

MONASH  
CHEMISTRY

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



# EXCITING POSSIBILITIES, ENDLESS OPPORTUNITIES – CHEMISTRY AT MONASH

## Studying chemistry at Monash will equip you with skills you can use in any career.

Our journey to become leaders in the global shift towards green and sustainable chemistry starts with us, which is why we've built Green Chemical Futures (GCF) hub right here on campus. GCF unifies teaching, research and industry in one location.

We've created a vibrant home on campus where students can learn, network, socialise and collaborate with their peers, academics and industry professionals.

As a chemistry student, you'll 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.

GCF is the heart of forward-thinking in chemical science, with each level inviting students and researchers to explore possibilities and stretch their minds, marrying learning with innovation in the same space.

The lower levels of the building house innovative teaching and collaborative learning spaces, moving away from traditional lecture halls in favour of inviting spaces that encourage active learning and creative problem-solving in smaller groups. State-of-the-art research laboratories and transitional facilities are located on the upper levels.

Monash Science students and academics have access to:

- Collaborative learning spaces
- Sophisticated laboratories and research facilities
- The latest equipment and resources
- A lectorial-style learning space
- Wireless technology
- Industry engagement spaces
- Visual interconnection and interaction.



### DR CHRIS THOMPSON Senior Lecturer in Chemistry at Monash

Chris Thompson is an academic with a special focus on education. Not every university employs specialist educators, and in an unusual move, there is a handful of these rare specialists in the Monash Faculty of Science. Chris' research implements innovative ways to teach chemistry.

"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.

"Students entering the chemistry course in 2017 will enter a new world. A 9500-square-metre multi-level building known as Green Chemical Futures is the hub for all chemistry study and research on the Clayton campus. The top two floors are an incubator for more than 100 chemists and engineers doing both basic science and industry-driven research. The lower levels house some of the finest purpose-built labs and learning spaces in Australia."

"These labs can accommodate 1200 first-year students working in groups of 16 at long benches, each with a screen, gleaming glassware and modern instruments. Everything in this space is fresh, modern and all to designed to facilitate a new kind of learning. We have fun. Imagine an experiment where we give you and your team a vial containing an unknown white powder. You'll have two weeks to come up with a strategy on how you plan to identify the powder before getting a chance to confirm your hypothesis. This is the kind of learning you'll experience in chemistry at Monash."



# #1

Ranked the number-one chemistry department in Australia, according to QS World University Rankings.

# CHEMISTRY

**Monash University is at the forefront of chemistry innovation and research. Chemistry at Monash offers a world-class research environment and enables you to engage in the many facets of this fundamental field of science.**

If you're interested in a career in chemistry, Monash Science is the place to be. Study chemistry at Monash and you'll join a vibrant, dynamic environment with an enviable reputation that places us in the top 0.5 per cent of chemistry departments worldwide.

Chemistry is fundamental to life itself and essential when it comes to meeting our basic needs.

From the chlorination and fluoridation of water to finding sustainable alternatives to fossil fuels, developments in chemical technologies continuously improve the quality of life, providing real solutions to issues in areas such as energy usage, medicine and materials.

This is why chemistry is such an important and relevant area to study; and one that leads to fulfilling careers across an entire spectrum of industries. Chemistry is part of Australia's second-largest manufacturing sector that employs more than 60,000 people in highly skilled jobs. As such, it is central to the country's societal, environmental and economic wellbeing.

Monash boasts a strong research emphasis on sustainable chemistry. With a focus on materials, synthetic, analytical and green chemistry, our scientists are at the forefront of their specialist fields. This focus is exemplified in Monash's partnerships in the chemical and plastics industry, which been shown to have an impact across 109 of Australia's 111 industries. That's massive.

This means that as a student, whether undergraduate or graduate, you'll benefit from exceptional teaching and training, and a stimulating learning environment that is underpinned by a research-led teaching approach.

# CHEMISTRY RESEARCH AND INNOVATION

Chemistry's influence is at a level unseen by the human eye. At Monash you'll discover a range of computational, analytical and synthetic approaches that will help you gain a deeper understanding of the hidden world around us.

