

■ Undergraduate and TAFE

Science

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SWINBURNE
UNIVERSITY OF
TECHNOLOGY

swinburne.edu.au



BIOCHEMISTRY
BIOMEDICAL SCIENCES
BIOSCIENCES
BIOTECHNOLOGY
CHEMISTRY
HEALTH SCIENCE
LABORATORY TECHNOLOGY
MEDICAL BIOPHYSICS
MEDICAL TECHNOLOGY
PSYCHOPHYSIOLOGY

Put your curiosity to practical use

Scientific and technological knowledge is advancing at an unprecedented rate. Swinburne's science qualifications do more than simply keep up with the pace of this change – they can help you set the pace. By encouraging you to put your natural curiosity to practical use, we put you on a career path of inquiry and discovery.

Biology, chemistry, psychology – the list of disciplines in the field is a long one. This means you can branch out into the area that suits you best. In fact, you can branch out into industry areas you may not have even considered – financial firms, for instance, have recently begun to recruit top science graduates, valuing their understanding of technical innovation, logical thought processes and ability to interpret complex technical data and concepts and make considered conclusions.

A Swinburne course in science will provide the industry-relevant grounding you need before you enter the workforce. Our commitment to excellence in science teaching and research, helps us to attract quality staff with the skills and knowledge to set you on track to a satisfying career.

You may enjoy a career in science if you're interested in:

- one of the many disciplines broadly covered by science – biology, biosciences, biotechnology, chemistry, environmental health, mathematics and statistics, physics, or psychology and psychophysiology
- technology and technological change
- subjects and arguments based on reason and analysis
- understanding how things work
- discovering through inquiry and observation
- solving problems through experimentation
- finding concrete answers to your questions
- adding to collective knowledge
- human anatomy
- health sciences
- the human mind and human behaviour.

A Swinburne science course can help you to build your skills and knowledge in:

- essential scientific facts, as well as major scientific concepts, principles and theories
- deploying appropriate practical and presentation techniques and methodologies
- numeracy
- technology
- laboratory techniques
- human anatomy and physiology
- appreciating the moral, ethical and social elements associated with a scientific discipline.

Study abroad

Swinburne offers an extensive range of international study opportunities for both TAFE and degree students.

For more information visit www.swinburne.edu.au/abroad

First-rate facilities

Swinburne has invested in major developments at all of our campuses. For example, the new \$140 million Advanced Technologies Centre at our Hawthorn campus features state-of-the-art laboratories and research and education facilities, enhancing the study environment for science and technology students.

How we prepare you for your career

Swinburne works closely with industry groups to develop course content, which means we understand exactly what employers are looking for and can ensure the skills you learn are those employers want.

Our teachers are experienced in their industries and experts in their field, so you get the best possible chance to be skilled in the very qualities employers look for. What's more, our involvement with industry and constant monitoring of employment trends means our courses address skills shortage areas, meaning when you graduate you're likely to be highly employable.



Courses at a glance

KEY								
ATAR		PREREQUISITES		CAMPUSES		DURATION		APPLY
RC	Range of criteria	MATH	Mathematics	H	Hawthorn	Courses are full-time or part-time in years, unless specified as months.		V
				WP	Workplace	m	Months	D
						F	Full-time	VTAC
						P	Part-time	Direct

STUDY AREA	COURSE	ATAR	PREREQUISITES	CAMPUS	DURATION	APPLY	PAGE
SCIENCE – UNIVERSITY DEGREES							
Biochemistry and Chemistry	Bachelor of Science (Biochemistry and Chemistry)	73.05	20 in English (any) and in MATH (any)	H	3F 6P	D or V	7
Biomedical Sciences	Bachelor of Science (Biomedical Sciences)	70.20	20 in English (any) and in MATH (any)	H	3F 6P	D or V	7
Biosciences	Bachelor of Science (Biosciences)	70.20	20 in English (any) and in MATH (any)	H	3F 6P	D or V	8
Biotechnology	Bachelor of Science (Biotechnology)	73.05	20 in English (any) and in MATH (any)	H	3F 6P	D or V	8
	Bachelor of Science (Biotechnology)/Bachelor of Commerce	73.05	20 in English (any) and in MATH (any)	H	4F 8P	D or V	9
Chemistry	Bachelor of Science (Chemistry)	73.05	20 in English (any) and in MATH (any)	H	3F 6P	D or V	9
Medical Biophysics	Bachelor of Science (Medical Biophysics)	70.20	20 in English (any) and in MATH (any)	H	3F 6P	D or V	12
Medical Technology	Bachelor of Science (Medical Technology)	70.20	20 in English (any) and in MATH (any)	H	3F 6P	D or V	13
Psychology	Bachelor of Science (Psychology)	70.85	20 in English (any) and in MATH (any)	H	3F 6P	D or V	13
	Bachelor of Science (Psychology and Psychophysiology)	72.05	20 in English (any) and in MATH (any)	H	3F 6P	D or V	14
Public and Environmental Health	Bachelor of Health Science (Public and Environmental Health)	RC	20 in English (any) and in MATH (any)	H	3F 6P	D and V	14
Science	Bachelor of Science	66.15	20 in English (any) and in MATH (any)	H	3F 6P	D or V	15
Dean's Scholarship	Dean's Scholarship – Faculty of Life and Social Sciences	–	Minimum ATAR of 95.00	H	Varies	V	15
Vice-Chancellor's Scholarship	Vice-Chancellor's Scholarship – Information Technology/Science	–	Minimum ATAR of 97.00	H	Varies	V	15
SCIENCE – TAFE COURSES							
Bridging Science	Certificate IV in Science	RC	None	H	1F 2P	D or V	9
Laboratory Skills	Certificate III in Laboratory Skills	RC	None	H	6–9mF	D	10
Laboratory Technology	Diploma of Laboratory Technology	RC	VCE or mature age	H	2F 4P	D or V	10
	Diploma of Laboratory Technology specialising in Biotechnology	RC	VCE or mature age	H	2F 4P	D or V	10
	Diploma of Laboratory Technology specialising in Forensic and Pathology Testing	RC	VCE or mature age	H	2F 4P	D or V	11
	Diploma of Laboratory Technology/Diploma of Sustainability	RC	VCE or mature age	H	2F 4P	D or V	12
	Diploma of Laboratory Technology specialising in Biotechnology/Diploma of Sustainability	RC	VCE or mature age	H	2F 4P	D or V	12
Laboratory Technology – Management	Advanced Diploma of Laboratory Operations	RC	Diploma of Laboratory Technology or equivalent and employed in industry	H, WP	2P	D	11

