WESTERN SYDNEY
UNIVERSITY

SCIENCES

WHY STUDY AT WESTERN SYDNEY?

→ STUDY SCIENCE. MAJOR IN DISCOVERY

Our new $30 million state-of-the art teaching and research facilities and laboratories provide you with valuable real-world experiences.

→ THE EARTH NEEDS GRADUATES LIKE YOU

Get a rewarding career in emerging 'green collar' industries. Our Science programs will equip you with skills and knowledge to help create a more sustainable future.

→ PREPARE FOR A DYNAMIC, EXCITING AND CHALLENGING CAREER

Offering a wide range of contemporary and innovative degrees, Western Sydney University's Sciences programs combine advanced academic knowledge with practical real-life training. With inspiring academics, smaller class sizes and state-of-the-art facilities, the courses ensure that you will have everything you need to pursue an exciting professional career.

→ COOL TOYS FOR SERIOUS WORK

The University has a number of high-tech instruments that provide our scientists with the opportunity to perform cutting-edge research. The Secondary Ion Mass Spectrometer (SIMS) determines the surface and near-surface composition in materials and detects elements ranging from hydrogen to uranium in parts per billion. The Confocal Bio-Imaging Facility is a multi-user imaging and microanalysis facility, allowing researchers to study how genes, molecules and proteins work and interact in living cells and organisms. The Nuclear Magnetic Resonance (NMR) Facility is arguably the best of its kind in the Southern Hemisphere, and contains three spectrometers that can be used to study areas, such as drug binding, diffusion in porous systems ranging from sandstone to polymers to brain tissue, plants and water flow, and supercooled liquids and biological tissues.

→ WORLD-CLASS FACILITIES

Forensic Science teaching areas include a Crime Scene Investigation Training and Research Facility as well as:

- → an imaging laboratory for image recording and analysis
- → an instrumentation laboratory, which features a glass analysis system that can identify glass types
- → polarisation microscopy systems to examine, for example, hairs and fibres
- → development systems for detecting fingerprints on various surfaces
- → specialised forensic light sources that can reveal evidence that is invisible in normal light
- → cutting-edge forensic photography technologies.

→ RESEARCH STRENGTHS

Our research underpins the core activities of teaching and learning and allows us to create the evidence base required to train the next generation of professionals. The School of Science and Health's research links directly with community and industry to help create solutions for the real world.

Research is grouped under the following themes:

- → Agriculture
- → Animal Science
- → Biomolecular Science and Health
- → Chemistry
- → Climate Change
- → Complementary Medicine
- → Drug Discovery
- → Environmental impacts on land and water resources
- → Forensic Science
- → Health Promotion and Physical Activity
- → Intensive horticultural crop production systems
- → Medical Nanotechnology
- → Men's Health
- → Multifunctional Landscapes
- → Nanoscale Systems and Surface Science
- → Neuroscience
- → Rehabilitation, Movement and Pain
- → Science and Society
- → Sport and Exercise Science
- → Wildlife and reared animal research
- → Zoology.

→ LEADING CLIMATE CHANGE RESEARCH

Climate change and the availability of clean energy are among the biggest problems currently facing Australia. The Hawkesbury Institute for the Environment (HIE) at Western acts as a beacon for the best and brightest climate change and energy researchers from around Australia and the world. The HIE is researching a suite of crucial environmental problems, including those related to landscape revegetation and reforestation, biofuel production, remediation of contaminated soils and adaptation to climate change.

→ TRADITION OF AGRICULTURAL RESEARCH AND SERVICES

Get your hands dirty and see agriculture in action at our experimental field sites, which include:

- → cleared paddocks and plots for research and learning
- → many farm dams within close proximity for replicated studies
- → state-of-the-art production and research greenhouses
- → a post-harvest controlled environment system and physiology laboratories
- → citrus orchards
- → state-of-the-art greenhouses
- → An apiary for honeybees and native bees
- → Access to the Greater Sydney Local Land Services Field Vegetable Demonstration Farm.

Animals kept on campus include cattle, sheep, reptiles and deer.

→ WORLD RANKINGS

For the fifth edition of the QS World University Rankings by Subject, QS evaluated 3,551 universities, qualified 2,186 and ranked 894 institutions in total. Over 100 million citations attributions were analysed and QS verified the provision of over 14,000 programs. The rankings are based on academic reputation and research impact and Western Sydney University is included in the top 200 universities by subject in Agriculture and Forestry.

→ LEARN FROM LEADERS IN THEIR FIELD

The University has a reputation for teaching and learning excellence. You will be challenged and stretched to learn from inspiring, enthusiastic teaching staff at the forefront of their fields. The University has an extensive and diverse array of analytical capabilities that address a range of industry needs. Staff provide expert advice on the right techniques to use, conduct experiments, and then work with clients and research partners on the interpretation of results.

→ FREE DIGITAL TEXTBOOKS

Western was the first university to provide all the digital textbooks for your first year units for free. We are pleased to be offering the benefit of free digital textbooks for first year units to students once again in 2019! That's up to $800 in value. Why? Because money shouldn't stand between you and opportunity. Discover more about free digital textbooks at **westernsydney.edu.au/textbooks**

Bachelor of Science (Advanced Science)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science (Advanced Science)	041145K	3562	March	Campbelltown	3F
	041145K	3562	March	Hawkesbury	3F
	041145K	3562	March	Parramatta	3F

Assumed knowledge: At least two units of Biology, Chemistry, Mathematics or Physics.
Key: B = Bachelor of; F = Full-time.

If you enjoy being constantly challenged and extended by your studies and are thinking about a career involving scientific research, then the Western Sydney University Advanced Science degree is for you!

The Bachelor of Science (Advanced Science) is one of a suite of three advanced programs in the sciences, including the Bachelor of Medical Sciences (Advanced) and Bachelor of Natural Science (Advanced).

Advanced Science allows you to study the same discipline areas as the Bachelor of Science, but at a deeper level. It gives you highly specialised skills and knowledge in a science relevant to your career and research interests, and is specifically designed to meet the needs of students with a high ability and motivation in science and a desire for a career in scientific research.

The program includes advanced work, academic extension activities and a significant amount of research training. A mentoring program will link you with an experienced academic staff member and research groups, including medical school academics.

MAJOR STUDIES

In the Advanced Science degree, you choose one of the following Bachelor of Science programs at the start of your first year: Biological Sciences; Chemistry; Environmental Science; Forensic Science; Mathematical Science; Nutrition and Food Sciences; or Zoology.

See each of the specific degrees in this guide for details on campus location, majors and career opportunities.

Note: It is possible to change your major later in the course. Students must maintain a grade point average (GPA) greater than five to remain in the course; those who do not maintain this average will be transferred to the corresponding Bachelor of Science. Students who do not meet the entry standards of Bachelor of Science (Advanced Science), but who are offered a place in the Bachelor of Science, can transfer into the Advanced program after first year if they achieve a GPA greater than five and there are places available. At enrolment, students will be required to sign a declaration acknowledging the requirement to maintain a GPA greater than five.

FURTHER STUDIES

Postgraduate research programs are available to high-achieving students. Information and details on how to apply will be provided to you as you progress through your Bachelor degree, or you can find out more at **westernsydney.edu.au/research**

If you are interested in pursuing a career in teaching, you can consecutively study both the Bachelor of Science (Pathway to Teaching Primary/Secondary) and Master of Teaching (Secondary) over four 4.5-5 years. See the Teaching and Education Area of Study brochure for more details.

PROFESSIONAL RECOGNITION

Depending on majors and electives chosen, graduates may satisfy the requirements for admission to various professional bodies, such as the Australian Mathematical Society and the Statistical Society of Australia, the Royal Australian Chemical Institute, the Australian Society of Microbiology, the Australian Institute of Biology, the Australian Institute of Physics, the Australian Society for Biochemistry and Molecular Biology and the Royal Zoological Society of New South Wales.

CAREER OPPORTUNITIES

This course is designed to provide early training for a career in scientific research.

After further postgraduate research study, you may conduct research in:
- private industry
- universities
- national and international scientific organisations.

In addition, graduates may also enter career paths such as:
- science-based work in industry
- government environmental agencies
- forensic work
- patent work
- quality control
- environmental consulting laboratories
- medical laboratories
- scientific equipment companies
- or you can complete the Master of Teaching (Secondary) and be qualified to teach in government and non-government secondary schools and colleges.

