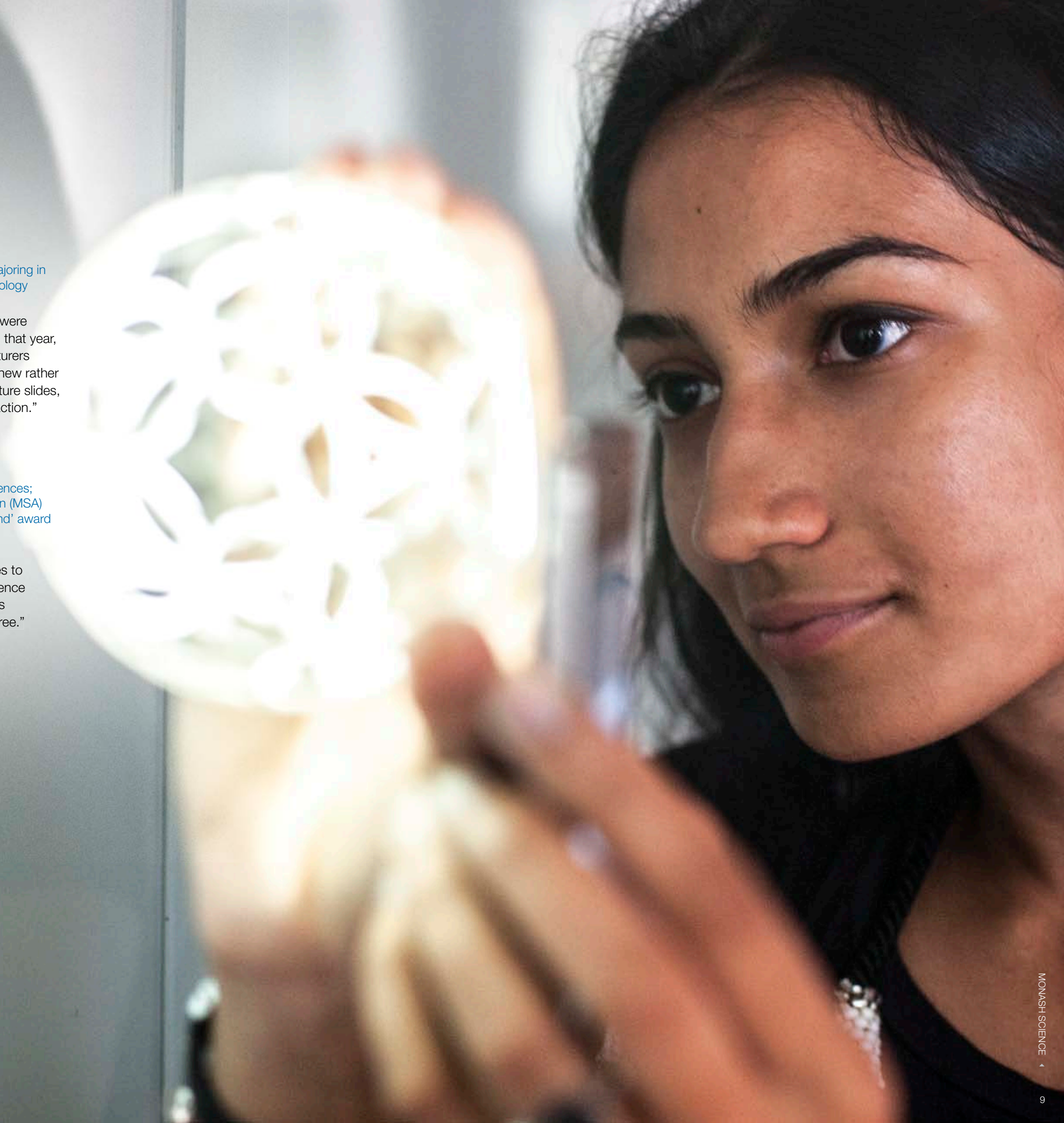
Financial Systems Analyst;  
Bachelor of Science graduate, majoring in  
Physiology and Developmental biology

"I loved my time at Monash. We were learning from journals published that year, which was fascinating, from lecturers who were telling us what they knew rather than talking from books and lecture slides, and you could see research in action."

## Dr Susie Ho

Lecturer, School of Biological Sciences;  
2014 Monash Student Association (MSA)  
recipient of the 'Above and Beyond' award  
for teaching excellence

"It is one of my greatest pleasures to see my students grow in confidence and understanding of science as they progress through their degree."





# Our new and innovative spaces

We have invested in renewing and rejuvenating the science precinct, from brand new buildings, refurbished teaching spaces, dedicated study spaces and beautiful outdoor landscaping. We're creating a stimulating and dynamic environment for learning, research and relaxation and networking.



## Learn in brand-new high-tech chemistry facilities

Completed in 2014, our new chemistry building unifies our teaching, research and links with industry in one location.

As a chemistry student, you will use the latest educational equipment and resources – including lecture spaces, sophisticated laboratories and research facilities, as well as interactive spaces specifically designed for engagement with other students, researchers and industry.

All the while, you'll be learning in a building that aims to minimise environmental impact by using sustainable materials and supporting energy conservation through the molecular structure of the building itself.



## Study in dedicated science-only spaces

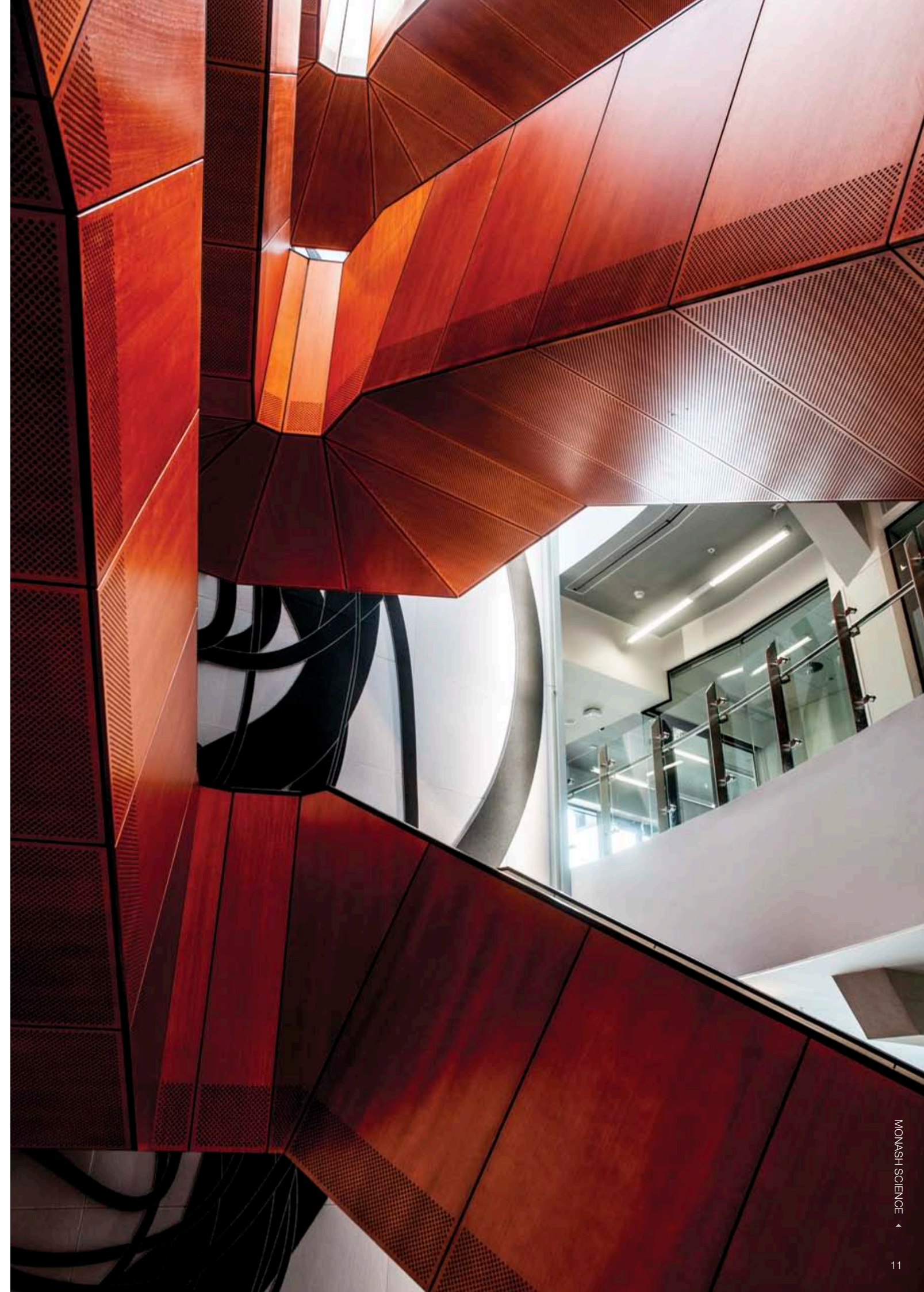
The new Science Student Learning Lounge is an informal space dedicated for use only by students enrolled in science. Open 24 hours a day, 7 days a week, the lounge is used by our students for study, group assignments, or chilling-out between lectures. As a science student you'll have access to writable surfaces, large computer monitors for doing group assignments, bookable meeting rooms, comfortable furniture, as well as kitchen facilities to heat your lunch or make a cup of tea.

In addition to the lounge, informal study and chill-out spaces are also located throughout the science precinct.