University

Swinburne's personalised approach to learning puts you at the heart of everything we do. Our degrees give you the skills you need – not just the theory – so you'll have first-hand knowledge of what's needed when you start work. Our flexible course structure lets you shape your education to suit your own aspirations.

Swinburne's Professional Learning Model

Our Professional Learning Model lets you learn by doing and prepares you for professional life after university. We give you strong career skills, up-to-date knowledge of your chosen profession and as much exposure to the real world as possible as you study for your degree.

Flexible course structure

Our flexible course structure allows you to add depth and breadth to your degree, by letting you choose from an extensive range of subjects from different disciplines.

Majors

Most three-year degrees at Swinburne comprise 24 units of study. You undertake the majority of these units in your primary area of study, which becomes your major.

Your major allows you to broaden your knowledge in a particular area. The number of subjects in a major may vary between courses.

Minors

A minor is a set of subjects (shorter than a major) studied throughout a degree. The number of subjects in a minor may vary between courses.

Studying a minor will allow you to expand your career options by adding another area of expertise. You can also add depth to your qualification by studying units related to your major.

Elective units

The remaining units that make up your degree are called elective units, which you can use to explore related or non-related areas of interest.

Depending on your course structure and timetable availability, you may be able to use these units to complete a double major, a major and a minor, or a major with two minors.

Please note that some four-year degrees may not offer the same flexibility.

Summer and Winter terms

Swinburne's Summer and Winter terms give you the flexibility to spread out your study load to fit around your work and life commitments or finish your course sooner. You can also*:

- add breadth or depth to your degree by completing a minor
- undertake single units of study to explore areas of interest
- take a study tour to Kuching, Malaysia, home to Swinburne's Sarawak campus.

www.swinburne.edu.au/summer-winter

** Some of these options may not be available for all programs.*

Industry-Based Learning

Swinburne's Industry-Based Learning (IBL) program gives you real-world experience during your undergraduate degree. IBL is a six- or 12-month paid work placement in the industry you're interested in pursuing as a career path. It is an opportunity to gain real-life experience in your chosen field.

IBL gives you a distinct advantage over other graduates. Combining tertiary qualifications with practical experience can better prepare you for the opportunities and challenges of professional life, and allow you to develop practical skills and an understanding of how your chosen industry works.

Please note: IBL is not available to international students due to student visa conditions.

Final-year Capstone Projects

Capstone Projects are professionally focused, real-world team projects normally completed in your final year of study.

Capstone Projects give you a chance to identify your strengths and develop the skills you will need to succeed once you graduate.

www.future.swinburne.edu.au/capstone

Careers in the Curriculum

Swinburne's free Careers in the Curriculum program helps you develop your career-planning skills. You will develop a personal study and career plan and explore available job options, while also getting invaluable practical advice on job applications, résumé preparation and interviews.

www.future.swinburne.edu.au/careers



TAFE

Whether you are a young person preparing for your first job or an older person looking to re-train or take the first step in a career change, TAFE could be the right choice for you. TAFE courses help you to build the practical skills and technical expertise that make you employable.

At Swinburne, we offer TAFE practicality with the support of a top-ranking university environment. And with flexible study options including online, blended learning programs (a combination of on- and off-campus study), workplace delivery and part-time study, our TAFE courses can fit in with your life and work.

Choosing the right qualification

The course you choose depends on your current level of knowledge and what you want to achieve. It is also possible to pathway between levels as your skills and knowledge grow.

Foundation level

If you left school before completing Year 12 or missed out on the basics, a foundation course may suit you.

Certificate I and II

Courses at this level provide basic training in a specific industry area. The courses aim to get you started in an industry or provide the specific skills your employer wants. Many Certificate I and II courses are pre-apprenticeships.

Certificate III and IV

Certificate III and IV courses provide entry into various trades, traineeships or other jobs that require skills and knowledge beyond a basic level.

Diploma and advanced diploma

Courses at this level help you to progress to a university degree or get started in a paraprofessional job. Or they might give you the skills to get a promotion, or the confidence to handle increased expectations at work.

Preparation for your career

Swinburne's TAFE graduates are in demand by employers because they are industry ready. During your course, you'll work to real-world expectations, using the equipment and technology you'll encounter once you start your job.

All of our programs have work-based elements, which can include work placements and projects, work scenarios and simulations to ensure you are work ready.