Please see the specific Bachelor of Science programs for career opportunities related to the programs on offer.

Bachelor of Science

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science	041144M	3675	March/July	Campbelltown	3F
	041144M	3675	March/July	Hawkesbury	3F
	041144M	3675	March/July	Parramatta	3F

Assumed knowledge: At least two units of Biology, Chemistry, Mathematics and Physics
Key: B = Bachelor of

Offering a flexible and contemporary education in modern science with a variety of campus locations, the Western Sydney University Bachelor of Science degree allows you to specialise in a particular area of science or gain a broad-based education in a range of sciences.

You can even complement your science studies with units from non-science disciplines, such as the arts, business, humanities and social sciences.

The Bachelor of Science is a versatile degree that is designed for maximum flexibility for those students who are interested in the area of science but haven't decided on a specific course of study. You can tailor your own degree to suit your areas of interest and develop a unique range of interdisciplinary skills. The Bachelor of Science will allow you to develop fundamental skills in quantification and analysis, as well as the capacity for critical analysis, problem-solving and independent thought – the skills employers are looking for.

Throughout the course, you will acquire and process knowledge in areas relevant to research and industry, and you will gain technical skills, confidence and independence in conducting laboratory work and field work. You will also become proficient in organising and interpreting complex data and you will develop the communication skills required to present this data to an audience. Importantly, our Bachelor of Science degree is very hands-on, offering you unique opportunities to participate in ground-breaking research with our academics, well known for their research credentials and scientific developments, or at outside institutions. These practical, skills-based programs will enable you to move readily into the workforce.

Holders of relevant qualifications (e.g. Diploma, Advanced Diploma, or equivalent) may apply for academic credit. The level of academic credit offered depends on your qualification and the key program being undertaken, but may cover most or all of the first year of study. You would commence in the second year of study in this case. Transfer to the Bachelor of Science (Advanced Science) is available for meritorious students, at the end of first year.

MAJOR STUDIES

This program is dedicated to the understanding and development of a broad range of sciences. Choose from any of the majors or design your own academic program within the Bachelor of Science.

Majors and sub-majors offered include: Marine Biology; Biochemistry and Molecular Biology; Conservation Biology; Environmental Consulting; General Biology; Microbiology; Nutrition and Physiology; Chemistry; Climate Change; Forensic Science; Mathematics; and Zoology.

There are other majors and sub-majors offered in science that can add diversity and/or focus to your degree.

There is also a range of sub-majors from other disciplines, such as the arts, business, humanities and social sciences to choose from, although these may require cross-campus study and are subject to availability and timetabling.

For detailed information about the course structure and units, visit **westernsydney.edu.au/future**

John Ho

BACHELOR OF SCIENCE

"Studying science at Western Sydney University is very practical because science is involved in our everyday lives. It is the explanation of a topic which allows an individual to explore how things work. I enjoy gaining the knowledge at Western, but I also enjoying getting good results!"

PROFESSIONAL RECOGNITION

Depending on the major and electives chosen, graduates may satisfy the requirements for admission to various professional bodies, such as the Australian Mathematical Society and the Statistical Society of Australia, The Royal Australian Chemical Institute, The Australian Society of Microbiology, The Australian Institute of Biology, the Australian Institute of Physics, the Australian Society for Biochemistry and Molecular Biology and the Royal Zoological Society of New South Wales.

CAREER OPPORTUNITIES

Please see the individual Bachelor of Science programs for career opportunities specific to the programs on offer. Graduates may follow career paths such as:

- → science-based work in industry
- → government environmental agencies
- → forensic work
- → patent work
- → quality control
- → environmental consulting laboratories
- → medical laboratories
- → scientific equipment companies.

With further postgraduate study, you can also become a research scientist working across a diverse range of areas. Alternatively, you can complete the Master of Teaching (Secondary) and be qualified to teach in government and non-government secondary schools and colleges.

Bachelor of Science (Biological Sciences)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science (Biological Sciences)	041151A	3677	March	Campbelltown	3F
	041151A	3677	March	Hawkesbury	3F
	041151A	3677	March	Parramatta	3F

Assumed knowledge: At least two units of Biology, Chemistry, Mathematics or Physics.
Key: B = Bachelor of; F = Full-time.
Note: Part-time refers to study load, not to timetabling of evening classes.

The biological sciences are diverse, fascinating, rapidly changing, and essential to our understanding of living systems at scales ranging from the molecular to the global. They play a vital role in our understanding of the environment, as well as animals, plants and micro-organisms, and are essential to a wide range of contemporary industries.

The Bachelor of Science (Biological Sciences) degree offers a solid grounding in the basic sciences, including biology, microbiology and biochemistry and environmental science. You may choose to maximise the biological science content of your degree or combine biological sciences with studies in another discipline.

MAJOR STUDIES

Some of the major studies in this degree include: Marine Biology; Biochemistry and Molecular Biology; Conservation Biology; General Biology; Microbiology; and Zoology.

There is a range of majors and sub-majors offered in science that can add diversity and/or focus to your degree. There is also a range of sub-majors from other disciplines, such as the Arts, Business, Humanities and Social Sciences to choose from, although these may require cross-campus study and are subject to availability and timetabling.

PROFESSIONAL RECOGNITION

Depending on the units chosen within the course, graduates can satisfy the requirements for membership of professional bodies such as the Australian Society for Microbiology and the Australian Institute of Biology. Graduates may also join other professional societies such as the Australian Society for Biochemistry and Molecular Biology, Australian Biotechnology Organisation, Australian Society for Medical Research and the Royal Zoological Society of New South Wales.

CAREER OPPORTUNITIES

Research and technical officers with knowledge in environmental/conservation science, biochemistry, molecular biology, microbiology, and cell biology are well sought after, with multi-skilled graduates finding success as analysts/scientists in:

- hospitals
- veterinary settings
- forensics
- pathology
- quality control
- environmental monitoring laboratories.

Examples include roles in universities, research institutes, biotechnology companies and government departments.

Other possible careers include scientific journalists/writers; technical sales persons for scientific, biotechnology and medical supply companies; scientific/technical managers; patents officers and government policy advisors.

With further postgraduate study, you can also become a research scientist working across a diverse range of areas. Alternatively, you can complete the Master of Teaching (Secondary) and be qualified to teach in government and non-government secondary schools and colleges.

Brooke Alessi

BACHELOR OF SCIENCE (BIOLOGICAL SCIENCES)

"Western Sydney University had the courses I wanted and it was a bonus the University was close to home. Because I studied Chemistry in high school I have found the transition quite easy. Also my tutors and lecturers explain the concepts quite clearly."

Bachelor of Science (Chemistry)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science (Chemistry)	041153K	3676	March	Campbelltown	3F/6P
	041153K	3676	March	Parramatta	3F/6P

Assumed knowledge: At least two units of Biology, Chemistry, Mathematics or Physics.
Key: B = Bachelor of; F = Full-time; P = Part-time.
Note: Part-time refers to study load, not to timetabling of evening classes.

This program recognises the importance of chemistry in our environment and provides a framework for intellectual inquiry and a means of helping improve people's lives.

The Bachelor of Science (Chemistry) also provides a strong background in the key topic areas of contemporary chemistry, including aspects of chemical theory, practical laboratory skills and applications in contemporary research, industry and the environment. A research project is available to students in the final year of the degree.

Holders of relevant qualifications (e.g. Diploma, Advanced Diploma, or equivalent) may apply for academic credit. The level of academic credit offered depends on the key program being undertaken, but may be quite significant, as in the case of the Chemistry major where a TAFE Diploma in Chemical Technology may attract up to 33 per cent academic credit. Transfer to the Bachelor of Science (Advanced Science) is available for meritorious students.

MAJOR STUDIES

A Bachelor of Science (Chemistry) will prepare you to take part in the process of intellectual inquiry by using scientific knowledge to solve current problems.

This degree consists of studies in analytical, inorganic, organic and physical chemistry, with a strong emphasis on practical skills, and prepares you for a professional career in a wide range of chemistry-based industries.

There are a range of majors available that include Biochemistry and Molecular Biology, Microbiology and General Biology. There are also many sub-majors from other disciplines, such as the arts, business, humanities and social sciences to choose from, although these may require cross-campus study and are subject to availability and timetabling.