## RESEARCH LEADERS

From anticipating the spread of infectious diseases and invasive species to minimising traffic congestion, mathematics is being applied to some of the world's biggest challenges.





Science at  
Monash University  
has undergone  
an exciting  
*transformation*







# The *experiences* you can add

Being a science student at Monash can be life changing.

The degree itself will give you an intellectually stimulating experience and develop skills that will be useful in your future career. But for those students who really want to go the 'extra mile', we offer a host of programs that will enhance your experience even further and prepare you thoroughly for life beyond your degree.

In science, we provide the opportunities, you define your experience.



## RESEARCH LEADERS

We are at the forefront of developing new X-ray imaging systems that measure the effectiveness of treatments for life-threatening illnesses such as cystic fibrosis.

## Science Future Leaders Program

The Science Future Leaders Program has been developed to identify and cultivate the science leaders of the future and is unique to science at Monash.

Activities include a series of in-depth leadership seminars and workshops, a residential, and the opportunity to practice leadership within the university, your chosen profession, and/or wider community.

## Science Student Ambassador Program

Science Student Ambassadors play an important role in helping promote Monash Science to current and future students. They represent science at events and through social media, and receive training in public speaking, social media management, marketing and communications; all useful skills when it comes to future careers.



**Lucinda Mullins**  
Bachelor of Science and Law

"One of the great things about Monash Science is the opportunity to get involved in clubs, societies and leadership programs.

The Ambassador Program was a great opportunity to meet new people and build on my communication and public speaking skills. Being part of it opens you up to new ideas, new people and new adventures."



# Study abroad

As a global University, Monash has exchange agreements with more than 100 universities worldwide, enabling you to enrich your student experience even further.

Via the Study Abroad scheme, you could polish your Mandarin and business skills in China, walk in the footsteps of the Masters in Italy, teach literacy skills to local kids with Oxfam in South Africa or work in the Office of the United States Congress in Washington, DC.



## Oliver Moraes

Third year Bachelor of Science and Bachelor of Arts

"In 2012 I went on an intercampus exchange to Monash University in South Africa and I got involved with a project aimed at sourcing books for children at a local primary school in Zandspruit, Johannesburg. I always wanted to go to Africa and Monash made it so easy having a campus there. The study-abroad opportunities were a big part of the reason I decided to come to Monash. Having the campuses overseas and the partner universities has made the process of an exchange very easy.

My work in South Africa really inspired me. Since being back in Australia I have been doing a range of community activities and I have also started to get a lot of my friends from Monash involved in community work.

I started doing science because I wanted to do physiotherapy, but studying geology has totally changed me. Since starting my degree I've discovered my interest in natural disasters and it has really driven my direction. My dream in the future is to work in disaster management and find a way to combine my love of science with my passion for helping people.

I aspire to find a way to combine disaster management with philanthropy. I'm not sure if that job exists anywhere but that would be my dream."



## RESEARCH LEADERS

From rainfall patterns to bushfire spread, our scientists use computer models to better predict the weather.

# Peer mentoring

The Science Peer Mentoring Program matches you with a senior science student who will help you get settled in and make new friends as you begin your studies.

The six-week program provides you with opportunities to meet like-minded fellow students in a social setting. It doesn't matter whether your goal is to strive for academic excellence or to explore university life and all that it has to offer; your mentor will have many tips and resources to help you achieve those goals.

"From recruiting mentees during O-week to planning weekly events to the finest detail, the Peer Mentoring Program has definitely been the highlight of my university experience. I have been able to form a close bond with students from a range of age groups while developing my communication, leadership and problem solving skills. I have enjoyed the opportunity to be involved in Monash life outside of the lecture theatre and to assist students in making the transition to university."

–

Rumesh Gnanaseelan

Science career development and placements

# Science career development and placements

Science students are offered a range of opportunities to gain valuable careers advice tailored to individual interests and aspirations – from face-to-face advice from careers consultants to industry placements. These include:



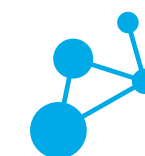
## Science Careers Consultant

Monash Science students benefit from an in-house careers consultant who provides advice on job searching, applying for jobs, transitioning to the workforce and interview strategies and techniques.



## Science Industry Week

An annual event in which Monash Science students are given the opportunity to meet with and hear from employers of science graduates and a range of successful and inspirational science graduates.



## Science Industry Placement Program (SIPP)

A voluntary placement program to support you in gaining invaluable industry-based experience and leadership skills acquired by working independently on a project with an industry partner.



# Careers in science

Science is our future.

While your future career may not be foremost in your mind as you think about applying to study at university, it is worth considering that science degrees develop skills and aptitudes that are highly prized by employers.

The science course at Monash University is particularly recognised because of the academic standing of the Faculty and the strength of its research expertise as well as the overall reputation of the University.

Through studying science you'll transferable skills that are highly valued by employers:

- critical thinking
- approaching problems analytically
- effective communications
- teamwork
- reasoning and debate
- management of others, time and tasks.

Studying science is an opportunity to shape your career as you choose.

As a science graduate, you can pursue:

- a career that uses your scientific discipline knowledge and skills
- a career in which a scientific mind and practical science skills are highly valued
- a career in which understanding science is a strong advantage.

This wealth of opportunity enables you to adapt your career as your interests and experiences develop.

Science graduates from Monash can be found working in business, government, law, health, education, food and agriculture, mining and construction, education, journalism, finance and many other stimulating sectors and industries.

Science is the reason we have access to the technology and health solutions we have now.

Today, and in our future, we face new challenges – challenges that can only be unlocked by science.

What role will you play in the future of our Earth?

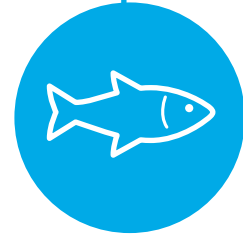


RESEARCH LEADERS

From harvesting sunlight to splitting water, world-leading research at Monash is finding new and sustainable energy sources.



# Where Monash Science majors can take you



## Biological sciences

Advance your knowledge and skills in biological sciences to forge a rewarding career in areas that are critical to the future of our society. A deep understanding of biology will be crucial to addressing challenges such as climate change, land use, environmental management, food production and human health.

### Majors

Ecology and conservation biology, Environmental science, Genetics, Plant sciences, Zoology

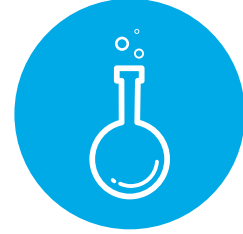


## Mathematical and computational sciences

Study numerical, algebraic and analytical structures and develop quantitative methods essential for the advancement of science, engineering, economics and other fields.

### Majors

Applied mathematics, Computational science, Financial and insurance Mathematics, Mathematical statistics, Mathematics, Pure mathematics



## Chemistry

Analyses and synthesises substances for applications in medicine, new materials, biotechnology and nanotechnology. Examine complex problems related to the environment, energy resources, and waste and pollution management.

### Major

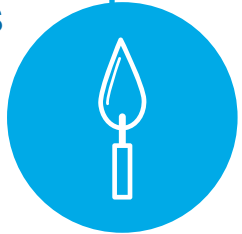
Chemistry

## Earth and environmental sciences

Study the processes that have shaped the earth over time and examine issues like salinity, climate change, earthquakes, tsunamis and volcanoes.

### Majors

Atmospheric science, Environmental science, Geographical science, Geosciences



## Biomedical and life sciences

Work in medical-related areas, test various aspects of human function to help diagnose disease, work as medical practitioners in health-related areas, or sell and promote products and materials related to the health sciences.

### Majors

Biochemistry, Developmental biology, Human pathology, Immunology, Microbiology, Pharmacology, Physiology, Psychology

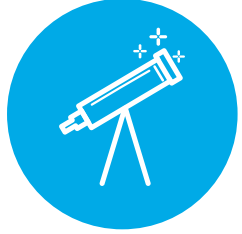


## Physics and astronomy

Work with lasers, medical imaging and nanotechnology in the context of electronics, communications, aeronautics, minerals exploration, space science and education. Help develop advanced materials for computers and robots and create mathematical models to understand weather, oceans, earthquakes, pollution, economics and the cosmos.