University study skills

If you decide to progress from a TAFE diploma or advanced diploma course to a university degree, to help you make a successful transition Swinburne offers a program in Advanced University Study Skills. The program is designed to help you familiarise yourself with the typical study skills needed to best manage the pressures and challenges of degree-level study.

For more information visit www.swinburne.edu.au/uniskills



Pathways from TAFE to degree courses

Offering both TAFE and bachelor degree courses, Swinburne makes it easy to pathway from TAFE to a degree course while ensuring that you get the maximum benefit from your previous studies.

Guaranteed Entry Scheme

The Guaranteed Entry Scheme (GES) gives Swinburne diploma and advanced diploma students guaranteed entry into a selected range of Swinburne undergraduate degree courses. You'll receive credit for your studies, fast-tracking you into later stages of the degree.

Depending on the TAFE program you complete, you can choose from a selected range of undergraduate degrees. For a guide to the available degrees, see the table below, or for a full listing refer to www.swinburne.edu.au/ges

Pathways Direct

If you meet the entry requirements, you may be eligible to pathway into university via the Pathways Direct Scheme, which opens up a greater number of courses and specialisations to you. The level of credit granted depends on the relevance of your TAFE qualification to the degree program you are enrolling in. Refer to the table below for a guide to the maximum credit exemptions you may receive. Preference for entry into a degree course is given to those with a credit grade average (65% or above) and no fails in their final year of study.

Credit transfer

If you have completed a qualification at another Australian or international institution you may be eligible to receive credit and enter a degree with advanced standing. To find out if you are eligible, speak to an adviser on 1300 275 794.

KEY

H	Hawthorn
L	Lilydale
WP	Workplace
GES	Guaranteed Entry Scheme

TAFE COURSE	CAMPUS	UNIVERSITY DEGREE	CAMPUS	PATHWAY SCHEME	MAXIMUM UNIT EXEMPTION	MINIMUM TIME TO COMPLETE DEGREE
SCIENCE						
Advanced Diploma of Laboratory Operations	H, WP	Bachelor of Business	L	GES	12 units	1.5 yrs
		Bachelor of Science	H	GES	12 units	1.5 yrs
		Bachelor of Social Science	L	GES	12 units	1.5 yrs
Diploma of Laboratory Technology	H	Bachelor of Business	L	GES	8 units	2 yrs
		Bachelor of Commerce	H	GES	8 units	2 yrs
		Bachelor of Communication	L	GES	8 units	2 yrs
		Bachelor of Science	H	GES	8 units	2 yrs
		Bachelor of Social Science	L	GES	8 units	2 yrs

Note: This table is a guide only. Please see www.swinburne.edu.au/pathways for the most up-to-date information.

Course information

- T** TAFE course
- U** University degree

Biochemistry and Chemistry

Bachelor of Science (Biochemistry and Chemistry) **U**

Campus: Hawthorn

Duration: Three years full-time or equivalent part-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and in Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34241 (CSP), 34243 (IFP)

2011 Round 1 Clearly-in ATAR: 73.05

Biochemistry is put into action wherever an understanding of the molecular basis of biology is important – from nutrition and agriculture to medicine and psychology.

This program combines biochemistry (the study of molecules of life, their structure and role in the processes of animals, plants and microorganisms) with chemistry (the composition of substances and their properties and reactions). This combination examines how biochemical knowledge can be applied to a range of industries and medical investigations, focusing on practical skills, such as the culturing of microorganisms, to the investigation of complex molecules such as enzymes and DNA.

The program emphasises practical skills that are important to a range of medical, industrial, environmental and research applications. You will also learn skills in computing, teamwork, problem solving and communication, as well as the traditional skills of an analytical biochemist, microbiologist or chemist. Your projects will link you directly to industry and/or leading-edge research.

Swinburne also offers an honours (fourth) year for this program.

Major study areas

- Analytical chemistry
- Biotechnology
- DNA studies
- Environmental science
- Forensic science
- Genes and proteins
- Microbiology
- Molecular and cell biology

Career opportunities

Biochemists work in many areas, including medical research, environmental research, clinical biochemistry, biotechnology, microbiology, food production, agricultural biochemistry, beverage production, fermentation technology, pharmaceutical production, biomolecular research, protein engineering, wine science, waste treatment, biodegradation and bioremediation.

Professional recognition

The Royal Australian Chemical Institute has accredited this course for the purposes of professional recognition. You will also be eligible for membership of the Australian Society for Biochemistry and Molecular Biology, the Australian Society for Microbiology and the Australian Biotechnology Association.

Biomedical Sciences

Bachelor of Science (Biomedical Sciences) **U**

Campus: Hawthorn

Duration: Three years full-time or equivalent part-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34291 (CSP), 34293 (IFP)

2011 Round 1 Clearly-in ATAR: 70.20

This course puts the applications of biology-based sciences – such as anatomy and physiology – to medical use, particularly in health monitoring, treatment or related research.

The program blends chemistry, biochemistry, microbiology and human anatomy and physiology to provide you with a basic scientific understanding, as well as knowledge of the technology and modern instrumentation used in clinical care and monitoring environments such as analytical and research laboratories. You will study some of the functional aspects of the human body, but your major skills will lie in the building blocks of physiology.

Swinburne also offers an honours (fourth) year for this program.