PROFESSIONAL RECOGNITION

Corporate membership of the Royal Australian Chemical Institute is available after completion of at least three years of approved professional experience. This professional recognition provides a wide range of career opportunities in both the private and government sectors, in areas such as quality control, research and development, environmental analysis, scientific instrumentation, forensic science and technical sales.

CAREER OPPORTUNITIES

Examples include roles in industries related to:
→ pharmaceuticals and cosmetics
→ chemical, paint, plastics and mining
→ government and quality control labs.

A double major or sub-major with biochemistry and molecular biology or microbiology will prepare you for a career in the pharmaceutical, health or food industries. Alternatively, graduates who undertake studies in the physical sciences, mathematics or business are well placed for careers in the manufacturing industry.

Other areas of employment include research and development, chemical, environmental and forensic analysis, scientific and technical sales, and consumer affairs.

With further postgraduate study, you can also become a research scientist working across a diverse range of areas. Alternatively, you can complete the Master of Teaching (Secondary) and be qualified to teach in government and non-government secondary schools and colleges.

Bachelor of Science (Environmental Science)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science (Environmental Science)	074707G	3680	March	Hawkesbury	3F

Assumed knowledge: At least two units of Biology, Chemistry, Mathematics or Physics.
Key: B = Bachelor of; F = Full-time.
Note: Part-time refers to study load, not to timetabling of evening classes.

Solving the world's environmental problems will require professionals who are trained in the sciences underlying these issues and who understand the wider human contexts of the challenges faced.

The Environmental Science program will open up a wide range of career opportunities for those with environmental, conservation and ecological interests.

A solid grounding in the underlying science is essential for people intending to work in this field, as they will need to integrate across a range of disciplines, to devise solutions spanning the scientific and social issues involved.

The Environmental Science program allows you to determine your career pathway, with the ability to specialise in areas such as Marine Biology, Environmental Management, Climate Change, Conservation Biology and Zoology.

MAJOR STUDIES

Some of the major studies in this degree include: Conservation Biology; Climate Change; Environmental Consulting ; General Biology; Zoology and Marine Biology.

There are also a range of sub majors available including Sustainability Environmental Management, Microbiology, Aquatic Environment and others.

There is also a range of sub-majors from other disciplines, such as the Arts, Business, Humanities and Social Sciences to choose from, although these may require cross-campus study and are subject to availability and timetabling.

PRACTICAL EXPERIENCE

Graduates meet the educational requirements for membership of the Environment Institute of Australia and New Zealand (EIANZ); further professional work experience is required for full membership of the Institute.

CAREER OPPORTUNITIES

Career opportunities include roles in both the great outdoors and the office.

Choices are as diverse as:
- environmental protection officer
- environmental auditor
- environmental planning consultant
- environmental consultant
- pollution control officer
- state-of-environment assessor
- land care officer
- water quality manager
- conservation officer
- protected area manager
- environmental scientist in environmental protection authorities, land and water management agencies, research organisations, private environmental consultancies, waste management operations, national parks and conservation services.

With further postgraduate study, you can also become a research scientist working across a diverse range of areas. Alternatively, you can complete the Master of Teaching (Secondary) and be qualified to teach in government and non-government secondary schools and colleges.

Bachelor of Science (Forensic Science)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science (Forensic Science)	049084J	3589	March	Hawkesbury	3F

Assumed knowledge: At least two units of Biology, Chemistry, Mathematics or Physics.
Key: B = Bachelor of; F = Full-time.

The Bachelor of Science (Forensic Science) degree, with its very own Crime Scene Investigation training and Research Facility, is a comprehensive undergraduate Science degree. It offers a hands-on introduction to collecting evidence and conducting forensic investigations, ensuring graduates are well prepared for the real-life equivalent. A number of recent students now work as Scene of Crime Officers for the NSW Police Force.

Criminalistics (the practical application of forensic investigation) often adopts more novel scientific practices and provides valuable linkage evidence to forensic cases. You will engage in a range of criminalistic topics, including forensic photography, hair and fibre comparison, footwear and tyre impression evidence, fingerprinting, blood spatter interpretation, tool mark examination, biological evidence, drug identification, DNA analysis, explosive residues, GSR (gunshot residue) and buried evidence.

MAJOR STUDIES

Principle areas of major studies include: Crime Scene Investigation; Biochemistry and Molecular Biology; Microbiology and Immunology and Cell Biology.

There are four electives and the course structure allows you to broaden your studies in areas that include Biology, Chemistry, Physics and Mathematics.

For detailed information about the course structure and units, visit **westernsydney.edu.au/future**

CAREER OPPORTUNITIES

As a graduate of our Forensic Science degree, you will be well equipped to work within a range of forensic and other scientific disciplines for employers, such as:

- Australian Federal Police (AFP), NSW Police, and all other state and territory police services
- Customs
- Environmental Protection Authority (EPA)
- WorkCover
- Australian Quarantine and Inspection Service (AQIS)
- state and federal health departments
- government analytical chemical laboratories.

Career options include:

- forensic scientist
- crime scene investigator
- private investigator
- forensic consultant
- ranger
- drug analyst
- environmental investigator
- police officer
- drug tester in human and animal sports
- forensic researcher
- academic

Because of the wide skill base offered in this degree, graduates can also work in analytical chemistry and microbiology laboratories, quality control and assurance, biochemistry and molecular biology, scientific research, education, and the chemical industry.

With further postgraduate study, you can also become a research scientist working across a diverse range of areas. Alternatively, you can complete the Master of Teaching (Secondary) and be qualified to teach in government and non-government secondary schools and colleges.

Bachelor of Science (Mathematical Science)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science (Mathematical Science)	041154J	3679	March	Campbelltown	3F
	041154J	3679	March	Parramatta	3F

Assumed knowledge: HSC Mathematics (not General Mathematics).
Key: B = Bachelor of; F = Full-time.
Note: Part-time refers to study load, not to timetabling of evening classes.

The Mathematical Science program provides a strong background in key analytical techniques that have contemporary applications, such as the handling and interpretation of data and the modelling of real-world problems, such as global warming.

This program allows you to specialise in mathematics, statistics or a combination of both. You will develop skills that allow you to model and solve real-world problems using mathematical techniques. This will allow a wide range of career options in commercial and government institutions.

MAJOR STUDIES

There are several majors and sub-majors offered in Science that can add diversity and/or focus to your degree. There is also a range of sub-majors from other disciplines, such as the Arts, Business, Humanities and Social Sciences to choose from, although these may require cross-campus study and are subject to availability and timetabling.

PROFESSIONAL RECOGNITION

Graduates may be eligible for membership of the Australian Mathematical Society and the Statistical Society of Australia, depending on the units studied.

CAREER OPPORTUNITIES

There is a broad range of opportunities for graduates in Mathematical Science, including roles in finance, information security, mining, meteorology, health and genetics. Graduates are also well placed to pursue careers as:

- mathematicians
- statisticians
- operational research analysts
- quantitative/financial analysts
- financial consultants
- business analysts
- market analysts
- investment analysts
- risk analysts
- sales and production forecasting officers
- production systems planning officers.

With further postgraduate study, you can also become a research scientist working across a diverse range of areas. Alternatively, you can complete the Master of Teaching (Secondary) and be qualified to teach in government and non-government secondary schools and colleges.

Bachelor of Science (Nutrition and Food Sciences)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science (Nutrition and Food Sciences)	074706J	3678	March/July	Hawkesbury	3F/6P

Assumed knowledge: At least two units of Chemistry, Mathematics and Biology.
Key: B = Bachelor of; F = Full-time; P = Part-time.
Note: Part-time refers to study load, not to timetabling of evening classes.

Healthy eating is a vital part of wellbeing and there is more to healthy eating than you realise. This degree will help you understand nutrition and the science behind food. The course aims to provide students with sound knowledge and a practical background in nutrition and food sciences so you may pursue a wide range of careers in community nutrition and health promotion, ensuring healthy diets and lifestyles for good health, development of healthy and innovative new foods, or ensuring food quality and safety.

Nutrition and Food Sciences covers a range of units that include the nutritional benefits of particular foods, the development of new food products, food safety and medical conditions, such as diabetes and heart disease, which are affected by diet.

MAJOR STUDIES

In the first half of the program, our students develop a strong foundation in the biological and chemical sciences, plus introductory studies in nutrition and food sciences. You will select a specialisation depending on your interests and career aspirations, either in Human Nutrition or Food Science and Technology.