### Majors

Astrophysics, Materials science, Physics



- Agricultural Researcher
- Animal Technician
- Bioinformatician
- Biotechnologist
- Biotechnology Product Developer
- Botanist/Plant Scientist
- Clinical Scientist
- Cytogeneticist
- Ecologist Entomologist
- Environmental/Conservation Biologist
- Environmental Consultant
- Environmental Health Promoter
- Evolution and Adaptation Biologist
- Fauna Assessment Officer
- Geneticist
- Hospital Scientist
- Laboratory Research Technician
- Marine/Freshwater Biologist
- Medical Researcher
- Microbiologist
- Museum Curator
- Park Ranger
- Patent Officer
- Research Scientist
- Science Journalist
- Science Teacher
- Soil Scientist
- University Lecturer
- Wildlife Manager
- Zoologist
- Atmospheric Scientist
- Biostatistician/Data Analyst
- Business Analyst
- Computational Mathematician
- Computer Software Developer
- Data Mining Analyst
- Environmental Resource Modeller
- Financial Consultant
- Investment/Business Analyst
- Market Statistician
- Mathematical Modeller
- Mathematics Teacher
- Meteorologist
- Oceanographer
- Programmer
- Quantitative Analyst
- Statistician
- Agrochemicals Chemist
- Analytical Chemist
- Biomedical Chemist/Analytical Chemist
- Biotechnologist
- Biotechnology Sales and Marketing Manager
- Drug Development Chemist
- Environmental/Water Chemist
- Explosives Chemist
- Food Technologist
- Forensic Scientist
- Hospital or Medical Laboratory Technician
- Industrial Chemist
- Instrument Specialist
- Molecular Design Chemist
- Occupational Health and Safety Officer
- Occupational Hygienist
- Paint Chemist
- Pharmaceutical and Product Manufacturer
- Pharmaceutical Representative
- Polymer Chemist/Materials Scientist
- Process Control Specialist
- Quality Controller
- Research Chemist
- Risk-Management Consultant
- Science Journalist
- Teacher
- Toxicologist
- Waste and Resources Management Consultant
- Water Quality and Management Consultant
- Winemaker

- Atmospheric Scientist
- Ecotourism Operator
- Environmental Geoscientist
- Environmental Scientist
- Geochemist (Analytical Laboratories)
- Geological Survey Scientist
- Geologist (Mineral/Petroleum Exploration)
- Geophysicist
- Geotechnical Engineer
- Government Adviser (Environmental Policy and Management)
- Hydrogeologist
- Land Use Planner
- Landcare Project Manager
- Marine Biologist
- Marine Geoscientist
- Metallurgist
- Museum Scientist
- Natural Resource Manager
- Palaeontologist
- Park Ranger
- Research Geologist
- Research Geophysicist
- Analytical Laboratory Technician
- Biochemist
- Biotechnology Sales and Marketing Manager
- Clinical Psychologist\*
- Clinical Trials Coordinator
- Counselling Psychologist
- Cytologist
- Dietician/Nutritionist
- Educational Psychologist\*
- Embryologist (Ivf)
- Forensic Scientist or Psychologist
- Human Resource Manager
- Immunologist
- Laboratory Biotechnologist
- Laboratory Scientist
- Medical Researcher
- Medical Technician
- Microbiologist
- Molecular Biologist and Virologist
- Neuroscientist
- Occupational Health and Safety Officer
- Patent and Trademark Attorney
- Pharmaceutical and Product Manufacturer
- Pharmaceutical Representative
- Pharmacologist
- Physiologist
- Process Biotechnologist
- Public Health and Health Promoter
- Research and Development Scientist
- Science Journalist
- Sports Psychologist\*
- University Lecturer
- Accelerator Physicist
- Acoustics Scientist
- Applied Physicist
- Astronomer and Astrophysicist
- Atmospheric Physicist
- Biophysicist
- Electron Microscopist
- Energy Consultant
- Forensic Physicist
- Industrial Physicist
- Instrumentation Physicist
- Materials Scientist
- Medical Physicist
- Nuclear Physicist
- Optical Physicist
- Optical Systems Specialist
- Patent Attorney
- Physics Teacher
- Synchrotron Scientist
- Telecommunications Specialist
- University Lecturer

\* Requires an accredited professional qualification.



# Where you'll find our science graduates

**David Freedman**

Graduate, Bachelor of Science (Hons), PhD (Mathematics); Senior Credit Modelling Consultant

“I loved maths from a young age and developed an interest in physics later.

When I started my degree I wasn't so focused on employment at the end but I knew there were good jobs out there for science graduates.

My job in analysing credit risk for a medium-size bank in New Zealand involves mathematical modelling and programming in order to construct and maintain the tools needed to make money for the bank or save losses. Importantly, I have to effectively communicate my results to a wide variety of people.”

“The degree opened up opportunities I would never have had otherwise and lifted the glass ceiling.”

—

**Karly Learmonth**

Graduate, Bachelor of Science majoring in Environmental Science; Project Officer with the Department of Environment and Primary Industries

**Mark Andrew Spanier Aarons**

Graduate, Bachelor of Science (Hons), Bachelor of Laws (Hons), Master of Science, PhD; Head of Cross Asset Solutions, National Australia Bank

“The rigour underlying the scientific method and mathematical thinking gained during my degree is incredibly useful in many aspects of my work. When hiring staff, it's the analytical thinking and technical problem-solving skills that really differentiate science graduates from everyone else.”

“Learning about the earth as a whole, you won't just be a good science student with career prospects; you will also appreciate the planet you live on.”

—

**Stephen Poropat**

Graduate, Bachelor of Science (Hons), Bachelor of Arts majoring in geography and geology; Palaeontologist



After graduating from science, Jessica found herself working for the UN's Food and Agriculture Organisation (FAO) in an office overlooking the Roman Forum and the Colosseum.

**Jessica Barnes**

Bachelor of Science major in Biology, and BA in Geography and Environmental Science

Jessica Barnes graduated with a double degree in Science and Arts, and was selected for a Department of Sustainability and Environment (DSE) science graduate program. She says the two-year program was “ideal” for her; a blend of office work where she could learn about policy making, governance and funding, and field placements.

Her first field placement was in Bairnsdale, working with farmers to address soil erosion, followed by a five-month stint in Bendigo with the Victorian Landcare program.

“It combined many different things I'd been interested in throughout my studies at Monash including aspects of environmental science and its interaction with the social side of community development – effectively an application of sustainability principles.”

Early last year Jessica took up an internship with the UN's Food and Agriculture Organisation (FAO) in Rome as part of further study she's undertaking.



# Your course options



All courses offered by the Faculty of Science are comprehensive, meaning you gain a broad science education and then choose one or two majors to add focus to your degree.

## Comprehensive courses

If you already know what you want to study, you can choose a Monash Comprehensive course offering your major of choice.

You will still have the freedom to choose from a wide range of additional subjects that broaden your knowledge and suit your personal interests.

If you're still deciding where you'd like your studies to take you, but have a broad field in mind, our Comprehensive courses offer the opportunity to try a range of subjects in your first year of study, before choosing your major.

The Bachelor of Science is a Comprehensive course, made up of 24 units of study over three years – eight each year. Eight units of study make up your primary major. An additional eight units are specified by the course to add depth and breadth in the field, although there is some choice within this.

The remaining eight units are free electives and offer you the flexibility to shape your course in a number of different ways, like extending your major to add depth, adding a second major or a minor from the same or another course, or studying a range of units from across the university.

The Bachelor of Science Advanced — Global Challenges (Honours) is the only course of its kind in Australia. It will provide you with all the opportunities available to a science honours graduate, plus many more. In addition to studying the science major of your choice – from the broad range available at Monash – you'll receive high-level training in leadership, persuasive communication, entrepreneurship, policy, ethics and corporate social responsibility. The electives taken throughout the course are selected from a specialised Impact Through Science component unique to this course.

The Bachelor of Science Advanced – Research (Honours) is an advanced Comprehensive course that is equally flexible as the Bachelor of Science, however it allows you the freedom to advance your studies and adds an additional research-focused fourth year.

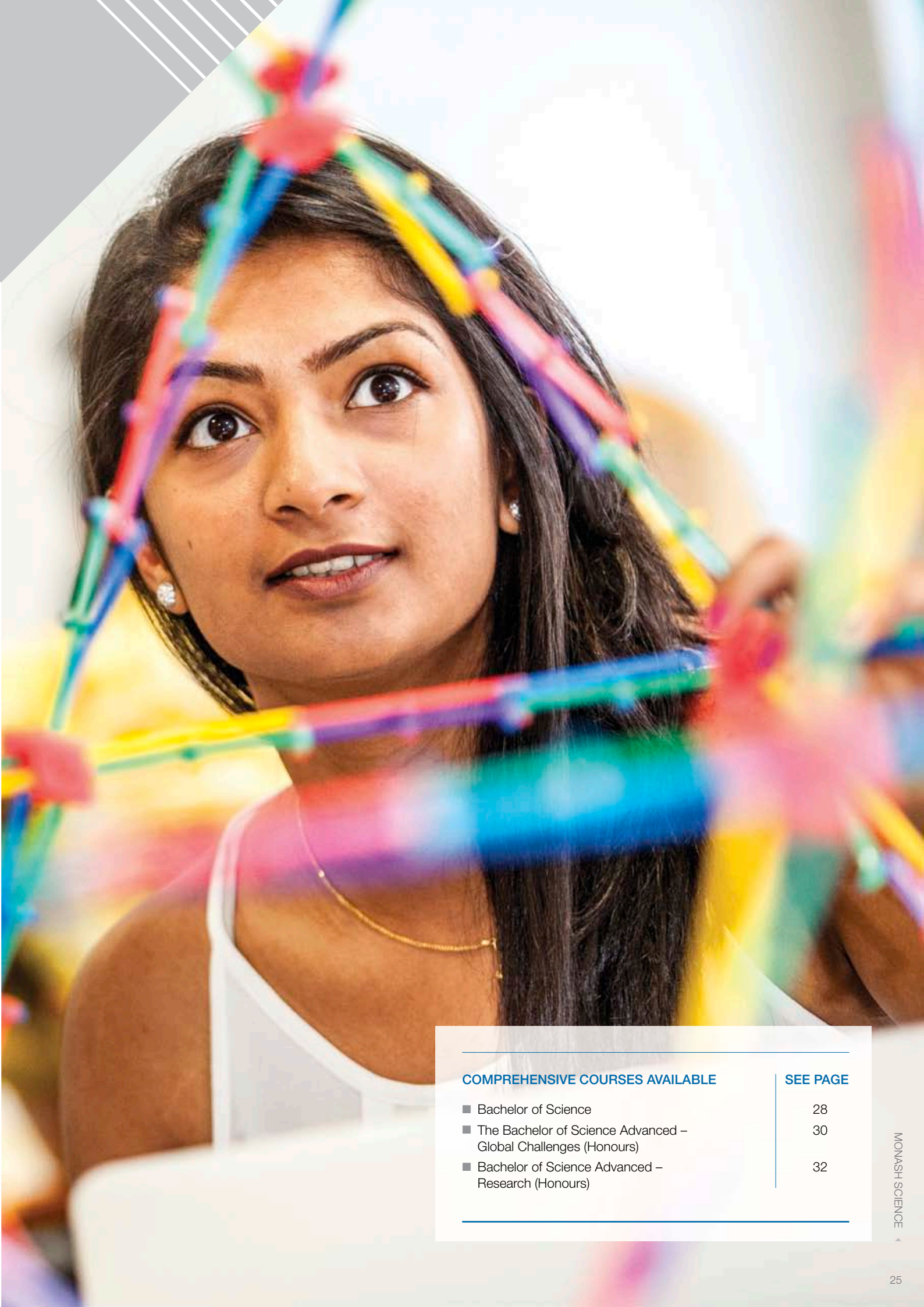
## Double degrees

Become an expert in two fields by choosing a double degree course. This allows you to study towards two different bachelor's degrees at the same time, providing you with more career flexibility and opportunities. A double degree course takes at least two years less to complete than if you studied the two courses separately because the required units from one course count as electives in the partner course.