Major study areas

- Chemistry
- Biochemistry
- Microbiology biotechnology
- Environmental biotechnology
- Anatomy and physiology
- Biological sciences
- Biomedical science
- Neurophysiology
- Cardiopulmonary physiology

Career opportunities

Career outcomes are focused on hospital laboratories, including intensive-care support and medical technologist positions in cardiovascular, respiratory and neurological medicine. Strong chemistry and biochemistry skills open up opportunities for work in various laboratories, including those requiring knowledge in molecular biology, biotechnology and environmental science disciplines. You may be called on to analyse metabolic disorders; perform blood, metabolic, genetic and tissue tests; or identify an infectious microorganism. Employment may also be found in the healthcare sector, medical equipment companies, the sport science area and some aspects of forensic science.

Course information

- T** TAFE course
- U** University degree

Biosciences

Bachelor of Science (Biosciences) **U**

Campus: Hawthorn

Duration: Three years full-time or equivalent part-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and in Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34291 (CSP), 34293 (IFP)

2011 Round 1 Clearly-in ATAR: 70.20

This course combines studies in chemistry, biochemistry, human physiology, microbiology and genetics. It provides you with theoretical and practical knowledge about the functional aspects of the human body. You will gain the required science skills to enable you to work in areas where human performance – both physical and cognitive – may be developed and analysed, as well as the knowledge and skills to work in the chemical, biochemical, medical and biomedical science areas. You may also focus your career on experimental procedures through your practical studies on biological sciences.

Swinburne also offers an honours (fourth) year for this program.

Major study areas

- Anatomy
- Biochemistry
- Biomedical science
- Exercise physiology
- Microbiology
- Neurophysiology
- Physiology

Career opportunities

Employment may be found in a wide variety of positions within the biomedical industry, including specialist laboratory work, expert and consultant roles, research, education and management. Biomedical scientists often work in hospital and university laboratories, pharmaceutical and product manufacturers, and various government departments.

Biotechnology

Bachelor of Science (Biotechnology) **U**

Campus: Hawthorn

Duration: Three years full-time or equivalent part-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and in Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34241 (CSP), 34243 (IFP)

2011 Round 1 Clearly-in ATAR: 73.05

Biotechnology is the applied science of using living organisms and their by-products for commercial development. Everyday items such as milk, beer, antibiotics, biodegradable plastics and biofuels are all biotechnology commodities. Many biotechnologists work with recombinant DNA, cell fusion, bio-processing techniques and environmental management.

In this program you will examine the fundamental sciences that underpin biotechnology – chemistry, biochemistry, microbiology and statistics – while developing applications of biotechnology to areas such as business, ethics and environmental science. You will have flexible options to take major studies in chemistry, environmental science or other areas by negotiation.

Swinburne also offers an honours (fourth) year for this program.

Major study areas

- Biochemistry
- Biotechnology
- Chemistry
- DNA studies
- Genes and proteins
- Microbiology
- Molecular and cell biology

Career opportunities

Biotechnology is a rapidly developing, globally focused industry in Australia, with strong government support for innovation. As a biotechnology graduate you can pursue an exciting career in a range of fields, including medical, environmental or biomolecular research, clinical biochemistry, food or beverage production, agricultural biochemistry, fermentation technology, wine science, pharmaceutical production, protein engineering, waste treatment, biodegradation, bioremediation, sales, marketing, business analysis and management in the biochemical/chemical industries.

Professional recognition

Graduates may apply for membership of the Australian Biotechnology Association, The Australian Society for Biochemistry and Molecular Biology, the Australian Society for Microbiology and the Royal Australian Chemical Institute.

Amy Distiller Bachelor of Science (Biotechnology)

“Swinburne’s smaller class sizes provided me with a seamless transition from high school to university, and allowed me more individual attention in laboratory classes (translating to better results and an increased confidence). I found the lecturers to be very approachable when it came to providing assistance with coursework or advice. It was really important to me to study at a university that placed a strong emphasis on the practical aspects of its courses, which Swinburne definitely does. As a science graduate I feel that I am highly regarded by employers, giving me a competitive advantage over other graduates.”



Biotechnology/Commerce

Bachelor of Science (Biotechnology)/ Bachelor of Commerce **U**

Campus: Hawthorn

Duration: Four years full-time or equivalent part-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and in Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34241 (CSP), 34243 (IFP)

2011 Round 1 Clearly-in ATAR: 73.05

This double degree gives you the opportunity to develop the skill sets of a biotechnologist while broadening your skills into the area of commerce. This course is ideal if you want to study biotechnology with a view to using that knowledge in a business venture, or as a biotechnology company employee who requires business skills.

Major study areas

- Business
- Biochemistry
- Biotechnology
- DNA studies
- Environmental science
- Finance
- Genes and proteins
- Microbiology

Career opportunities

You will be able to use scientific research and innovative skills to pursue a career in a range of fields such as medical, environmental or biomolecular research, clinical biochemistry, food or beverage production, agricultural biochemistry, fermentation technology, wine science, pharmaceutical production, protein engineering, waste treatment, biodegradation, bioremediation, sales, marketing, business analysis and management in the biochemical/chemical industries. You will also have the skills to create a new business enterprise or contribute to existing businesses.

Professional recognition

Graduates may apply for membership of the Australian Biotechnology Association, The Australian Society for Biochemistry and Molecular Biology and the Australian Society for Microbiology.

Bridging Science

Certificate IV in Science **T**

Campus: Hawthorn

Duration: One year full-time or equivalent part-time

Prerequisites: There are no formal entry requirements, apart from at least basic capability in literacy and numeracy

Application: Direct (all intakes) or VTAC (February start)

VTAC code: 77021 (VGF), 77024 (FTDP)

Through this course you will gain skills in the areas of mathematics, sciences, computing and communication. These skills may be needed to undertake further studies, to fulfil career aspirations or to improve employment opportunities.