A major in Human Nutrition investigates healthy eating as a vital part of good health and health promotion. The program covers specialised studies in applied and community nutrition, metabolism and human physiology.

A major in Food Science and Technology explores the science behind food, its preparation and manufacture.

The program covers specialised topics in food processing, quality assurance, product development, postharvest, packaging, microbiological and chemical analysis of foods. This major can be combined with an Education Studies sub-major and subsequent postgraduate teaching qualifications to meet the graduate requirements for teaching food technology.

This program also prepares graduates to teach biology or chemistry as additional first or second teaching areas, or design and technology depending on electives selected.

Academic credit may be offered for relevant TAFE or other qualifications (e.g. a Diploma in a relevant field may attract academic credit), making the degree an attractive re-skilling option.

PRACTICAL EXPERIENCE

As well as extensive experience in the University's laboratories, students must take a minimum of 10 weeks of approved industrial experience.

CAREER OPPORTUNITIES

Some career opportunities with a Nutrition and Food Sciences degree include:
→ community nutrition and health
→ food product research and development
→ food quality assurance
→ professional positions in consumer relations
→ health promotion and education
→ regulatory affairs
→ technical sales representatives
→ consulting.

With further postgraduate study, you can also become a research scientist working across a diverse range of areas. Alternatively, you can complete the Master of Teaching (Secondary) and be qualified to teach in government and non-government secondary schools and colleges.

Bachelor of Science (Zoology)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science (Zoology)	074708G	3681	March	Hawkesbury	3F

Assumed knowledge: Any two units of English and any two units of Science.
Key: B = Bachelor of; F = Full-time.

The Bachelor of Science (Zoology) degree recognises the increasing demand for scientific-based knowledge of how to conserve, protect and care for animals, including native wildlife, companion and production animals.

This program will allow students to develop in-depth scientific understanding of how animals function and interact with their environment, from their ecology and evolution, to physiology and biochemistry of tissues and major organs systems, as well as structure and function of biomolecules and cells. The program gives particular emphasis to the study of ecology, evolution, physiology, growth, reproduction, genetics, and conservation biology.

The Zoology program allows you to determine your career pathway, with the ability to specialise in areas such as Marine Biology, Climate Change, Conservation Biology, Environmental Consulting and Biochemistry and Molecular Biology.

On-campus animal facilities include those for reptiles, small marsupials, small rodents, horses, sheep and cattle, as well as over 1,000 hectares of native, rural and aquatic habitat.

MAJOR STUDIES

The major studies may include: Climate Change; General Biology; Conservation Biology; Biochemistry and Molecular Biology; Environmental Consulting, and Marine Biology. There is a range of majors and sub-majors offered in science that can add diversity and/or focus to your degree.

There is also a range of sub-majors from other disciplines, such as the Arts, Business, Humanities and Social Sciences to choose from, although these may require cross-campus study and are subject to availability and timetabling.

PRACTICAL EXPERIENCE

Depending on the units chosen, graduates are eligible to apply for membership of one or more professional societies, including the Royal Zoological Society of New South Wales, the Australasian Wildlife Management Society, the Australian Mammal Society, Australasian Wildlife Disease Association, the World Aquaculture Society and the Zoological Society of London among others.

CAREER OPPORTUNITIES

Examples include roles in:
- animal nutrition
- animal reproduction technology
- animal genetics
- animal behaviour
- animal health product development
- animal physiology
- zoology
- natural resource management
- scientific officer
- science communication management
- veterinary-related areas.

Graduates are also prepared for work as field or laboratory technicians, animal carers, in conservation agencies and environmental consulting companies.

With further postgraduate study, you can also become a research scientist working across a diverse range of areas. Alternatively, you can complete the Master of Teaching (Secondary) and be qualified to teach in government and non-government secondary schools and colleges.

Bachelor of Science (Zoology)/Bachelor of Natural Science (Animal Science)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science (Zoology)/ B Natural Science (Animal Science)	089440G	3732	March	Hawkesbury	4F/8F

Assumed knowledge: Any two units of English and any two units of Science.
Key: B = Bachelor of; F = Full-time.

This combined degree recognises the increasing demand for scientific knowledge about how to conserve and protect wildlife, as well as develop deeper understanding of the interactions between people and animals. This arises from our ever-increasing reliance on animals for companionship and food production.

The combined Zoology and Animal Science Degree at Western Sydney University provides you with hands-on experience and a range of skills including specialist knowledge of wildlife and domesticated animals, practical skills, the ability to think critically and solve problems. Career opportunities exist in a range of areas including zoological research, environmental management and consulting, wildlife biology, government quarantine, agriculture, museums, and universities, as well as, international opportunities.

On-campus animal facilities include those for reptiles, small marsupials, small rodents, horses, sheep and cattle, as well as over 1,000 hectares of native, rural and aquatic habitats. Fourth year options allow you to major in Conservation Biology, Marine Biology and Environmental Consulting.

MAJOR STUDIES

The major studies may include: Conservation Biology; Environmental Consulting and Marine Biology.

PRACTICAL EXPERIENCE

Depending on the units chosen, graduates are eligible to apply for membership of one or more professional societies, including the Royal Zoological Society of New South Wales, the Australasian Wildlife Management Society, the Australian Mammal Society, Australasian Wildlife Disease Association, the World Aquaculture Society and the Zoological Society of London among others.

CAREER OPPORTUNITIES

Examples include roles in:
- animal care and husbandry
- animal nutrition
- animal reproductive technology
- animal genetics
- animal behaviour
- animal health product development
- animal physiology
- zoology
- natural resource management
- scientific officer
- science communication management
- veterinary-related areas.

Graduates are also prepared for work as field or laboratory technicians, animal carers, in conservation agencies and environmental consulting companies.

With further study you can also become a research scientist working across a diverse variety of areas. Alternatively, you can complete the Master of Teaching (Secondary) and be qualified to teach in government and non-government secondary schools and colleges.

Bachelor of Science (Pathway to Teaching Primary/ Secondary)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science (Pathway to Teaching Primary/ Secondary)	094198C	3736	March/July	Campbelltown	3F
	094198C	3736	March/July	Hawkesbury	3F
	094198C	3736	March/July	Parramatta*	3F
M Teaching (Secondary/ Primary)		1714/ 1781	March/July	Penrith**	2F/1.5A

Key: B = Bachelor of; M = Master of; F = Full-time; A = Accelerated.
Note: Not all key programs are available on all campuses.
*The B Science component of this program is offered at Campbelltown, Hawkesbury and Parramatta campuses. The Education component of the B Science is offered at Penrith and Bankstown with some units offered at Parramatta or online.
**The Master of Teaching component is offered at Penrith campus.

This unique consecutive combination of an undergraduate Science degree and postgraduate teaching qualification will prepare you for a rewarding career in secondary teaching.

The first three years of study in the Bachelor of Science (Pathway to Teaching Primary/Secondary) will allow you to focus on a general science program of your choice, and to structure your units of study to gain the necessary learning areas to satisfy the NSW Education Standards Authority discipline knowledge requirements for entry into teaching.

You can select one of the Bachelor of Science programs in Biological Sciences, Chemistry, Environmental Science, Mathematical Science, Nutrition and Food Science (Food Technology major) or choose a more flexible program within the degree rules, including a major that is related to a secondary teaching discipline.

CORE UNITS AND ELECTIVES

To graduate with a Bachelor of Science (Pathway to Teaching Primary/Secondary), you will be required to complete 24 units. In the Bachelor of Science you will be required to complete at least six core units from the Bachelor of Science unit pool, which may include units in: Biology; Chemistry; Computing and Information Technology; Mathematics; Physics; and Integrated Science. You will also be required to complete a mandatory four-unit sub-major in Education Studies. Units in this sub-major may include: Learning and Creativity; Education in a Cosmopolitan Society and The Brain and Learning plus others.

Enrolment in a unit from the Indigenous Australian Studies major is available as part of the Education Studies sub-major. The Education Studies sub-major is offered on both the Penrith and Bankstown campuses with some units at Parramatta and online.

In addition to the key areas of study, relevant majors and sub-majors include: General Biology; Conservation Biology; Marine Biology; Biochemistry and Molecular Biology; Chemistry; Climate Change; Forensic Science; Mathematics; Microbiology; Zoology; Food Technology – Secondary Teaching; Immunology and Cell Biology; and Physics.