You can combine your Bachelor of Science with the following courses to create a double degree course:

■ Arts	■ Engineering (Hons)
■ Biomedical Science	■ Global Studies
■ Commerce	■ Information Technology
■ Commerce Specialist	■ Laws (Hons)
■ Computer Science	■ Music.
■ Education (Hons)	

COMPREHENSIVE COURSES AVAILABLE	SEE PAGE
■ Bachelor of Science	28
■ The Bachelor of Science Advanced – Global Challenges (Honours)	30
■ Bachelor of Science Advanced – Research (Honours)	32





# What could my first year look like?

With so much choice and flexibility offered in the Monash Science degree, there is no such thing as a ‘typical’ first year for a science student. However, below we’ve outlined what your first year might look like, bearing in mind that other additional opportunities will be available, such as mentor programs (see page 14).



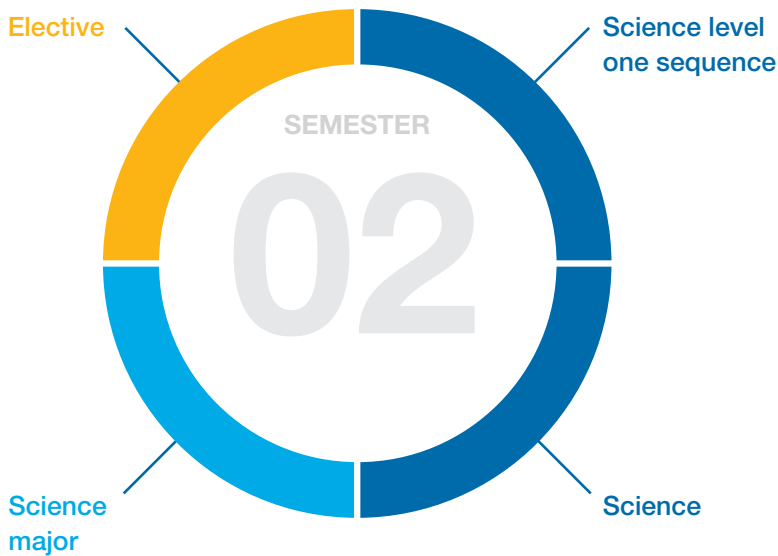
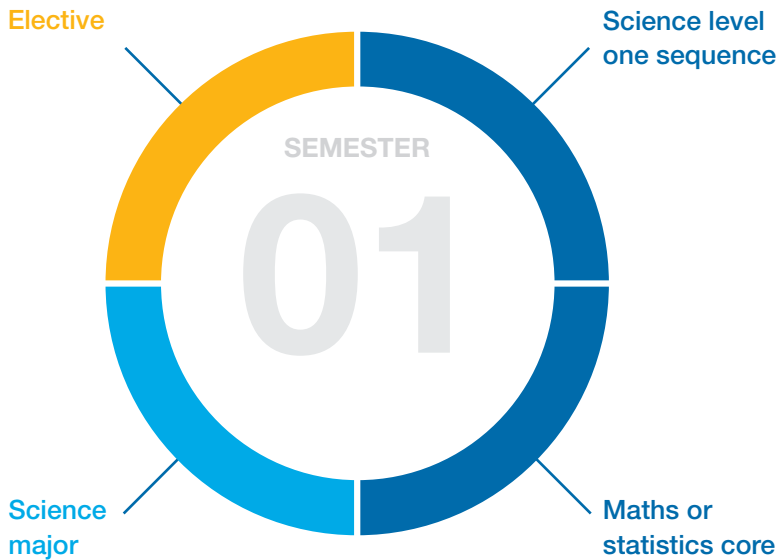
Build a course map with your course adviser

## First year Bachelor of Science course outline

First-year science at Monash provides you with a broad, general science education, where you can select to study up to two majors from an extensive list of sciences. The flexibility of the course and the wide range of majors allow you to explore new areas of science and further develop your strengths in problem solving and critical thinking.

In your first year, along with studying a Mathematics/Statistics unit, you can select a range of subjects to ensure your degree is tailored towards your individual interests. Throughout the course you can focus entirely on science or you can study units from other eligible Faculties\*.

\* Based on meeting set prerequisites.



Notes

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Bachelor of Science

 <b>LOCATION</b> Clayton	<b>ATAR</b> 85	<b>IB SCORE</b> 31
 <b>DURATION</b> 3 Years		
 <b>STRUCTURE</b> Comprehensive		
 <b>DEGREE AWARDED</b> Bachelor of Science		

If you want to make a difference, studying a science degree at Monash will give you the opportunity to learn from leading experts whose cutting-edge research is influencing the world's future.

The choice, flexibility and depth across the huge range of science disciplines available at Monash means that you will graduate with a degree unique to you, tailored to your individual expertise, interests and career aspirations.

The comprehensive range of majors, extended majors and minors on offer provides you with a broad education and allows you to explore varied interests before focusing in the one or two areas that most inspire you. However, if a particular field has always captivated you, you can choose it from the start.

Comprehensive and flexible, the Bachelor of Science at Monash offers a large number of majors across the following broad fields of science, drawing on the depth and breadth of expertise from across the University:

- biological sciences
- biomedical and behavioural sciences
- earth and environmental sciences
- mathematical and computational sciences
- physical and chemical sciences.

Your learning experience at Monash will take place in state-of-the-art teaching and learning spaces designed with you in mind, including the following: a brand new chemistry building; innovative teaching facility for physics and astronomy; purpose-built spaces for the study of mathematics, biology and earth, atmosphere and environment; a science student-only lounge; on-campus outdoor classrooms and much more.

Add to these field trips, research experiences, and lectures by leading researchers and you'll acquire both a scientifically informed appreciation of the world, and professional attributes sought after by employers in many fields.

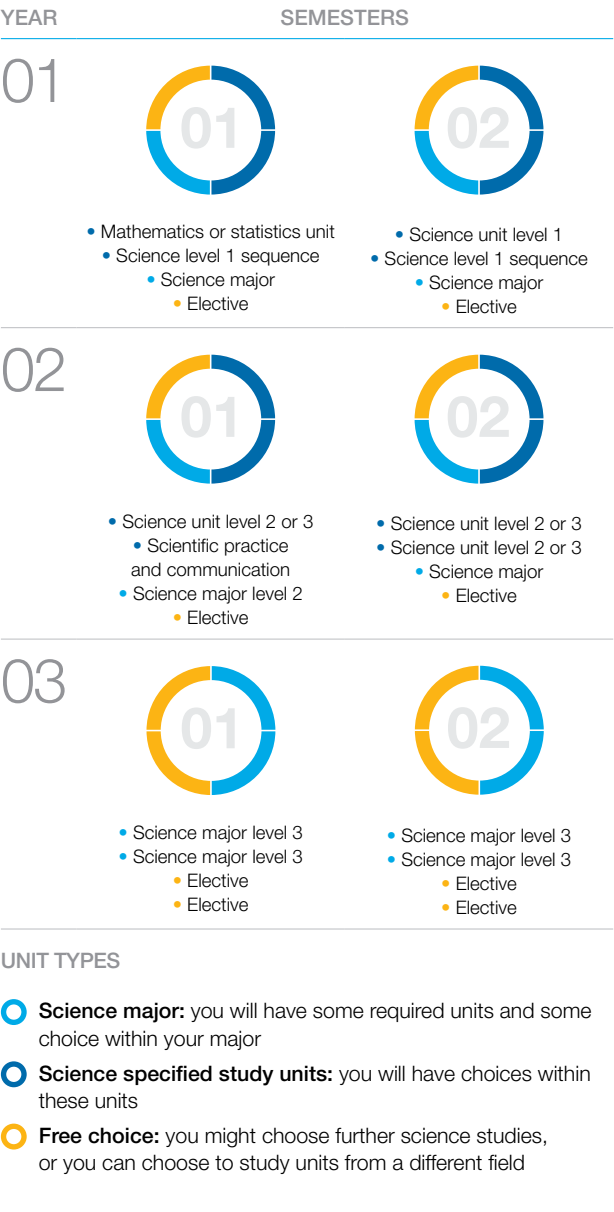
**Career options**

With the recognition that comes with studying at one of Australia's leading science universities, your degree will put you ahead of the rest. It could lead you to rewarding careers in traditional science fields, or in areas as diverse as journalism and publishing, business research and analysis, public relations and marketing, banking and finance, human resources, training and development, public or civil services, diplomacy, public policy making, social and community services, counselling, and social welfare.