Major study areas

- Mathematics and its applications
- Physics, biology, chemistry, genetics
- Introductory use of computers
- Building research skills and investigating science-based learning resources

Career opportunities

Graduates will have improved access to career fields such as applied science, information technology, engineering, nursing, paramedical and alternative medicine. In addition, graduates will be well prepared for further study.

The VTAC code indicates the fee type.

VGF: VET government-funded place

FTDP: Fee type determined by provider

CSP: Commonwealth supported place

IFP: International fee place

To find out which fee type you're eligible for, visit www.vtac.edu.au

Chemistry

Bachelor of Science (Chemistry) **U**

Campus: Hawthorn

Duration: Three years full-time or equivalent part-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and in Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34241 (CSP), 34243 (IFP)

2011 Round 1 Clearly-in ATAR: 73.05

Chemistry involves the fundamental study of how molecules react, as well as the applied study of how we can detect and use molecules. Chemistry is applied in a range of fields such as medicine, food production, cleaning products and environmental protection.

This course covers the far-reaching applications of chemistry including forensic science, polymer formation, water analysis, the creation of new materials, agricultural chemistry and environmental science.

Swinburne also offers an honours (fourth) year for this program.

Major study areas

- Analytical chemistry
- Biochemistry
- Biotechnology
- Chemistry
- Environmental chemistry
- Environmental science
- Forensic science
- Physiology

Career opportunities

Chemistry graduates are in high demand, and there are wide-ranging opportunities for chemists in industrial chemistry, chemical research and analysis, environmental and agricultural research, nanotechnology, pharmacy, food and drink technology, forensic science, the petrochemical industry, the pharmaceutical industry, quality control, water-quality analysis and the wine industry.

Professional recognition

Graduates can apply for membership of the Royal Australian Chemical Institute (RACI) and the Association of Professional Engineers and Scientists and Managers, Australia (APESMA).

Course information

- T** TAFE course
- U** University degree

Environment

See the Bachelor of Health Science (Public and Environmental Health) on page 14 or Bachelor of Science (Environmental Sustainability) in the Sustainability brochure.

Laboratory Skills

Certificate III in Laboratory Skills **T**

Campus: Hawthorn

Duration: Six to nine months full-time

Prerequisites: There are no formal entry requirements, apart from at least basic capability in literacy and numeracy

Application: Direct

You will be equipped with the skills and knowledge needed to safely handle chemicals, use basic laboratory equipment, follow procedures, work efficiently as an organised team member and perform directed duties within a laboratory-related workplace.

Major study areas

- Laboratory practices and work organisation
- Basic biological testing
- Basic chemical testing
- Data collection and processing
- Safe work practices and procedures in laboratories

Career opportunities

Entry-level positions in roles such as technical assistant, laboratory attendant and chemical process operator.

Laboratory Technology

Diploma of Laboratory Technology **T**

Campus: Hawthorn

Duration: Two years full-time or equivalent part-time

Prerequisites: Satisfactory completion of Year 12, or mature age with at least basic capability in literacy and numeracy

Application: Direct (all intakes) or VTAC (February start)

VTAC code: 77131 (VGF), 77134 (FTDP)

This general course provides scientific and technical education with a strong emphasis on the development of a range of practical skills for the biosciences workplace. Graduates will be competent in meeting the technological and administrative demands of laboratory work.

Specialist streams in biotechnology and in forensic and pathology testing to suit particular vocational outcomes are also available.

Major study areas

The major study areas include the following:

- Laboratory techniques and procedures
- Chemical and biological testing
- Microbiological and environmental testing
- Laboratory safety and instrumentation
- Data collection, processing and management
- Laboratory information management systems (LIMS)
- Industry regulation

Students may also complete additional studies in either biotechnology, or forensic and pathology testing.

Career opportunities

Employment may be found as a laboratory technician, technical officer or similar support staff to scientists in laboratory-related workplaces in manufacturing, research, education and testing.

Diploma of Laboratory Technology specialising in Biotechnology **T**

Campus: Hawthorn

Duration: Two years full-time or equivalent part-time

Prerequisites: Satisfactory completion of Year 12 or equivalent, or mature age with at least basic capability in literacy and numeracy

Application: Direct (all intakes) or VTAC (February start)

VTAC code: 77011 (VGF), 77014 (FTDP)

This course provides scientific education with a strong emphasis on the development of sound practical skills for the biotechnology sector.

Graduates will be competent in meeting the technological and administrative demands of biosciences laboratory support work in applied research and/or process or product development.

Major study areas

- Specialised testing methodologies: tissue culture, molecular biological techniques, microbiology, chromatography, spectrophotometry
- Data analysis
- Laboratory information management systems (LIMS)
- Quality assurance and continuous improvement
- Maintaining safe working conditions

Career opportunities


Employment may be found as a laboratory technician, technical officer or similar support staff to scientists in laboratory-related workplaces in manufacturing, research, education and testing.

Susan Andric
Diploma of Laboratory Technology

"My passion in life has always been solving problems and conducting research. Even back in high school my favourite subjects were always science ones like chemistry and biology, so I knew back then the direction I would be taking.

I undertook an internship at Cancer Trials Australia, where I performed the latest procedures and implemented everything I have learned through my training at TAFE. The internship is the highlight of all my academic achievements. The organisation has a reputation as a leader in its field, so it has been the best preparation for my career."