Please note that not all units are offered on all campuses, and that units on offer may vary from year to year. Please refer to the Sciences Area of Study brochure or visit **westernsydney.edu.au/future** for more information on the Bachelor of Science, including the units you may study and the career opportunities.

PROFESSIONAL RECOGNITION

Accreditation for secondary school teaching in both government and non-government schools in Australia and most other countries is achieved with completion of the Master of Teaching (Secondary) or, the Master of Teaching (Primary).

The Bachelor of Science (Chemistry) is accredited by The Royal Australian Chemical Institute Incorporated. Graduates of the Bachelor of Science (Mathematical Science) qualify for membership of the Australian Mathematical Society and the Statistical Society of Australia depending on the units studied. Graduates of the Bachelor of Science (Food Technology) would be qualified to become professional members of the Australian Institute of Food Science.

Depending on the units chosen within the Bachelor of Science (Biological Science), graduates can satisfy the requirements for membership of professional bodies such as the Australian Society for Microbiology and the Australian Institute of Biology. Graduates may also join other professional societies, such as the Australian Society for Biochemistry and Molecular Biology, Australian Biotechnology Organisation, Australian Society for Medical Research and the Royal Zoological Society.

You may combine a program with one or more majors or sub-majors, or choose various units instead of a specific program in Science. Completion of the Bachelor of Science (Pathway to Teaching Primary/Secondary) involves mandatory study in the Education Studies sub-major, taken as part of the elective strand in the Bachelor of Science. This four-unit sub-major provides an overarching introduction to the field of education and provides a sound basis for studies undertaken as part of the Master of Teaching (Primary), Master of Teaching (Secondary) or the Master of Teaching (Secondary) STEM.

You will need to consult with your Science Academic Course Advisor and take advice to ensure that your program of study meets the requirements of the NSW Education Standards Authortity document, Subject Content Requirements for Teaching in a NSW School (refer to **nswteachers.nsw.edu.au**).

A formal assessment demonstrating your suitability for teaching will be required on entry into the Master of Teaching course.

CAREER OPPORTUNITIES

As well as being equipped with all the necessary elements for initial teacher training, a Bachelor of Science (Pathway to Teaching Primary/Secondary) prepares students for a professional career in science. To enter the Master of Teaching course, you will be required to demonstrate your suitability for teaching.

Fundamental to this degree are the skills necessary for quantification and analysis, the capacity for critical analysis, problem solving and independent thinking.

Graduates will be prepared for a very wide range of employment opportunities in the sciences and related disciplines. Bachelor of Science graduates find employment in industry, research, forensics, patents, quality control, environmental analysis, scientific instrumentation, medical laboratories and technical management.

Bachelor of Medical Science (Advanced)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Medical Science (Advanced)	075674D	3682	March	Campbelltown	3F
	075674D	3682	March	Hawkesbury	3F
	075674D	3682	March	Parramatta	3F

Assumed knowledge: At least two units of Biology, Chemistry, Mathematics or Physics.
Key: B = Bachelor of; F = Full-time.

Our Advanced Medical Science degree allows all the flexibility of the Medical Science degree and is designed for high-achieving students who want to extend themselves.

This is a challenging program that includes advanced work, extension activities and additional research training. You will be linked to experienced researchers and be mentored throughout the Advanced Medical Science program.

To be eligible for admission to the Bachelor of Medical Science (Advanced) degree, a student must have attained a minimum ATAR of 90. Excellence in particular units may provide students with an opportunity to accelerate their studies. Students must maintain a Grade Point Average (GPA) greater than five to remain in the course; those who do not maintain this average will be transferred to the corresponding Bachelor of Medical Science. Students who do not meet the entry standards of Bachelor of Medical Science (Advanced), but who are offered a place in the Bachelor of Medical Science, may be invited to transfer into the Advanced program after first year depending on their GPA and the number of places available. At enrolment, students will be required to sign a declaration acknowledging the requirement to maintain a GPA greater than five.

For detailed information about the course structure and units, visit **westernsydney.edu.au/future**

MAJOR STUDIES

The Bachelor of Medical Science (Advanced Science) is one of a suite of three Advanced programs in the sciences, including the Bachelor of Science (Advanced) and Bachelor of Natural Science (Advanced). The Bachelor of Medical Science (Advanced) requires that students select one of the three majors below. This course then builds upon that framework by integrating research activities and other advanced studies related to the area of the major.

Biomedical Science: available at Campbelltown, Hawkesbury and Parramatta campuses.

The Biomedical Science major integrates medical microbiology, biochemistry, human metabolism, physiology, pathology and molecular biology as they affect the human body and its condition. Students may choose several pathways to achieve extra emphasis in specialised areas, such as immunology or human molecular biology. Students undertaking Concepts in Human Anatomy will be required to attend a minimum of two workshops at Campbelltown campus.

Medicinal Chemistry: available at Campbelltown, Hawkesbury and Parramatta campuses.

This major begins by building a foundation in chemistry, physiology, cell biology and anatomy, then develops into areas such as pharmacological chemistry, biochemistry, organic chemistry and advanced medicinal chemistry. It takes an integrated approach to the chemistry of drugs, disease and the human body. However, students on Hawkesbury campus will be required to attend laboratory sessions for a number of units at either Campbelltown or Parramatta campuses.

Anatomy and Physiology: available at Campbelltown, Parramatta and Hawkesbury campuses.

This major develops the fundamentals of chemistry and biology, then focuses on an advanced study of anatomy and physiology, extending into specialised areas such as neuroanatomy and anatomy of the head and neck. Flexibility allows a choice of increased emphasis on physiology or anatomy. However, students on Parramatta and Hawkesbury campuses will be required to attend laboratory sessions for a number of units at Campbelltown.

PROFESSIONAL RECOGNITION

Depending on your chosen major and electives, you may satisfy the requirements for admission to various professional bodies. Graduates with the Medicinal Chemistry major qualify for membership of the Royal Australian Chemical Institute.

CAREER OPPORTUNITIES

This course is designed to provide early training for a career in scientific research.

After further postgraduate research study, you may conduct research in:
- private industry
- universities
- national and international scientific organisations.

As a Medical Science graduate, you will have a variety of career options to choose from, including roles in:
- medical research
- hospitals
- pathology laboratories
- veterinary pathology laboratories
- pharmaceutical and cosmetics industries
- government health departments
- medical sales
- research and laboratory positions with organisations such as the CSIRO and the Australian Nuclear Science and Technology Organisation (ANSTO).

Rachel Brown

BACHELOR OF MEDICAL SCIENCE (ADVANCED)
ACADEMIC EXCELLENCE SCHOLARSHIP RECIPIENT

"The Advanced Medical Science course gives you valuable insights and experience, especially in the area of research. You will have the opportunity to work alongside academics and undertake a variety of research projects. The skills you learn are so adaptable they can be carried into any area."

Bachelor of Medical Science

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Medical Science	044792K	3673	March/July	Campbelltown	3F
	044792K	3673	March/July	Hawkesbury	3F
	04479K	3673	March/July	Parramatta	3F

Assumed knowledge: At least two units of Biology, Chemistry, Mathematics and Physics.
Key: B = Bachelor of; F = Full-time.

Covering a range of scientific disciplines, the Bachelor of Medical Science degree allows you to choose units that suit your career goals. If you are fascinated by the underlying science of medicine, and would like to pursue a career in medical research, hospital or pathology laboratories, the pharmaceutical or cosmetics industries, scientific sales or quality assurance, then consider Western Sydney University's Medical Science program.

MAJOR STUDIES

The degree allows you to undertake any of the Bachelor of Medical Science majors, including:

Biomedical Science: available at Campbelltown, Parramatta and Hawkesbury campuses.

The Biomedical Science major integrates medical microbiology, biochemistry, human metabolism, physiology, pathology and molecular biology as they affect the human body and its condition. Students may choose several pathways to achieve extra emphasis in specialised areas, such as immunology or human molecular biology. Students undertaking Concepts in Human Anatomy will be required to attend a minimum of two workshops at Campbelltown campus.

Medicinal Chemistry: available at Campbelltown, Parramatta and Hawkesbury campuses.

