

MONASH
CHEMISTRY

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 Green Chemical Futures (GCF) hub pushes the global shift towards sustainable chemistry. The state-of-the-art GCF building unifies teaching, research and industry in one location. You can learn, network, socialise and collaborate with peers, academics and industry professionals. We have sophisticated laboratories and research facilities and the latest interactive learning spaces.

You'll learn in a building that minimises environmental impact through its use of sustainable materials. Energy conservation arises through the molecular structure of the building itself.

GCF is the heart of forward-thinking in chemical science. Each level invites students and researchers to explore possibilities and stretch their minds. Learning and innovation occur in the same space.

The lower levels of the building house innovative teaching and collaborative learning spaces. Instead of traditional lecture halls we have inviting spaces. Spaces that encourage active learning and creative problem-solving in smaller groups.

State-of-the-art research laboratories and transitional facilities are 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
- Industry engagement spaces
- Visual interconnection and interaction.



ASSOCIATE PROFESSOR CHRIS THOMPSON Associate Dean of Education, and Educator 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 at Monash 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 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 join a vibrant and dynamic School. Our enviable reputation places us in the top 0.5 per cent of chemistry schools worldwide.

New chemical technologies provide real solutions in energy, food, medicine and materials. We tackle problems such as the early detection of diseases to finding sustainable alternatives to fossil fuels.

Chemistry leads to fulfilling careers across an entire spectrum of industries. Chemistry-based manufacturing employs more than 60,000 people in highly-skilled jobs in Australia. As such, it is central to the country's societal, environmental and economic well-being.

Monash boasts a strong research emphasis on health, energy, green chemistry and food. Our scientists are at the forefront of their specialist fields, including:

- chemical synthesis and catalysis
- molecular biophotonics
- materials science
- biological chemistry
- environmental and analytical chemistry

Monash partners with the chemical and plastics industry, shown to impact 109 of Australia's 111 industries. That's massive.

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.

Our graduates find employment with companies such as:

- Accenture
- ANSTO
- Axieo
- BASF
- Bayer
- CSIRO
- Defence Science and Technology
- Dulux
- Jacobs
- Melbourne Water
- Pfizer
- Slade Health
- StarPharma

CHEMISTRY RESEARCH AND INNOVATION

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

Chemistry is at the heart of much scientific and technical innovation. At Monash, our researchers use their expertise to explore new methodologies, create compounds and materials for the benefit of mankind. We apply this innovative approach to chemistry education. You will learn and engage with the beauty of chemistry in a curiosity-driven manner.

We collaborate with other Monash departments, schools and industry partners. This includes biochemistry, biological sciences, engineering, microbiology and earth sciences. Chemistry is the central science that gives you a platform to address a range of problems.

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 themes

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



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

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

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

MASTER OF FOOD SCIENCE AND AGRIBUSINESS

If you are passionate about creating a better world with a focus on how food is created and managed, the Master of Food Science and Agribusiness is for you. Industry analysts have predicted a strong growth in the demand for food science and agribusiness graduates in the next decade, to manage the expanding industrial production of high quality food for a growing population. Discover more about this course at: monash.edu/master-food-science-agribusiness

MASTER OF GREEN AND SUSTAINABLE TECHNOLOGIES

This new program commencing in 2021 will help future-proof your career as an in-demand specialist who will lead and shape the rapidly growing field of sustainable manufacturing. This outstanding new master's is industry-aligned and led by green chemistry experts from around the globe, who will immerse you in real-world projects and programs.

You can expect to receive the best training and education in green chemistry available in the Southern Hemisphere. More details will be available soon on monash.edu/science

OUR CHEMISTRY UNITS

LEVEL ONE

CHM1011	Chemistry I
CHM1022 or	Chemistry II
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
CHM3980	Chemistry Study Abroad
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

monash.edu/science/future

1800 MONASH (1800 666 274)

The information in this brochure was correct at the time of publication (July 2020).
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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