Diploma of Laboratory Technology
specialising in Forensic and
Pathology Testing 

Campus: Hawthorn

Duration: Two years full-time or
equivalent part-time

Prerequisites: Satisfactory completion of
Year 12 or equivalent, or mature age with at
least basic capability in literacy and numeracy

Application: Direct (all intakes) or VTAC
(February start)

VTAC code: 77371 (VGF), 77374 (FTDP)

You will develop the scientific knowledge and practical skills required for people intending to work in some areas of the forensic science and pathology testing industry. Graduates will be equipped for work in government agencies, paternity/maternity testing, and health/disease-related testing and monitoring.

Major study areas

- Laboratory techniques and procedures
- Scientific photography
- Clinical chemistry
- Drugs testing
- Haematology
- Data collection, processing and management
- Laboratory information management systems (LIMS)
- Industry regulation

Career opportunities

Employment may be found as a laboratory technician, technical officer or similar support staff to scientists in laboratory-related workplaces in manufacturing, research, education and testing.

**Laboratory Technology –
Management**

**Advanced Diploma of Laboratory
Operations **

Campus: Hawthorn, workplace

Duration: Two years part-time

Prerequisites: Diploma of Laboratory
Technology or demonstrated equivalent
competency. Applicants must also be employed
in a relevant field.

Application: Direct

You will develop the skills needed to work as a laboratory supervisor, senior technical officer or similar position.

Major study areas

- Quality assurance management
- Supervision within laboratories
- Data validity and management
- Other specialist electives directed at
workplace-specific roles

Career opportunities

Employment may be found as a senior technician, senior or chief technical officer, or laboratory manager.

**Industry-Based Learning
is available in most
degree programs.**

Visit www.swinburne.edu.au/ibl
for further information.

Course information

- T** TAFE course
- U** University degree

Laboratory Technology/ Sustainability

Diploma of Laboratory Technology/ Diploma of Sustainability **T**

Campus: Hawthorn

Duration: Two years full-time or equivalent part-time

Prerequisites: Satisfactory completion of Year 12 or equivalent, or mature age with at least basic capability in literacy and numeracy

Application: Direct (all intakes) or VTAC (February start)

VTAC code: 77141 (VGF), 77144 (FTDP)

Sustainability is increasingly being recognised as a core objective in both business and government. You will develop an understanding of sustainability issues as they relate to the sciences and will be able to apply principles of sustainability in laboratory work.

Major study areas

You have the option of specialising in testing methodologies (including tissue culture, molecular biological techniques, microbiology, chromatography and spectrophotometry) or in forensic and pathology testing methodologies (including clinical testing and instrumental analyses, haematology and histology). The core units in each stream cover the following areas:

- Data analysis
- Laboratory information management systems (LIMS)
- Quality assurance and continuous improvement
- Maintaining safe working conditions
- Communication and organisational skills

The sustainability units include:

- Sustainability principles
- Production and consumption
- Business planning
- Behaviour change theory and practice
- Triple bottom line

Career opportunities

Employment may be found as a laboratory technician, technical officer or similar support staff to scientists in laboratory-related workplaces in manufacturing, research, education and testing.

Diploma of Laboratory Technology specialising in Biotechnology/ Diploma of Sustainability **T**

Campus: Hawthorn

Duration: Two years full-time or equivalent part-time

Prerequisites: Satisfactory completion of Year 12 or equivalent, or mature age with at least basic capability in literacy and numeracy

Application: Direct (all intakes) or VTAC (February start)

VTAC code: 77191 (VGF), 77194 (FTDP)

Sustainability is increasingly being recognised as a core objective in both business and government. You will develop an understanding of sustainability issues as they relate to the sciences and will be able to apply principles of sustainability in laboratory work.

Major study areas

You have the option of specialising in testing methodologies (including tissue culture, molecular biological techniques, microbiology, chromatography and spectrophotometry) or in forensic and pathology testing methodologies (including clinical testing and instrumental analyses, haematology and histology). The core units in each stream cover the following areas:

- Data analysis
- Laboratory information management systems (LIMS)
- Quality assurance and continuous improvement
- Maintaining safe working conditions
- Communication and organisational skills

The sustainability units include:

- Sustainability principles
- Production and consumption
- Business planning
- Behaviour change theory and practice
- Triple bottom line

Career opportunities

Employment may be found as a laboratory technician, technical officer or similar support staff to scientists in laboratory-related workplaces in manufacturing, research, education and testing.

Medical Biophysics

Bachelor of Science (Medical Biophysics) **U**

Campus: Hawthorn

Duration: Three years full-time or equivalent part-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and in Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34291 (CSP), 34293 (IFP)
2011 Round 1 Clearly-in ATAR: 70.20

This high-calibre science degree brings together physics, technology and physiology to examine and analyse biological process of the human body. It specifically focuses on determining system function and explaining this in fundamental terms. This course includes engineering mathematics and medical electronics to enhance understanding of modern monitoring technology, which is then put into the context of human physiology, from cells to systems.

The program prepares you to work in a hospital as an interface between patients and instrumentation in areas such as medical imaging, neurology, intensive care, theatre, respiratory, and vascular and circulatory system function.

Swinburne also offers an honours (fourth) year for this program.

Major study areas

- Biophysics
- Physiology
- Neuroscience
- Medical imaging
- Physiological monitoring
- Mathematics
- Physics
- Electronics

Career opportunities

Biophysics prepares you for work in high-demand research, data modelling and analytical areas of hospital departments related to the measurement and analysis of human organ and system functions. Positions in medical electronics companies, human factors work and some sport science areas are also within the skill base.