This major begins by building a foundation in chemistry, physiology, cell biology and anatomy, then develops into areas such as pharmacology, biochemistry, organic chemistry and advanced medicinal chemistry. It takes an integrated approach to the chemistry of drugs, disease and the human body. However, students on Hawkesbury campus will be required to attend laboratory sessions for a number of units at either Campbelltown or Parramatta campuses.

Anatomy and Physiology: available at Campbelltown, Parramatta and Hawkesbury campuses.

This major develops the fundamentals of chemistry and biology, then focuses on an advanced study of anatomy and physiology, extending into specialised areas such as neuroanatomy and anatomy of the head and neck. Flexibility allows a choice of increased emphasis on physiology or anatomy. However, students on Parramatta and Hawkesbury campuses will be required to attend laboratory sessions for a number of units at Campbelltown.

PROFESSIONAL RECOGNITION

Depending on your chosen major and electives, you may satisfy the requirements for admission to various professional bodies. Graduates with the Medicinal Chemistry major qualify for membership of the Royal Australian Chemical Institute.

CAREER OPPORTUNITIES

As a Medical Science graduate, you will have a variety of career options to choose from, including roles in:

- medical research
- hospitals
- pathology laboratories
- veterinary pathology laboratories
- pharmaceutical and cosmetics industries
- government health departments
- medical sales
- research and laboratory positions with organisations such as the CSIRO and the Australian Nuclear Science and Technology Organisation (ANSTO).

For detailed information about the course structure and units, visit **western sydney.edu.au/future**

Bachelor of Natural Science (Advanced)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Natural Science (Advanced)	075673E	3683	March	Hawkesbury	3F

Assumed knowledge: HSC Mathematics and at least two units of Biology, Chemistry and/or Physics.
Key: B = Bachelor of; F = Full-time.

Our world and its resources are under ever-increasing pressure, and we need new people with new ideas to address these challenges.

An Advanced degree in the Natural Sciences will enable you to understand these competing pressures and contribute to the development of sustainable strategies to drive change.

This is a challenging program that includes advanced coursework, extension activities and fundamental research training. You will be linked to experienced academic researchers and take part in the University's exciting research activities. The degree will allow you to undertake any of the Natural Science programs in Animal Science, or Environmental Management.

MAJOR STUDIES

At the beginning of first year, you will choose your area of specialisation and this will direct the particular units that are studied. It may be possible to change your specialisation later in the course.

There is a range of majors, such as Animal Science, Sustainable Agriculture and Food Security and Environmental Management.

There is also a range of sub-majors from other disciplines, such as the Arts, Business, Humanities and Social Sciences to choose from, although these may require cross-campus study and are subject to availability and timetabling.

A minimum ATAR of 90 is required for entry and you must maintain a Grade Point Average (GPA) greater than five to remain in the course. Those who do not maintain this average will be transferred to the corresponding Bachelor of Natural Science.

Those who do not meet the entry standards of the Bachelor of Natural Science (Advanced), but who are offered a place in the Bachelor of Natural Science, can transfer into the Advanced program after first year if they achieve a GPA greater than five and there are places available. At enrolment, students will be required to sign a declaration acknowledging the requirement to maintain a GPA greater than five.

For detailed information about the course structure and units, visit **westernsydney.edu.au/future**

CAREER OPPORTUNITIES

The Bachelor of Natural Science (Advanced) produces graduates who can work in a range of applied natural science disciplines related to our environment and rural sustainability. Specific career opportunities are outlined in the specialised course entries for Bachelor of Natural Science programs.

So whether you would like to work in the private or public sector, this program can open opportunities in:

- environmental science, management and health
- rural and urban development
- supply chain logistics
- animal science
- nature conservation
- land management
- public health and nutrition.

Bachelor of Natural Science (Animal Science)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Natural Science (Animal Science)	074711A	3670	March/July	Hawkesbury	3F

Assumed knowledge: Any two units of Mathematics and any two units of English.
Key: B = Bachelor of; F = Full-time.
Recommend studies: One unit of Biology, Chemistry, Geography, Earth and Environmental Science or Agriculture.

Interactions between people and animals are increasing as we become more dependent on animals for companionship and food production, and strive to understand the greater pressures being placed on our unique native wildlife.

A Bachelor of Natural Science (Animal Science) will enable you to develop a deep understanding of these issues, through studies of animal behaviour, animal health and welfare, animal nutrition, animal production, animal reproduction, human animal interactions, vertebrate biodiversity, and wildlife science.

You will have access to campus animal facilities including reptiles, marsupials, horses, sheep, cattle and deer, plus off-campus animal professionals and organisations such as wildlife parks, zoos, farms and horse studs. Students also have access to a wide range of electives that will allow entry into a variety of careers, including international opportunities in the many fields of animal science.

MAJOR STUDIES

The major units of study may include: Animal Behaviour; Animal Health and Welfare; Animal Nutrition; Animal Production; Animal Reproduction; Human Animal Interactions; Vertebrate Biodiversity; and Wildlife Science. There is a range of majors, such as Conservation Biology and Zoology, and sub-majors, including Sustainability, offered in Natural Science and Science that can add diversity and/or focus to your degree. There is also a range of sub-majors from other disciplines, such as the arts, business, humanities and social sciences to choose from, although these may require cross-campus study and are subject to availability and timetabling.

For detailed information about the course structure and units, visit **westernsydney.edu.au/future**

PRACTICAL EXPERIENCE

In the final year of study, our students undertake a real-world engaged learning project in a selected area of animal science. The project provides students with first-hand professional experience in project management and problem solving, and builds on the strong foundations established in their first two years of study.

PROFESSIONAL RECOGNITION

Depending on the units chosen, graduates are eligible to apply for membership of one or more professional societies, including the Royal Zoological Society of New South Wales, the Australasian Wildlife Management Society, the Australian Mammal Society, Australasian Wildlife Disease Association, the World Aquaculture Society and the Zoological Society of London, among others.

CAREER OPPORTUNITIES

Some examples of career opportunities include:

- manager, technical advisor or research officer in animal welfare agencies
- national parks and wildlife officer
- animal health and nutrition researcher
- wildlife ecologist
- manager of livestock production or breeding enterprise
- regulatory affairs concerning animal therapeutics or disease control.

Bachelor of Natural Science (Environmental Management)

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Natural Science (Environmental Management)	074712M	3671	March/July	Hawkesbury	3F

Assumed knowledge: Any two units of Science and English.
Key: B = Bachelor of; F = Full-time.

History has shown that if we don't effectively manage our environment, we will degrade it, possibly to the point where it can no longer sustain us. Environmental managers are concerned with ensuring the ecological sustainability of human development.

The Environmental Management degree at Western Sydney University is designed to develop our students' problem-solving skills, and to equip our graduates to work with community members and professional practitioners.

This work will be based on developing innovative policy and strategies that address the increasingly complex causes of today's environmental problems.

Issues include urban development, global climate change, persistent organic pollutants (POPs), decreasing biodiversity, and deteriorating air and water quality.

MAJOR STUDIES

The major units of study include: Assessment and Management of Aquatic Environments; Water Quality Assessment and Management; Introduction to Wildlife; Sustainable Land Use; Indigenous Land Management; Environmental Planning; Climate Change Science; Environmental Regulation and Policy; Environmental Risk Management; and Urban Development.

There is a range of majors, such as Aquatic and Conservation Biology, and sub-majors, such as Sustainability, offered in Natural Science and Science that can add diversity and/or focus to your degree. There is also a range of sub-majors from other disciplines, such as the Arts,Business,Humanities and Social Sciences to choose from, although these may require cross-campus study and are subject to availability and timetabling.

Previous completion of tertiary studies may qualify you for academic credit of up to 18 months, making this an attractive re-skilling option for graduates from other disciplines. For detailed information about the course structure and units, visit **westernsydney.edu.au/future**

PRACTICAL EXPERIENCE

In their final year of study, our students undertake a real-world project for a professional client in a selected area of environmental management. The project provides students with first-hand professional experience in project management and problem solving. Students also complete 10 weeks (or equivalent) of general placement.

PROFESSIONAL RECOGNITION

Our graduates are eligible for associate membership of Environmental Health Australia (EHA) and meet the academic requirements for membership of the Environment Institute of Australia and New Zealand (EIANZ).

CAREER OPPORTUNITIES

Some examples of career opportunities include roles in the new 'green collar' industries, such as:

- local and state government land and water management agencies
- private environmental consultancies
- waste management operations
- national parks and wildlife agencies
- rural fire service roles.