Prerequisite studies

<b>VCE</b> <b>English:</b> Units 3 and 4: a study score of at least 30 in English (EAL) or 25 in English other than EAL <b>Maths or Science:</b> Units 3 and 4: a study score of at least 25 in one of Biology, Chemistry, Environmental Science, Geography, Mathematical Methods (CAS), Specialist Mathematics, Physics or Psychology	<b>IB</b> <b>English:</b> At least 4 in English SL or 3 in English HL or 5 in English B SL or 4 in English B HL <b>Maths or Science:</b> One of Biology (any), Chemistry (any), Geography (any), Mathematics SL, Further Mathematics SL, Mathematics HL, Physics (any) or Psychology (any)
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Bachelor of Science course map – sample only



The Bachelor of Science is made up of twenty-four units of study. These are divided up as follows:

**Science major (Eight units)**

Your major is made up of eight units of study in a particular discipline. Some majors offer you the opportunity to do an extended major adding two to four extra units to your requirement of eight. See page 34 for a full list of majors.

**Science specified study units**

Alongside your major, you have to complete another eight units from science. You must do a mathematics or statistics unit in year one and Scientific practice and communication in year two, but the other six units can be drawn from any science area of study.

You might use these units to extend your major, create a science minor or study broadly by choosing units from various areas of study.

**Free choice**

You can use the remaining eight subjects to build your perfect course. You can choose subjects from the same area of study to complete another major or from different areas of study to complete a minor and electives. And you can also take units from another faculty.





If you choose a double degree course some units required for the other degree are credited as electives towards your Bachelor of Science.

“I have taken advantage of Science’s flexibility by starting out very broad – in my first year I studied biology, chemistry and physics, before I decided to major in physiology. I took a broad-to-narrow approach and I absolutely love my course.”

—  
**Ayesha Singh**  
Third year Bachelor of Science and Bachelor of Laws



Bachelor of Science Advanced – Global Challenges (Honours)

 <b>LOCATION</b> Clayton	<b>ATAR</b> RC	<b>IB SCORE</b> RC
 <b>DURATION</b> 4 Years		
 <b>STRUCTURE</b> Comprehensive		
 <b>DEGREE AWARDED</b> Bachelor of Science Advanced – Global Challenges (Honours)		

RC – Range of Criteria.

Science holds the key to answering some of the most complex questions and global challenges we face today. But to create real change, we need more than just brilliant scientific minds. We need a new generation of science graduates equipped with a broad set of skills and experiences that complement their science training; and who can push the boundaries of possibility.

The Bachelor of Science Advanced – Global Challenges (Honours) includes all the elements of a Bachelor of Science, but with more. If you love science, and you are curious, adventurous, creative and prepared to challenge the status quo, then this course is for you.

The only one of its kind in Australia, this course will provide you with all the opportunities available to a Science honours graduate, plus many more. In addition to studying the scientific discipline of your choice – from the broad range available at Monash – you'll receive high-level training in leadership, persuasive communication, entrepreneurship, policy, ethics and corporate social responsibility.

Add access to state-of-the-art facilities, world-class teaching, inspiring high-profile guest speakers, and two internship programs, with at least one international placement, and you'll graduate with the tools and know-how to transform your scientific expertise into a thriving business or social enterprise.

Career options

You'll be perfectly placed to pursue employment with the world's leading consultancies, businesses, government and other institutions. You will also be equipped with the skills to use science to address complex global challenges, and convert ideas, potential and ambition into tangible solutions.

Prerequisite studies

VCE

**English:** Units 3 and 4: a study score of at least 35 in English (EAL) or 30 in English other than EAL

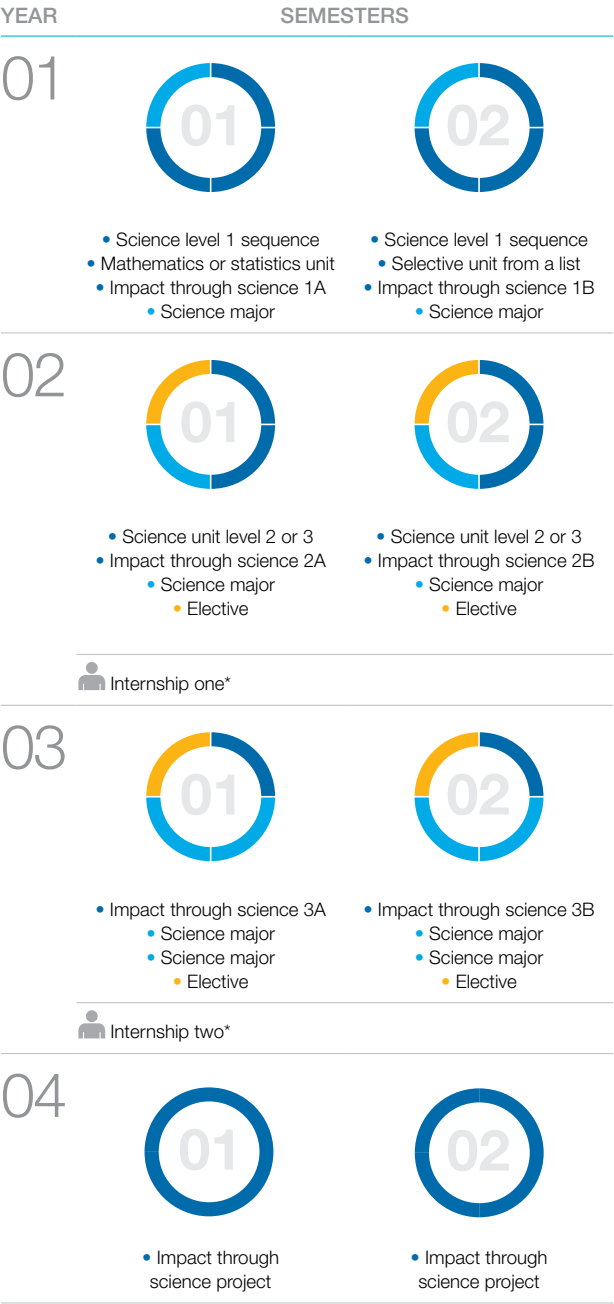
**Maths or Science:** Units 3 and 4: a study score of at least 30 in one of Biology, Chemistry, Environmental Science, Geography, Mathematical Methods (CAS), Specialist Mathematics, Physics or Psychology

IB




**English:** At least 5 in English SL or 4 in English HL or 6 in English B SL or 5 in English B HL.

**Maths or Science:** One of: at least 5 in Biology SL, Chemistry SL, Geography SL, Physics SL, Further Mathematics SL, Mathematics SL or At Least 4 in Biology HL, Chemistry HL, Geography HL, Physics HL or Mathematics HL

Bachelor of Science Advanced – Global Challenges course map – sample only



UNIT TYPES

-  **Science major:** you will have some required units and some choice within your major
-  **Science specified study units:** you will have choices within these units
-  **Free choice:** you might choose further science studies, or you can choose to study units from a different field

For in-depth course descriptions and structures visit: [study.monash/courses](https://study.monash/courses)

\* At least one of your internships will be an international placement.

“I have so many moments in this course where I have to pinch myself. This course feels like being part of something ground-breaking, and has created opportunities and experiences I could never have dreamed of.

I feel incredibly grateful to be part of small group, doing something special and unique. I know of no other course which offers such a dynamic combination of science and ‘outside of the lab’ thinking.

If I had to describe the course in five words, they would be: groundbreaking, provocative, interesting, unconventional—and I know it’s a simple word, but—fun!”

Jake Port

Bachelor of Science Advanced – Global Challenges (Honours) student







DID YOU KNOW?

The summit of your experience will be a year-long project where you will tackle a problem of real-world significance. Mentored by successful external leaders, you will work in small teams to develop innovations and solutions to approach an issue from scientific, policy, social and business perspectives.



Bachelor of Science Advanced – Research (Honours)

 <b>LOCATION</b> Clayton	<b>ATAR</b> 95.15	<b>IB SCORE</b> 37
 <b>DURATION</b> 4 Years		
 <b>STRUCTURE</b> Comprehensive		
 <b>DEGREE AWARDED</b> Bachelor of Science Advanced – Research (Honours)		

The Bachelor of Science Advanced – Research (Honours) is a high-profile, four-year advanced version of the Bachelor of Science, for high-achieving students who intend to pursue careers as research scientists.

This esteemed course will allow you to progress more quickly to higher-level units, give you more flexibility in your choice of units, and provide you with exciting opportunities to participate in research, embedded in a Monash research team. With access to exclusive enrichment programs and research mentoring by leading scientists, your career as a scientist will really take off.

Offering all of the key features of the Bachelor of Science including choice, flexibility and depth across the huge range of science disciplines available at Monash, this advanced version will provide you with both a broad, general science education and specialist training in one or more science disciplines. This will be deepened and strengthened by:

- The freedom to accelerate more quickly to higher-level units
- Additional flexibility in subject choices
- Research mentoring by leading scientists in your chosen field
- Exclusive extra-curricular programs only available to those taking this course.