Employment may also be found in hospitals and other organisations in roles focused on medical biophysics such as medical imaging specialists, research scientists, physiologists, applications specialists, skin scientists, enzymologists, neuroscientists, cancer research and pharmaceuticals research.

Medical Technology

Bachelor of Science (Medical Technology) **U**

Campus: Hawthorn

Duration: Three years part-time or equivalent full-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and in Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34291 (CSP), 34293 (IFP)

2011 Round 1 Clearly-in ATAR: 70.20

Medical technology saves and improves lives by detecting diseases earlier and by providing more effective treatment options. You will study the development and application of devices that are used in advanced medical imaging such as lung function, brain activity and intensive-care instrumentation.

The program focuses on applied knowledge and covers physiology, chemistry, biochemistry, introductory microbiology, molecular biology and genetics, medical instrumentation, neurophysiology, cardiorespiratory physiology, physics, electronics, sleep and attention.

Swinburne also offers an honours (fourth) year for this program.

Major study areas

- Biochemistry
- Biology
- Biotechnology
- Chemistry
- Physics
- Mathematics
- Physiology
- Programming

Career opportunities

Graduates will be prepared for work in a variety of medical science-related positions, particularly working in areas where there is a need to measure physiological parameters in both health and disease. Although it is possible to work in hospital departments, any area of human performance is also feasible, such as aspects of human factors and sport science. Laboratory work based on, or requiring, biotechnology, biochemistry and chemistry knowledge is also possible.

Psychology

Bachelor of Science (Psychology) **U**

Campus: Hawthorn

Duration: Three years full-time or equivalent part-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and in Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34451 (CSP)

2011 Round 1 Clearly-in ATAR: 70.85

Psychology provides knowledge and skills in a variety of study areas that will improve your ability to understand and explain human behaviour and relationships. This course allows you to combine psychology with science units.

The psychology major offers a broad introduction to a range of relevant studies, with more specialised study in developmental psychology, cognition, social psychology, personality, design and measurement, psychological measurement and abnormal psychology. You will complete a variety of research projects that develop critical real-world project management, research design and report-writing skills.

Major study areas

- Biochemistry
- Biology
- Chemistry
- Physiology
- Psychological assessment
- Abnormal psychology
- Cognitive and developmental psychology
- Personality and social psychology
- Research methods and statistics

Career opportunities

Psychology graduates are highly sought after in a range of human services positions. After completing a degree with a major in psychology, graduates can undertake a fourth year in psychology and further study in specialist areas of professional psychology such as counselling, health, clinical, organisational and sports psychology.

This course provides the first step to becoming a professional psychologist. With further studies, students can obtain qualifications to work in specialist areas of professional psychology such as clinical, counselling, forensic, health, neuropsychology, organisational and sports psychology.

Professional recognition

The three-year undergraduate sequence in psychology is accredited by the Australian Psychology Accreditation Council (APAC).

The VTAC code indicates the fee type.

VGF: VET government-funded place
FTDP: Fee type determined by provider
CSP: Commonwealth supported place
IFP: International fee place

To find out which fee type you're eligible for, visit www.vtac.edu.au

Course information

- T** TAFE course
- U** University degree

Psychology and Psychophysiology

Bachelor of Science (Psychology and Psychophysiology) **U**

Campus: Hawthorn

Duration: Three years full-time or equivalent part-time

Prerequisites: A study score of at least 20 in English (any) and Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34141 (CSP), 34143 (IFP)

2011 Round 1 Clearly-in ATAR: 72.05

This course is unique to Swinburne and offers students an undergraduate degree with major studies in psychology and psychophysiology, encompassing the fields of psychology and cognitive and behavioural neurosciences. You will learn about psychological theories, which will improve your ability to understand human behaviour and physiology, and provide extensive opportunities for application to real-life situations.

Psychology provides a scientific understanding of human behaviour with specialised study in social and personality psychology, psychological assessment, abnormal psychology and research methods. Psychophysiology emphasises the monitoring and measurement of physiological processes using biomedical instrumentation and relates this to behaviour and psychological states. You will complete a variety of research projects that develop critical real-world project management, research design and report-writing skills.

Major study areas

- Neurophysiology
- Developmental and social psychology
- Perception and motor systems
- Cognition and human performance
- Sleep and attention
- Higher cortical function
- Psychology of personality
- Abnormal psychology

Career opportunities

Graduates are equipped for employment in areas such as neurophysiological areas of hospitals, research areas of universities and research institutes, community health services and clinics, ergonomics and psychophysiology.

The psychology major provides the first step to becoming a professional psychologist. With further studies, students can obtain qualifications to work in specialist areas of professional psychology such as clinical, counselling, forensic, health, neuropsychology, cognitive neuroscience, organisational and sports psychology.

Professional recognition

The three-year undergraduate sequence in psychology is accredited by the Australian Psychology Accreditation Council (APAC). Swinburne also offers an APAC-accredited honours (fourth) year in psychology and an honours (fourth) year in psychophysiology.

Public and Environmental Health

Bachelor of Health Science (Public and Environmental Health) **U**

Campus: Hawthorn

Duration: Three years full-time or equivalent part-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and in Mathematics (any)

Application: VTAC and direct (both are required)

VTAC code: 34051 (CSP), 34053 (IFP)

2011 Round 1 Clearly-in ATAR: Range of criteria

Public and environmental health is concerned with protecting the environment and the health of the people living in it, and involves monitoring, assessing, correcting, controlling and educating as appropriate.

Areas of key importance in this field include food safety, disease prevention, environmental hazards management, noise assessment, and water and air quality, together with understanding the effects of the built environment, managing sustainability, disaster management and promoting health.

