MONASH University

MONASH CHEMISTRY

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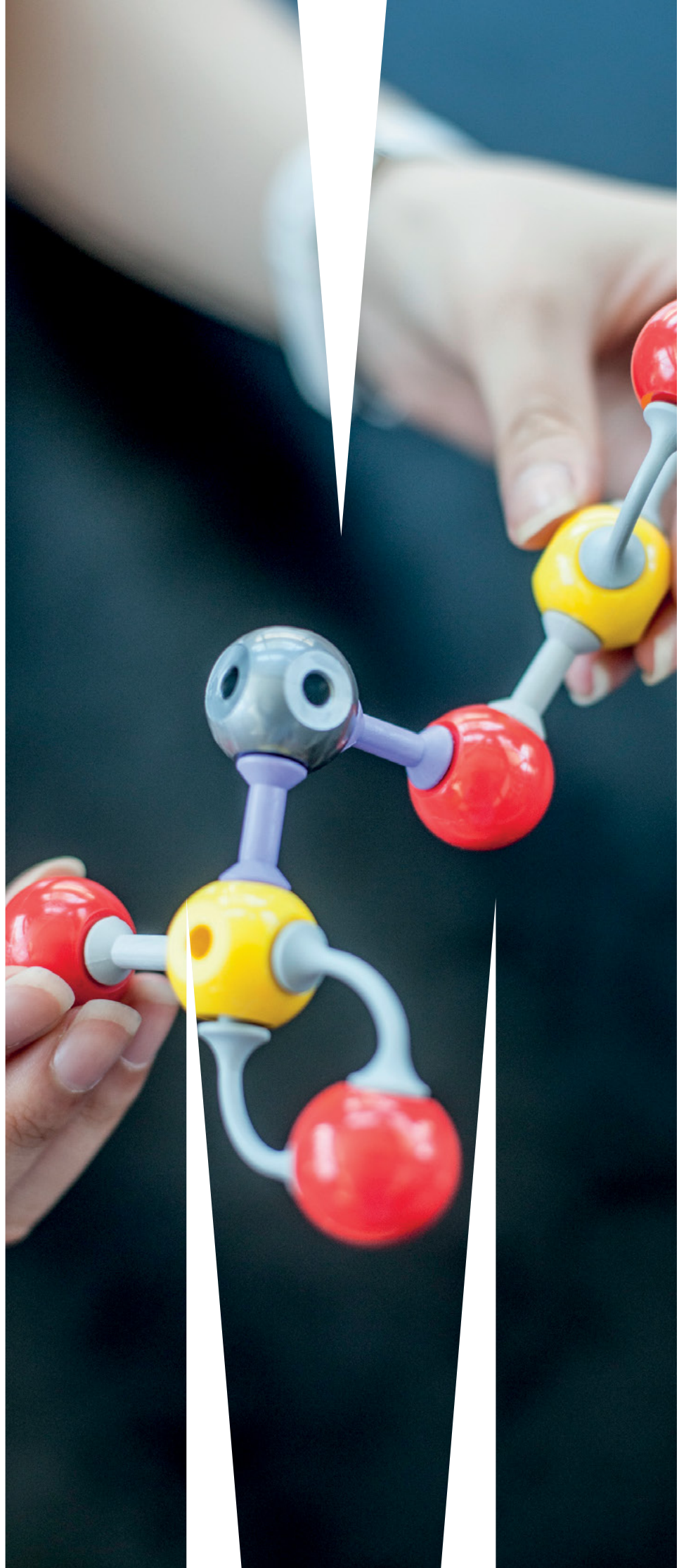

GROUP OF EIGHT AUSTRALIA

#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.

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
- Wireless technology
- Industry engagement spaces
- Visual interconnection and interaction.

PROFESSOR PHIL ANDREWS
Head of School of Chemistry at Monash University

Phil Andrews is Head of the School of Chemistry, Monash University. He is a Fellow of both the Royal Society of Chemistry (UK) and the Royal Australian Chemical Institute, and he is a founding member of the Monash Centre to Impact Antimicrobial Resistance.

Phil's research focuses on metals' role in chemical synthesis, biological and medicinal chemistry, medical imaging, and theranostics. In particular, metals with low toxicity, such as bismuth and gallium, can be used to mimic and disrupt iron uptake and activity. His team investigates a number of medicinal chemistry avenues including the development of new bioactive metal compounds as anti-inflammatory, anti-tumour and antimicrobial agents, novel metal-based antimicrobial polymers and gels, new metallo-drugs for combating Leishmania, and examining the cellular uptake and bio-distribution of the applied metals. Since 1998 Phil has succeeded in securing ten major Australian Research Council (ARC) grants and most recently a National Health and Medical Research Council (NHMRC) grant to produce a new range of bismuth-based antibacterial materials to combat the threat from resistant bacteria, commonly found in health-care facilities on medical instruments, devices, equipment, surfaces and implants.

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FURTHER INFORMATION

MONASH UNIVERSITY
monash.edu

FIND A COURSE
monash.edu/study

FUTURE STUDENT ENQUIRIES
Australian citizens, permanent residents and New Zealand citizens
monash.edu/study/contact

International students
T Australia freecall: 1800 MONASH (666 274)
T +61 3 9903 4788 (outside Australia)
E study@monash.edu

MONASH CHEMISTRY ONLINE

WEBSITE
monash.edu/chemistry

FACEBOOK
MonashChemSociety

INSTAGRAM
monashchemistry

TWITTER
@ChemistryMonash

YOUTUBE
Monash Chemistry

YOUR ESSENTIAL GUIDE TO MONASH SCIENCE