Career options

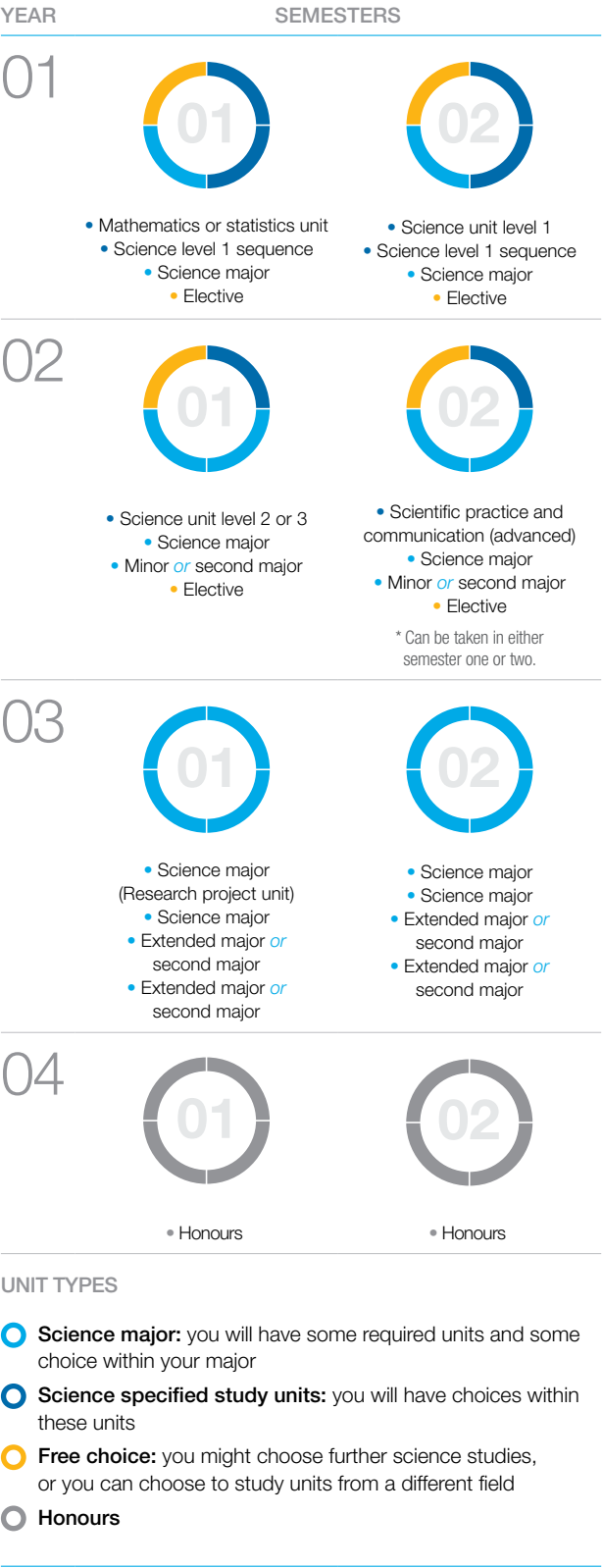
As a graduate, you'll have advanced research skills and a thorough command of your chosen field[s] of science. Add to this our world-class teaching and research, state-of-the-art facilities, and the prestige that comes with an advanced degree from one of Australia's leading science faculties, and you'll find doors opening in government research bodies, in research departments of large organisations. The Bachelor of Science Advanced – Research (Honours) is a high-profile, four-year advanced version of the Bachelor of Science, for high-achieving students who intend to pursue careers as research scientists.

This esteemed course will allow you to progress more quickly to higher-level units, give you more flexibility in your choice of units, and provide you with exciting opportunities to participate in research, embedded in a Monash research team. Access to exclusive enrichment programs and research mentoring by leading scientists, will lay a strong foundation for a career in scientific research.

Prerequisite studies

<b>VCE</b> <b>English:</b> Units 3 and 4: a study score of at least 35 in English (EAL) or 30 in English other than EAL <b>Maths:</b> Units 3 and 4: a study score of at least 30 in Mathematical Methods (CAS) or Specialist Mathematics <b>Maths or Science:</b> Units 3 and 4: a study score of at least 30 in two of Biology, Chemistry, Environmental Science, Geography, Mathematical Methods (CAS) (if not counted in VCE-Maths), Specialist Mathematics (if not counted in VCE-Maths), Physics or Psychology	<b>IB</b> <b>English:</b> At least 5 in English SL or 4 in English HL or 6 in English B SL or 5 in English B HL <b>Maths:</b> At least 5 in Mathematics SL or 4 in Mathematics HL <b>Maths or Science:</b> Two of: at least 5 in Biology SL, Chemistry SL, Geography SL, Physics SL, Further Mathematics SL, or at least 4 in Biology HL, Chemistry HL, Geography HL or Physics HL
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Bachelor of Science Advanced – Research course map – sample only



For in-depth course descriptions and structures visit:  
[study.monash/courses](https://study.monash/courses)

“The Bachelor of Science Advanced – Research (Honours) has enabled me to accelerate my learning, so I could take level three geoscience and an advanced chemistry subject in my first year.

As part of my course I have a mentor and have been offered three weeks of research, including overseas travel later in the year.”

–  
**Martin Nguyen**  
First year Bachelor of Science Advanced – Research (Honours) student



# A-Z guide of science majors

Within the Bachelor of Science at least eight units will make up your primary major. You will also have eight units of free electives, which offer you the flexibility to shape your course in a number of different ways, like extending your major to add depth, adding a second major or a minor from the same or another course, or studying a range of units from across the university.

Find out more about our majors at [study.monash/courses](http://study.monash/courses)

## Applied mathematics

Apply techniques and models to solve problems from medicine, engineering, information technology and commerce.

- Explain observations or predict future trends.
- Contribute to new theories and adapt existing mathematical approaches to new problems.
- Develop key technical skills in advanced calculus, linear algebra, differential equations and computational methods.

## Astrophysics

Use observation and the laws of physics to understand the universe and its contents.

- Study celestial objects such as planets and stars, comets, pulsars and quasars, black holes and galaxies.
- Link the largest and the smallest objects in the universe, from cosmic rays to super clusters of galaxies.
- Explore the possibility of extra-terrestrial life.
- Use the latest technology – from large telescopes to supercomputers.



### RESEARCH OPPORTUNITIES IN ASTROPHYSICS

We probe planets beyond our solar system to uncover the origins of our own universe.

## Atmospheric science

Explore the relationship between the earth's atmosphere, weather and climate.

- Study aspects of environmental science, applied mathematics and geosciences.
- Ask the big questions: Is the climate changing, and is it our fault? How can we better forecast day-to-day weather?
- Undertake exciting fieldwork, analyse and model climate, and engage in research.

## Biochemistry

Explore the chemical components and biological processes of all living systems.

- Study the chemistry within the biological processes that form the foundation for all living matter.
- Understand the cause of disease.
- See how effective treatments/vaccines are developed.

## Chemistry

Study the science of matter and energy.

- Investigate the makeup and structure of substances.
- See how atoms and molecules react and interact, and how this affects materials, medicine and technology.
- Learn about synthetic and analytical chemistry, medicinal and biological chemistry, and physical and environmental chemistry.
- Undertake lab work within a brand-new, purpose-built chemistry facility.



**Dr Rico Tabor**

Researcher and Lecturer in Physical Chemistry

"We are exploring new ways of teaching students. We have demonstrations in the lecture theatre, not just in the lab. We do chemical reactions and blow things up. It is a lot of fun. As a scientist, I love discovery. I can go into a lab and know that I am the first human being on earth to try an experiment. There's the possibility I'll uncover something amazing, and that I'm incrementally closer to a major discovery."



### RESEARCH OPPORTUNITIES IN CHEMISTRY

We tackle current world problems in areas such as biomedical research, catalytic processes, separation science and industrial processes.





“You can read a book and understand something, but in my course you are in the lab taking things apart and really looking at them and understanding them on a level you can’t get without the hands-on approach we have here.”

**Nathalia Tan**  
Fourth year Bachelor of Science  
and Bachelor of Computer Science

“I am studying Developmental Biology and Mathematics. Developmental Biology is the study of how an egg transforms into a fully functioning organism.

I find it really fascinating and I have combined it with a major in Mathematics, as well as Computer Science.

During my time doing this degree I have realised there is a great marriage between computational science and biology because we are at a point in time where we are shifting from computational strength to looking at harnessing the enormous amount of data we have, and we need systems to organise and make sense of that.

We are constantly doing really amazing stuff, such as dissections, and we have great resources. You can read a book and understand something, but in my course you are in the lab taking things apart and really looking at them and understanding them on a level you can’t get without the hands-on approach we have here in Monash Science.”

# A-Z guide of science majors

## Computational science

Solve scientific problems through computers.

- Construct and apply mathematical models, simulations and data-analysis techniques.
- Learn the fundamentals of algorithmic problem solving to advanced programming, 3D computer graphics and intelligent systems.
- Undertake parallel computation for massive data analysis and simulation to tackle the world’s current and emerging problems.

## Developmental biology

Explore the processes of development from a single cell to an adult organism.

- Investigate cellular and molecular mechanisms underlying normal and abnormal development.
- Apply laboratory practices incorporating cellular, molecular and imaging techniques.
- Study topics such as gene expression, stem cell biology, tissue engineering, regenerative biology and medicine.

## Ecology and conservation biology

Study the ecological and evolutionary interactions between organisms and their environments.

- Explore conservation management.
- Develop ways to reduce the escalating biodiversity loss within our world.
- Study ecosystem structure and function.
- Discover how organisms adapt to changing environments.

## Environmental science

Study the interactions between the physical, chemical, geographical and biological components and processes of the environment.