Professional responsibilities may include environmental protection, environmental auditing or environmental planning.

Bachelor of Sustainable Agriculture and Food Security

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Sustainable Agriculture and Food Security	089441F	3726	March/July	Hawkesbury	3F/6P

Assumed knowledge: Any two units of English and any two units of Mathematics.
Key: B = Bachelor of; F = Full-time; P = Part-time.
Note: Part-time refers to study load, not to timetabling of evening classes.

The Bachelor of Sustainable Agriculture and Food Security examines the food system through a uniquely transdisciplinary curriculum.

The contemporary content of the curriculum encourages you to view agriculture from the perspective of sustainable consumption and apply your learning toward the design of innovative solutions for a sustainable food future.

Opportunities are rapidly emerging for entrepreneurs to lead a new food future. Immersed in an approach that integrates social, economic and environmental values, you will view plant and animal production from consumer contexts to explore personal and community perceptions about food sustainability.

This innovative degree merges topics of agriculture, food and health to empower you to design solutions for international development, community education and the urban–rural interface. The course includes disciplines of sustainability science, social sciences and business studies.

MAJOR STUDIES

You may choose to major in Natural Science, Social Sciences or Business or choose a general pathway.

For detailed information about the course structure and units, visit **westernsydney.edu.au/future**

PRACTICAL EXPERIENCE

In their final year of study, students undertake a real-world project for a professional client. The project provides students with first-hand professional experience in project management and problem solving. Students will gain critical thinking skills and the ability to contribute innovative solutions to the complex challenge of future sustainable agriculture and food security.

CAREER OPPORTUNITIES

Examples include employment in a diverse range of agriculture and food-related organisations, in natural resource management, agricultural production, food security, public health and nutrition, and community development. You will also be prepared for roles in policy, communication, planning, and implementing programs across a broad domain, depending on the units chosen.

Graduates can find employment in corporations or environmental consulting companies, working in both federal and state government agencies, advising on agriculture, food and sustainability related issues, in local government in both urban and rural areas, and in non-government organisations, working both nationally and internationally.

After further postgraduate research study, you may conduct research in:
- private industry
- universities
- national and international scientific organisations.

Francis Arias

BACHELOR OF SUSTAINABLE AGRICULTURE AND FOOD SCIENCE

"Western Sydney University gave me the opportunity to study agriculture close to home. The course allows me to take units from different fields of study. This is beneficial as agriculture is not just about being in the field, but is a combination of skills."

Bachelor of Science/ Bachelor of Arts

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science/ B Arts	068791M	1808	March	Parramatta	4F

Assumed knowledge: At least two units of Biology, Chemistry, Mathematics and Physics.
Key: B = Bachelor of; F = Full-time.

This combined degree program is designed for those whose are interested in both the Arts and the Sciences. It produces versatile graduates who can work across a range of academic and professional disciplines, including the opportunity to develop global perspectives and communication skills in an Asian language.

In the Science component, you can design your own academic program within the Bachelor of Science course structure, which must include a Science major.

This qualification in Science can be combined with one of the following Majors: International Relations and Asian Studies; Cultural and Social Analysis; English; History and Political Thought; Philosophy; Indigenous Australian Studies; Arabic, Chinese; Japanese; Indonesian; Islamic studies: Linguisitics; Psychological Studies.

CORE UNITS AND ELECTIVES

To graduate with a Bachelor of Science/ Bachelor of Arts combined degree you will be required to complete 320 credit points (32 units) as prescribed in the course structure.

Note: At least 60 credit points must be at level 3 or above.

If you wish to exit this double degree after your third year and graduate with a Bachelor of Science you must have completed 240 credit points and completed the units as listed in years 1, 2 and 3.

To complete the Bachelor of Science portion of this double degree you must complete one of the Science majors listed in the first three years of study.

The design of this Bachelor of Science/ Bachelor of Arts double degree is as follows.

In years 1 to 3 you will complete 160 credit points of Bachelor of Science units as listed in the course structure.

In years 1 to 4 you will complete the four Bachelor of Arts (BA) core units, eight Bachelor of Arts major units from one of the following Bachelor of Arts majors and four Bachelor of Arts sub-major units from one of the sub-majors listed.

For more detailed information about the course structure and units, visit **westernsydney.edu.au/future**

CAREER OPPORTUNITIES

After graduating from the Bachelor of Science/Bachelor of Arts program, you will be qualified for a variety of careers in science, government, policy development and administration, teaching and research, including areas such as administration, business development, policy development, public service, human resources, social research and languages.

Bachelor of Science/Bachelor of International Studies

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science/ B International Studies	068793M	3660	March	Parramatta	4F

The following sets of Assumed Knowledge and Recommended Studies apply: Bachelor of Science - Assumed knowledge: At least two of Biology, Chemistry, Mathematics, Physics. Bachelor of International Studies - Assumed knowledge: Two units of HSC English at Band 4, Recommended studies: HSC English Standard, or equivalent.
Key: B = Bachelor of; F = Full-time.

This combined degree is designed for those who want to combine their interest and expertise in science with a sophisticated understanding of international issues and systems.

It will equip you to work in globalised science-based professions and industries. In the Science component, you can design your own academic program within the Bachelor of Science course structure, which must include a Science major.

This will be combined with a degree in International Studies that examines the relationships of societies, cultures, languages and systems of government within the international system.

It develops your capacity to analyse the historical development of relations among nation states and contemporary political, social and cultural issues, such as globalisation, transnationalism and migration.

You will complete a major in International Relations and Asian Studies, and a sub-major in an Asian language: Arabic, Chinese, Indonesian, or Japanese.

ACCREDITATION

The Bachelor of Science (Chemistry)/ Bachelor of International Studies is accredited by The Royal Australian Chemical Institute Incorporated (RACI).

CORE UNITS AND ELECTIVES

To graduate with a Bachelor of Science and Bachelor of International Studies, you will be required to successfully complete 320 credit points (32 units) as prescribed in the course structure.

Note: At least 60 credit points must be at level 3 or above.

If you wish to exit this combined degree after your third year and graduate with a Bachelor of Science, you must have completed 240 credit points and completed the units as listed below in years 1, 2 and 3.

If you are completing the Bachelor of Science portion of this double degree you must complete one of the Science majors listed, in the first three years of study.

The conceptual design of this double degree is as follows:
In years 1 to 3 you must complete 160 credit points of Bachelor of Science units as listed in the course structure.

In years 1 to 4 you will complete the four Bachelor of Science/Bachelor of International Studies core units and 12 Bachelor of International Studies units as offered on Parramatta campus only.

International Studies Component
International Relations and Asian Studies major and sub-majors are available in the Bachelor of International Studies component.

Bachelor of International Studies Units
For details of the relevant International Studies units, refer to the current listing of Bachelor of International Studies.

Science Component
Students must study 16 Science units following one of the following programs
- → Bachelor of Science (Biological Sciences)
- → Bachelor of Science (Chemistry)
- → Bachelor of Science (Mathematical Science)
- → Bachelor of Science.

Students following the Bachelor of Science program must choose five level 1 units within the following rules:
- → at least one mathematics or statistics unit
- → remaining units must cover at least two of the following scientific disciplines: chemistry, biology, physics, computing.

Students following the Bachelor of Science program must also complete at least one of the Science specialisations (majors):
- → Biochemistry and Molecular Biology
- → General Biology
- → Chemistry
- → Mathematics
- → And one level 3 capstone unit.

For more detailed information about the course structure and units, visit **westernsydney.edu.au/future**

CAREER OPPORTUNITIES

After graduating from the Bachelor of Science/Bachelor of International Relations program, you will be qualified for a variety of careers in scientific, business, government, policy development and administration, teaching and research, including areas such as administration, business development, policy development, public service, human resources, social research, translator, tourism, and marketing.

Bachelor of Science/Bachelor of Laws

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science/ B Laws	044703E	2743	March	Campbelltown	5F/10P
	044703E	2743	March	Parramatta	5F/10P

Key: B = Bachelor of; F = Full-time; P = Part-time.
Note: Part-time refers to study load, not to timetabling of evening classes.

The Bachelor of Science/Bachelor of Laws combined degree program at Western Sydney University allows our graduates to span both the legal and scientific worlds in a way that single degree graduates cannot.