Throughout the program you will study social, physical and natural sciences, as well as law and business units. These will develop your biological, technological, legal and administrative skills, including planning, designing and implementing programs in community health, environmental protection, food safety, risk analysis and occupational health and safety.

Major study areas

- Biology and microbiology
- Chemistry (environmental)
- Environmental health and sustainability
- Food science, law, handling, quality management and safety
- Health sciences, policy and promotion and administration
- Law (public and environmental health)
- Occupational health and safety
- Public health
- Risk analysis and management

Career opportunities

Employment may be found with federal, state and local government authorities, and, increasingly, food waste and management industries and private consultancies. You will enjoy particularly high employability as an environmental health officer or obtain a position in policy development, health promotion, communicable disease investigation, sustainability or public and community health planning. You may also work with overseas health agencies, particularly in the area of disaster management.

Professional recognition

This degree is accredited by Environmental Health Australia, qualifying graduates to work in environmental health officer positions.

Industry-Based Learning is available in most degree programs.

Visit www.swinburne.edu.au/ibl for further information.

Hayley Carmichael
Bachelor of Health Science
(Public and Environmental Health)

“The Bachelor of Health Science course offered me a great mix of practical and theoretical experience. I was exposed to the day-to-day tasks of an environmental health officer during my Industry-Based Learning (IBL) placement at the City of Stonnington, which offered me an abundance of mentoring opportunities and experience. The IBL year was a great chance to put my learnt knowledge into practice, as well as giving me a well-earned break from my studies! I am now working as an environmental health officer at the City of Wodonga – a regional council that has opened my eyes to some very new and varied experiences.”



Science

Bachelor of Science **U**

Campus: Hawthorn

Duration: Three years full-time or equivalent part-time

Prerequisites: Units 3 and 4 – a study score of at least 20 in English (any) and in Mathematics (any)

Application: Direct (all intakes) or VTAC (Semester 1)

VTAC code: 34371 (CSP), 34373 (IFP)

2011 Round 1 Clearly-in ATAR: 66.15

This course provides students with a broad science overview with the ability to specialise in a field of their choice through a variety of science majors. The course aims to equip students with the skills, knowledge and key theoretical insights required to work effectively in an extensive range of professional scientific environments. A distinctive feature of the course is the practical application of knowledge through project-based units of study.

Drawing on the expertise of leading teachers, researchers and a variety of industry experts, the course allows students to tailor their own degree and develop a unique range of interdisciplinary skills.

Swinburne also offers an honours (fourth) year for most of the programs listed below.

Major study areas

Depending on your major study area(s), you can graduate with a Bachelor of Science or one of the following:

- Bachelor of Science (Biochemistry and Chemistry)
- Bachelor of Science (Biomedical Sciences)
- Bachelor of Science (Biosciences)
- Bachelor of Science (Biotechnology)
- Bachelor of Science (Chemistry)
- Bachelor of Science (Environmental Sustainability)*
- Bachelor of Science (Medical Biophysics)
- Bachelor of Science (Medical Technology)
- Bachelor of Science (Psychology)
- Bachelor of Science (Psychology and Psychophysiology)

* For more information, please see the Sustainability brochure or visit www.swinburne.edu.au/courses

Career outcomes

You will find a wide range of employment opportunities in science and technology, all of which will be determined by your major studies.

Professional recognition

All graduates may apply for membership of the Association of Professional Engineers, Scientists and Managers. Graduates with a biotechnology major may apply for membership of the Australian Society for Biochemistry and Molecular Biology (ASBMB). Graduates with a chemistry major may apply for membership of the Royal Australian Chemical Institute.

Dean's Scholarship

Dean's Scholarship – Faculty of Life and Social Sciences **U**

Campus: Hawthorn

See relevant course entry in this brochure for specific duration and prerequisite information.

Application: Students must apply through VTAC

VTAC code: 34891

Minimum ATAR: 95.00

Under this program, students may select a single bachelor degree in Science or Health Science offered at the Hawthorn campus.

Recipients will receive a waiver from student contribution payments for the duration of their course (subject to academic performance and other scholarship conditions).

Vice-Chancellor's Scholarship

Vice-Chancellor's Scholarship – Information Technology/Science **U**

Campus: Hawthorn

Please see individual course entries for specific duration and prerequisite information.

Application: Students must apply through VTAC. Students must also submit a supplementary application form.

VTAC code: 34621 (CSP)

Minimum ATAR: 97.00

Under this program, students may select a single or double degree in the information technology and science area and receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).

■ KEY DATES

21 August 2011
Swinburne Open Day
Hawthorn, Lilydale and Prahran
swinburne.edu.au/openday

16–21 December 2011
Change of Preference period
swinburne.edu.au/cop

■ ANY QUESTIONS?

1300 275 794
study@swinburne.edu.au
swinburne.edu.au



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swinburne.edu.au/twitter



swinburne.edu.au/youtube

■ CAMPUSES

Hawthorn campus
John Street, Hawthorn

Prahran campus
144 High Street, Prahran

Lilydale campus
Melba Avenue, Lilydale

Croydon campus
12–50 Norton Road, Croydon

Wantirna campus
369 Stud Road, Wantirna

Sarawak campus
Kuching, Sarawak, Malaysia



CRICOS Provider Code: 00111D

The information contained in this course guide was correct at the time of publication, July 2011.

The university reserves the right to alter or amend the material contained in this guide. The information in this guide does not apply to international students. For information about courses for international students please go to: www.international.swinburne.edu.au

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