- Explore current environmental challenges, such as climate change, water and land management, resource use and sustainability.
- Apply scientific information to the management of our natural systems.
- Understand how environmental science can affect policy and management changes.



RESEARCH OPPORTUNITIES  
IN ECOLOGY AND  
CONSERVATION BIOLOGY

Our work with national parks is helping to conserve species and reduce extinction.



# A-Z guide of science majors

## Financial and insurance mathematics

Apply mathematical modelling and statistical techniques to understand and assess risk in insurance and financial markets.

- Develop financial and risk models.
- Evolve financial and investment business strategies.
- Demonstrate high-level critical-thinking skills to analyse, use and interpret data.

## Genetics

Study genes – their structure, function, transmission and evolution.

- Learn how genetics underpins areas such as biomedical science, conservation biology, forensics and biotechnology.
- Develop advanced practical skills in recombinant DNA technology, transgenic organism analysis, genotyping, genomics and bioinformatics.
- Design and implement both laboratory and computer-based genetic experiments.

## Geographical science

Discover the relationships between people and the natural environment.

- Study physical and human geography, such as climatology, hydrology, soil science and sustainability theory.
- Learn about atmospheric circulation, landform change, vegetation dynamics, human land uses, urbanisation and economic activity.

## Geosciences

Study the structure, chemistry and biology of the materials that make up our earth.

- Explore how the earth has changed over geological time, and the processes that created the change.
- Investigate processes such as plate tectonics, volcanism, earthquakes and how these affect the atmosphere, biosphere, the earth's surface and oceans.
- Gain an understanding of our major resources, including mineral deposits, oil, gas and water.



### RESEARCH OPPORTUNITIES IN GEOSCIENCES

Back to the future: unlocking the earth's geological past reveals insights into what the future might hold.



“Having the opportunity to fly over African plains dotted with volcanoes and watch migrating herds in safari parks was definitely not what I expected when I enrolled in this course.”

### Tim Ziegler

Third year Bachelor of Science

“I made the decision to leave my career in publishing and editing and return to university to study Science.

During my second year I applied for and was accepted on a research expedition to Tanzania. I accompanied Professors Jeffrey Stilwell and Mike Hall, who were looking at ancient ecosystems and environments as part of an oil and gas exploration project for a Shell International ARC Linkage project. By understanding the geological processes that have created the petroleum-rich area in Brazil, they hope to project future petroleum development.

Having the opportunity to fly over African plains dotted with volcanoes and watch migrating herds in safari parks was definitely not what I expected when I enrolled in this course.

If I had to pick a highlight of the trip, it would be the day spent in Olduvai Gorge – considered by some to be the ‘cradle of humanity’. We looked

down at our feet and it was like nothing I have ever seen before. It was a pavement of fossils – and these were big animals. I was picking up things such as huge canine teeth from a hippopotamus, or the limb bones from extinct megafauna that weighed thousands of kilograms.

In this area, ancient humans were working with tools, and those tools had been preserved in the environment. After a few steps, our guide bent down and picked up a quartz hand-axe. Just the sight of something like that is hard to believe. You are looking at millions of years of culture and intelligence and history, right in front of your eyes, so long after it was laid down.

I think my experience demonstrates that if you take that extra bit of initiative and go that little bit further while you are part of this degree, there are incredible opportunities available.”



# A-Z guide of science majors

## Human pathology

Study disease processes, including cell death, inflammation, disorders of immunity and neoplasia.

- Learn about organ system failure during disease and injury, and how this knowledge is critical for diagnosis, prognosis and medical intervention.
- Develop a comprehensive knowledge of cell injury, wound healing, fluid and vascular disorders, growth disorders and immunopathology.
- Apply practical laboratory skills such as microscopy, histological staining techniques and diagnosis.

## Immunology

Learn how the immune system protects us from harmful pathogens such as bacteria and viruses.

- Study the immune system's mechanisms in cancers, allergies, autoimmunity and transplant rejection.
- Explore how the function of the immune system can be manipulated to improve development of vaccines and cures for autoimmune diseases.

## Materials science

Study different types of materials, including metals, polymers, ceramics, nanomaterials, glasses and composites.

- Discover the relationship between structure, property, processing and performance of these materials.
- Understand the manipulation of these materials to benefit technologies in health, engineering and manufacturing.
- Study topics such as crystallography, thermodynamics, biological engineering and solid mechanics.

## Mathematical statistics

Study mathematical theory and the applications of this theory in the real world.

- Explore models involving random, unpredictable components and learn how to use these models to make informed decisions.
- Develop key technical skills in advanced calculus and linear algebra.
- Apply high-level probability, statistical and stochastic processing techniques to real-life problems.

## Mathematics

Discover how mathematics is used to describe, model, understand and even create aspects of the world around us.

- Develop key technical skills in advanced calculus and linear algebra.
- Explore techniques for modelling and how to use these techniques to solve complex problems.

## Microbiology

Learn about microorganisms, including bacteria, viruses, protozoa, algae and fungi.

- Study their diversity, structure, molecular biology and how they interact with humans and other living organisms.
- Study the rise of antibiotic resistance in medically important bacteria.
- Discover how microbiologists are involved in the development of vaccines.

## Pharmacology

Study the effect of drugs on living organisms and how to scientifically define the term 'drug.'

- Discover how drugs affect cell responses, including whether drug action will be selective and long lasting, and the nature of side effects.
- Learn about drugs used in the prevention or treatment of an illness and those that are taken for recreation.



**Dr Norman Do**

Lecturer in Mathematical Sciences

"If you keep your eyes open, you can see patterns everywhere. Once you start playing with mathematical patterns, you suddenly need to work out the formulas behind them. At Monash I work in a dynamic and youthful environment."

**Anna Milne**

Third year Bachelor of Science Advanced- Research (Honours); Mathematics major

"I got a very high ATAR but I didn't feel ready to commit to a five-year medicine degree. I am absolutely passionate about science so I decided to do this course as I knew a strong education in science would lay an amazing future for my career. As I have progressed, I have realised that my options are so broad – I can use my maths training in business, for example, and branch out and do different things. I took up French with a view to possibly working overseas after my degree. People ask me all the time why I study science and it is hard to explain – I sit in lectures learning about things and my heart just beats a little bit faster because I feel so much excitement and passion for what I am learning and studying."



# A-Z guide of science majors

## Physics

Study space and time, matter and energy.

- Explore a full spectrum of topics, from atom optics to X-ray science, and cosmology to nanotechnology.
- Investigate recent discoveries such as the Higgs Boson to the Bose-Einstein condensates.
- See how physics underpins other science disciplines, including medicine and engineering.
- Develop high-level analytical, numerical modelling and problem-solving skills.

## Physiology

Learn how the body functions in health and disease.

- Explore how body systems adapt when challenged by stresses such as exercise or environmental extremes, and how body functions change in diseased states.
- Examine the nerves and muscles, the brain and hormones, and the body's functionality from the molecular and cellular through to the body systems level.

## Plant sciences

Study the structure, function, genetics, and diversity of plants – from algae and mosses through to gymnosperms and angiosperms.

- Discover the differences and similarities between plants living on the land, in the sea and in freshwater environments.
- Learn how plants adapt to particular environments and what factors influence the distribution and diversity of plant species and communities in which they grow.

## Psychology

Study the mind and behaviour, including investigations of the brain, learning, memory, reasoning, decision-making, language, developmental and social processes, personality and mental health.

- Examine the practical and ethical applications of psychological research.
- Opportunity to complete the Australian Psychology Accreditation Council (APAC) accredited study for those wanting to specialise in psychology.

## Pure mathematics

Pure Mathematics deals with the abstract, the rigour and the beauty of perfection.

- Explore how pure mathematics becomes the basis for applied mathematics to solve the most concrete problems.
- See how the theory of prime numbers is fundamental to security systems and electronic banking.
- Apply high-level knowledge in advanced analysis, algebra and geometry.

## Zoology

Study the diversity of animals, their evolution, form, function, behaviour and ecology.

- Explore the interactions of animals with their environments through food chains and competition for resources.
- Understand the impact that parasites and pests have on our natural food supplies.
- Undertake field trips to Heron Island, Borneo or the marine laboratories in Queenscliff.



### RESEARCH OPPORTUNITIES IN PHYSICS

Atoms. We take them to beyond absolute zero. We attempt to tie them in knots. And we study materials only one atom thick, whose properties could lead to groundbreaking new technologies.



**Dr Lincoln Turner**

Physicist and Monash Research Fellow

"My experiments using ultra-cold physics involve temperatures less than a millionth of a degree above absolute zero. Matter behaves in really interesting ways at these temperatures. It is rich and full of possibilities... with a fascinating degree of quantum weirdness and mind-bending quantum physics. Monash Physics is driving innovative teaching and giving students the opportunity to find solutions to real-life problems in an industry-like setting."



# Pathways into science



## TAFE qualifications (graded)

### Certificate IV

Science-based certificate IV-level studies will be considered where the applicant has achieved average results of 80% or above. For applicants who have also completed VCE, both qualifications will be considered. No credit is granted for these studies.

### Diploma

To be considered, applicants who have completed VCE or its equivalent and who are applying with a science-based diploma will require a minimum average result of at least 60%.

Applicants who have not completed VCE but have completed a science-based diploma will require a minimum average result of at least 70%.

## FOUNDATION YEAR

### Monash University Foundation Year

(International students only)

Students completing Monash University Foundation Year can enter the Bachelor of Science at first year.