It provides you with the capacity for critical analysis and independent thinking. The combined degrees permits you to undertake multi-skilling, and offers diverse career paths providing high marketability in multiple areas of expertise.

The Bachelor of Laws (LLB) provides students with professional legal skills including the ability to analyse legal material and understand fundamental legal principles; an understanding of the relationship between law and society; the skills to analyse and solve legal and non-legal problems and specialised study into the Australian legal system.

The science component gives you the skills necessary for quantification, and scientific problem solving.

ACCREDITATION

As a graduate from the Bachelor of Laws you are eligible to apply to the Legal Profession Admission Board for admission to legal practice in NSW after undertaking prescribed practical legal training. The Bachelor of Science (Chemistry) is accredited by the Royal Australian Chemical Institute (RACI) for normal entry of a graduate to the Chartered Chemist qualification.

CORE UNITS AND ELECTIVES

To graduate with a Bachelor of Science and Bachelor of Laws, you will be required to successfully complete 400 credit points, or 40 units listed in the recommended study sequences for the relevant double degree programs.

Note: At least 60 credit points must be at level 3 or above.

Science component
While undertaking the Science part of this combined degree you must follow the listed schedule of units, and complete one of the majors listed in the Western Handbook for the Bachelor of Science.

Provided this can be completed within the 16 Bachelor of Science units, you may graduate with a Bachelor of Science after three years.

Students in this course will be eligible to graduate with a Bachelor of Science degree on completion of all 24 units listed in the first three years of the relevant sequence below. It should be noted that this includes the eight specified Law units.

For the Science component of this double degree students must study 16 Science units of which a minimum of eight units must be from one of the Science majors:
→ Biochemistry and Molecular Biology
→ Chemistry
→ General Biology
→ Mathematics

Law component
You will only be eligible to graduate from the Bachelor of Law degree on completion of the entire 400 credit point course.

For more detailed information about the course structure and units, visit **westernsydney.edu.au/future**

CAREER OPPORTUNITIES

After graduating from the Bachelor of Science/Bachelor of Laws program, you will be qualified for a variety of careers in scientific, law, government, policy development and administration, teaching and research, including areas such as scientific law, policy development, public service, and legal services.

Bachelor of Science/Bachelor of Business

COURSE	CRICOS CODE	WS CODE	INTAKE	LOCATION	DURATION
B Science/ B Business	089207E	4748	March	Campbelltown	4F
	089207E	4748	March	Parramatta	4F

Key: B = Bachelor of; F = Full-time.

The Bachelor of Science/Bachelor of Business program allows you to span both the commercial and scientific worlds in a way that single degree graduates cannot.

The combined degrees permit you to undertake multi-skilling, and offers diverse career paths providing high marketability in multiple areas of expertise.

Our graduates have a solid grounding in a core Ccience disciplines, such as Biological Sciences, Chemistry or Mathematics. This qualification in Science is combined with one of the following majors from the Bachelor of Business: Applied Finance; Economics; Hospitality Management; Human Resource Management; International Business; Management; Marketing; Sport Management.

Our graduates will be equipped to work as scientists, with a good understanding of business principles and practices. Alternatively, as Business graduates they will be well-prepared to work in science-based industries and institutions.

ACCREDITATION

The Bachelor of Science (Chemistry) is accredited by The Royal Australian Chemical Institute (RACI). The Applied Finance Major satisfies the educational requirements for membership of the Financial Services Institute of Australasia (Finsia). The Human Resource Management Major is accredited with the Australian Human Resources Institute (AHRI). The Marketing Major satisfies the educational requirements for recognition as a Certified Practising Marketer and eligibility for membership of the Australian Marketing Institute (AMI).

CORE UNITS AND ELECTIVES

To graduate with the Bachelor of Science and Bachelor of Business combined degree, you will need to successfully complete 320 credit points as prescribed in the course structure.

Science Component
Students must complete 16 Science units in one of the programs listed below:
→ Bachelor of Science (Biological Sciences)
→ Bachelor of Science (Chemistry)
→ Bachelor of Science (Mathematical Science)
→ Bachelor of Science (Science – General).

Students following the Bachelor of Science (Science – General) program must complete all three parts listed below

Part 1: Five level 1 units within the following rules
→ At least one mathematics or statistics unit
→ Remaining units must cover at least two of the scientific disciplines of Chemistry, Biology, Physics and Computing

Part 2: At least one of the Science specialisations/majors:
→ Biochemistry and Molecular Biology
→ General Biology
→ Chemistry
→ Mathematics.

Part 3: One level 3 capstone unit

Consult the handbook entry for the Bachelor of Science degree course for further details about the science majors.

Business component
The four compulsory core units (40 credit points) that provide students with essential business knowledge are:
→ Enterprise Law
→ Financing Enterprises
→ Enterprise Innovation and Markets
→ Enterprise Leadership.

The professional units provide a focus on careers. Students are required to complete one unit from each of the four key focus areas: numeracy, career planning, innovation, and enterprise engagement, a total of 40 credit points. Students are advised to choose units that will support careers in one of three areas: Money (for majors in Applied Finance, Economics), Markets (for majors in Hospitality Management, International Business, Marketing, and Sport Management), Management (for majors in Human Resource Management, and Management).

Majors (Choose 80 credit points from one primary Business major.

Majors for Careers in Money
→ Applied Finance
→ Economics

Majors for Careers in Markets
→ Hospitality Management
→ International Business
→ Marketing
→ Sport Management

Majors for Careers in Management
→ Human Resource Management
→ Management

For more detailed information about the course structure and units, visit **westernsydney.edu.au/future**

CAREER OPPORTUNITIES

After graduating from the Bachelor of Science/Bachelor of Business program, you will be qualified for a variety of careers in scientific, business, government, policy development and administration, teaching and research, including areas such as administration, business development, policy development, public service, human resources, sport management, and marketing.

HOW TO APPLY

1. COURSE SELECTION

Check the entry requirements, campus, start dates, tuition fees and other costs.

westernsydney.edu.au/international/apply

westernsydney.edu.au/find_a_course
westernsydney.edu.au/fees

2. APPLY ONLINE

Upload all your supporting documents to the online International Application System. You will be given a unique student ID and login to check the progress of your application.

student-westernsydney.studylink.com

westernsydney.edu.au/applyonline (research applicants only)

3. APPLICATION ASSESSMENT

International Admissions Officers will assess your eligibility for admission to your preferred course and issue an offer online if you are eligible.

4. OFFER OF ADMISSION

Login to read your offer, the conditions (if any that you must satisfy) and all the important information about studying at the University.

westernsydney.edu.au/internationaloffer

5. ACCEPT YOUR OFFER

Sign the Acceptance Form and return it with your tuition fee payment to the University as instructed in your offer letter. Carefully read the refund terms.

westernsydney.edu.au/internationalaccept

westernsydney.edu.au/internationalrefund

6. STUDENT VISA

The University will issue your electronic Confirmation of Enrolment (eCOE). Use your eCOE to apply for your student visa.

westernsydney.edu.au/studentvisa

7. ACCOMMODATION AND AIRPORT PICK-UP

Arrange your accommodation and book your airport pick-up (if required)

westernsydney.edu.au/airportpickup

8. ENROLMENT AND CLASS TIMETABLE

You can enrol in the University from your home country before you travel to Australia. Create your class timetable after you enrol.

westernsydney.edu.au/enrol

westernsydney.edu.au/tutorialregistration

9. ORIENTATION

You must attend Orientation to get important information and advice to support your successful transition to study at University.

westernsydney.edu.au/international/orientation

westernsydney.edu.au/starting

FINANCIAL REQUIREMENTS

International students are required to have genuine access to sufficient funds while studying in Australia. Funds should be sufficient to contribute to the cost of travel, tuition, school costs for any dependants and living costs.
westernsydney.edu.au/international/fees

FURTHER INFORMATION

For further details about courses, including course structure, unit descriptions, work placement requirements (if applicable), visit **handbook.westernsydney.edu.au**

For information about studying at Western Sydney University, including assessment methods, course progression and attendance requirements, accommodation options, working and living in Australia, **visit westernsydney.edu.au/studyandlife**

DISCLAIMER

Western Sydney University reserves the right to withdraw or vary courses listed within this publication. In the event that the course or courses are to be changed, or in the event of cancellation, applicants will be advised to the address specified on their application.

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