Chemistry is typically at the heart of scientific and technical innovation. At Monash, our researchers use their expertise to explore new methodologies, create compounds and materials for the benefit of mankind. This research focus underpins our approach to chemical education, allowing you to learn and engage with the beauty of chemistry in a curiosity-driven manner.

We also collaborate on a number of projects with other Monash departments, schools and industry partners, including biochemistry, biological sciences, microbiology and earth sciences. This emphasises chemistry's place as the central science and will give you a wide platform to address a range of problems if you choose to undertake further study in chemistry.

**Our focus is on student learning that is enhanced by our active research culture, industry engagement and community involvement.**

## Our academics are involved in a diverse range of research projects

- Molecular design and synthesis
- Anti-cancer agents
- Medicinal chemistry
- Development of new materials
- Glasses and polymers
- Bio-spectroscopy
- Fluorescence
- Drug design
- Food chemistry
- Bio-diagnostics
- Forensic analysis
- Analytical chemistry
- Water chemistry and quality
- Energy
- Environmental chemistry
- Bio-organic and bio-inorganic chemistry
- Biotechnology
- Green chemistry
- Chemical education



# STUDYING CHEMISTRY IN MONASH SCIENCE

Study chemistry and explore a wide range of options. Consider undertaking an honours year as part of your chemistry education and have the opportunity to be part of a research group studying a significant problem.

## COURSES

You can study a chemistry major in the following courses:

- Bachelor of Science
- Bachelor of Science Advanced – Research (Honours)
- Bachelor of Science Advanced – Global Challenges (Honours)

A major in chemistry can also be taken as part of a double degree. For further details and information on these options please see our Science Undergraduate Course Guide or visit [monash.edu/science/schools/chemistry/future-students](http://monash.edu/science/schools/chemistry/future-students)

### HONOURS STUDIES

Honours-level study enables you to undertake a specialised research project with one of our world-leading research groups. You must complete a major in chemistry and four units at level 3.

### GRADUATE STUDIES

After honours, students can apply to undertake Master of Science and PhD studies. These degrees involve coursework options and a research project or thesis.

## Career options with chemistry

- Research chemist in a university, government or industrial laboratory
- Teaching at primary, secondary and tertiary level
- Analytical scientist
- Forensic scientist
- Environmental scientist
- Biotechnologist
- Quality control
- Patent attorney
- Materials scientist
- Food scientist
- Industrial chemist
- Science journalist
- Geochemist
- Pharmaceuticals
- Sales and marketing
- Information technology
- Mining
- Waste and resources management
- Occupational health and safety
- Petrochemicals
- Risk management
- Wine and brewing industry
- Hospital or medical laboratories
- Water quality and management
- Toxicology

## OUR CHEMISTRY UNITS

### LEVEL ONE

CHM1011	Chemistry I
CHM1022	Chemistry II
or	
CHM1051	Chemistry I Advanced
CHM1052	Chemistry II Advanced

### LEVEL TWO

CHM2911	Inorganic and Organic Chemistry
CHM2922	Spectroscopy and Analytical Chemistry
CHM2942	Biological Chemistry
CHM2951	Environmental Chemistry – Water
CHM2962	Food Chemistry
CHM2990	Introductory Chemical Research Project

### LEVEL THREE

CHM3911	Advanced Physical Chemistry
CHM3922	Advanced Organic Chemistry
CHM3941	Advanced Inorganic Chemistry
CHM3952	Advanced Analytical Chemistry
CHM3180	Materials Chemistry
CHM3930	Medicinal Chemistry
CHM3960	Environmental Chemistry
CHM3972	Sustainable Chemistry
CHM3990	Chemistry Project

Students with a total of four units of third-year chemistry and an average distinction grade can choose to undertake an honours year.

### LEVEL FOUR – HONOURS

Advanced research project (75%) and coursework (25%)

A degree in chemistry equips you with a range of relevant, transferrable skills, including logical thinking, critical analysis, numeracy, data handling and communication.

## Further information

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

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

**1800 MONASH (1800 666 274)**

The information in this brochure was correct at the time of publication (June 2018).  
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.

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