### Single university units

Students can apply to study two single (science) university units. Upon completion and with a minimum result of 60%, application can be made for entry into the Bachelor of Science.



## Diploma of Higher Education (DoHE)

- ATAR of at least 60, with a study score of at least 30 in English (EAL) or 25 in any other English.
- TAFE applicants can apply with a recognised Certificate IV – average grade of 70%, and a recognised Diploma – average grade of 60%.
- Submission of online Supplementary form stating why the applicant wants to study at Monash.
- Upon successful completion of all units and a minimum score of 60%, admission can be made into second year Bachelor of Science, and Bachelor of Science and Bachelor of Education (Hons).

## MONASH COLLEGE

### Monash College (Diploma of Science)

Upon completion of Year 12 Australian equivalent, students can undertake an eight-month Diploma of Science at Monash College which offers a direct pathway into the second year of a science degree.

## EXTENSION

### Monash Extension (Year 12 students only)

Monash Extension allows high-achieving Year 12 students to try university before finishing school. Students complete a pair of first-year university science subjects as part of their final-year school studies and receive credit for enrolling into a science course.

# Science at Monash



# Using *science* as a pathway to other study areas

A Monash Bachelor of Science forms a strong foundation for students wanting to work towards further study in medical, pharmaceutical or psychology fields.

Complete a Bachelor of Science  
3 years (full time)



Graduate Entry Bachelor of Pharmacy (Honours)  
2 years (full time)



Pharmacist or employment within science-related role

Graduate Entry Bachelor of Medicine and Bachelor of Surgery (Honours)  
4 years (full time)



Medical Practitioner

Complete a Bachelor of Science  
3 years (full time)  
  
+ Honours in Psychology  
1 Year (full time)



Postgraduate study in Psychology – Master of Psychology  
2 years (full time)



Psychologist



# Interested in *further study?*

On completion of your science degree you will be equipped with the knowledge and skills to either enter the workforce in your chosen area (for examples, see page 18) or continue with studies in a particular area of expertise.

## Honours

The prestigious Science Honours Program is a fourth year of study after your Bachelor of Science. It comprises a mix of advanced theory, professional training for a scientific career and a project leading to a thesis. You will have the opportunity to undertake exciting research work with a supervisor who provides individual guidance and one-on-one academic mentoring.

## Doctor of Philosophy (PhD)

Four years full time

A PhD in the Faculty of Science allows you to independently formulate and investigate a research problem that will make a significant contribution to the discipline in which you enrol.

## Master of Philosophy

Two years full time

The Masters by research degree is also available as an alternative to the faculty-based Master of Science degree above.

## Postgraduate studies

Postgraduate studies are the studies you undertake after completion of an honours degree. You will be able to pursue your individual area of interest in depth and contribute to the advancement of knowledge within this specialist field. Through supervised research, you will become part of a community of scholars working on finding solutions to real-world problems.

## Master of Science

Two years full time

The Master of Science degree allows you to undertake independent research in a specific area of science over a shorter period of time than that of a PhD.



Visit [monash.edu/science/future](https://monash.edu/science/future) for more

“It’s always  
*interesting*  
when you take  
something that’s  
completely  
counterintuitive  
and then  
work out that  
it’s actually  
*the truth.*”

## Tessa Charles

PhD

“Part of the reason I chose to do research here is the fact that your supervisors shape your experience, so I chose Monash based on the work that I’d be able to do here and the researchers that I’d be working with directly.

Within a Monash undergraduate degree you are exposed to lecturers who have so much depth in their own research, and it is inspiring to see how passionate they are about their own work, and so you can develop that curiosity too, to get into research yourself. I think it took me until I actually became involved in research to realise it is quite a creative pursuit.

I love research because I like discovering the things that are sometimes, truly bizarre and counterintuitive. It’s always interesting when you take something that’s completely counterintuitive and then work out that it’s actually the truth.”



# Monash College for international students

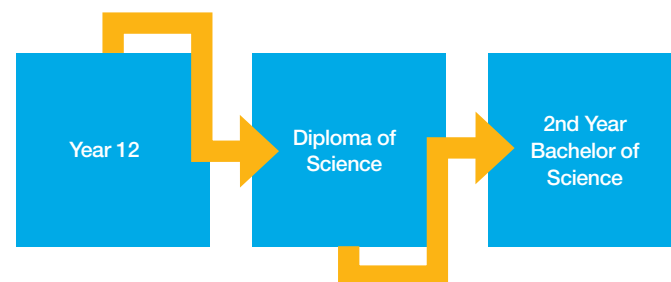
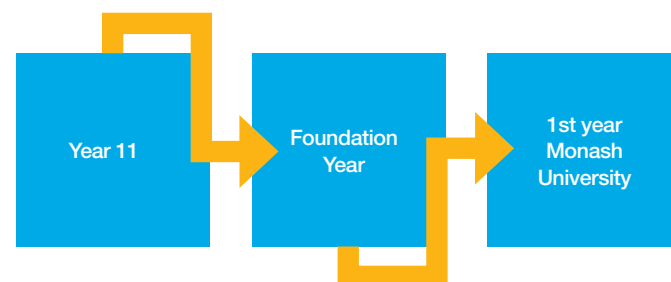
## Monash University Foundation Year

The Monash University Foundation Year is the preferred academic pathway into the Faculty of Science at Monash University. The program provides international students with the skills and knowledge required to succeed at Monash University.

After successfully completing Foundation Year and achieving the required marks, you will have a guaranteed place in the first year of relevant courses in the Faculty of Science.\*

## Diploma of Science

Monash College diplomas offer specialist preparation for second-year entry into your chosen science course. During the program you will study the same curriculum and complete the same assessments as first-year university students. After successfully completing Diploma Part 2 you will be guaranteed a place in the second year of your chosen degree.\*



\* Subject to meeting entry requirements and subject prerequisites.



For more information on Monash College academic pathways visit:  
[monashcollege.edu.au/courses](http://monashcollege.edu.au/courses)

## English-language courses

The Monash University English Language Centre is the preferred English pathway into Monash University.

If you do not meet the English language requirement for direct entry into your course you may receive a conditional offer for one of our programs.



For more information on English-language pathways visit: [monashcollege.edu.au/english-courses](http://monashcollege.edu.au/english-courses)

## Monash English Bridging

Monash English Bridging (MEB) is ideal if you have met the academic requirements for Monash, but have narrowly missed the English requirements.

MEB offers students direct entry into Monash University.\* Students who successfully complete the Bridging program do not need more testing.

See our website for entry requirements.

Note: \*Not accepted for entry into all degrees. If you need extra English help, consider Monash English.

## Monash English

Monash English (ME) will improve your English-language skills to prepare you for entry into Monash English Bridging or Monash University.

The program is taught from beginner to advanced levels. As you improve, you can move to the next level of ME.

To enter the University you will need to sit an IELTS test. We have workshops to help you practise and develop the skills you need to sit the test. Monash English courses start every five weeks.



Clayton campus

SUNDAY

2

August

10AM – 4PM

# Open Day

gives you the chance to talk to academic staff, meet students and tour the faculty and campus.

[monash.edu/openday](https://monash.edu/openday)

## How to apply



### Domestic (Australian) and onshore international students

#### Apply through VTAC

If you are an Australian or New Zealand citizen, an Australian permanent resident, or you are an international student studying an Australian Year 12 or IB in Australia or New Zealand, apply through the Victorian Tertiary Admission Centre (VTAC).

► Visit [vtac.edu.au](https://vtac.edu.au)

#### Mid-year entry

For mid-year entry, apply directly to Monash.

► Visit [monash.edu/admissions/apply/online.html](https://monash.edu/admissions/apply/online.html)

#### Scholarships

► Visit [monash.edu/scholarships](https://monash.edu/scholarships)

#### Fees

##### Commonwealth Supported Places

Reduced course fees for eligible applicants, and HECS-HELP.

► Visit [monash.edu.au/enrolments/loans/commonwealth-supported-place.html](https://monash.edu.au/enrolments/loans/commonwealth-supported-place.html)

##### FEE-HELP

Loan options for eligible applicants.

► Visit [monash.edu.au/enrolments/loans/domestic-full-fee.html](https://monash.edu.au/enrolments/loans/domestic-full-fee.html)

### International students

► For more information visit [monash.edu/study/international](https://monash.edu/study/international)

#### International Recruitment Services

Apply directly to Monash University's International Recruitment Services.

► Visit [monash.edu/study/international/apply/undergraduate](https://monash.edu/study/international/apply/undergraduate)

#### Fees

► Fees for each course can be found at [monash.edu/coursefinder](https://monash.edu/coursefinder)



**Monash online**

[monash.edu/science](http://monash.edu/science)

**Find a course**

[study.monash/courses](http://study.monash/courses)

**International students**

[monash.edu/study/international](http://monash.edu/study/international)

**Scholarships**

[monash.edu/scholarships](http://monash.edu/scholarships)

**Off-campus learning**

[monash.edu/offcampus](http://monash.edu/offcampus)

**Monash on YouTube**

[youtube.com/monashunivideo](http://youtube.com/monashunivideo)

**Future student enquiries**

Australian citizens, permanent residents,  
and New Zealand citizens

Tel: 1800 MONASH (666 274)

Email: [future@monash.edu](mailto:future@monash.edu)

[monash.edu/study/contact](http://monash.edu/study/contact)

**International students**

Australia freecall tel: 1800 181 838

Tel: +61 3 9903 4788 (outside Australia)

Email: [study@monash.edu](mailto:study@monash.edu)

The information in this brochure was correct at the time of publication (April 2015). 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