Course Guide

2014

swinburne.edu.au
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Thinking about your future

Students come first at Swinburne. We equip our students with the knowledge and capabilities they need to establish successful careers through high-quality teaching, modern facilities and industry-engaged learning.

By increasing links with successful business and industry, and further developing international partnerships and collaborations, we ensure that our students can graduate with valuable and sought-after skills that help them enter and get ahead in the workforce.

Our rankings – top 400 in the world and top three in Melbourne by the 2012 Academic Ranking of World Universities – prove the success of our focus on and investment in research and research infrastructure. It is why we are leaders in science, technology, innovation, business and design.

In 2011 we opened the $140 million Advanced Technologies Centre, and we continue this investment in new teaching and research infrastructure with the opening in 2014 of the $100 million Advanced Manufacturing and Design Centre. The building will not only provide state-of-the-art facilities for students and researchers, but is emblematic of the study opportunities, innovative thinking and dynamic campus life on offer at Hawthorn.

We’re proud of the high quality of the education we offer our students and the value that a Swinburne degree delivers our graduates.

I hope to see you at Swinburne in 2014.

Professor Linda Kristjanson
Vice-Chancellor and President
Swinburne University of Technology
Raising the standard of education

We concentrate on an education that prepares you for work, to excel and grow. It’s an education closely aligned with employers’ needs that gets you up close and personal with the skills and concepts they demand. We make sure you’re taught by highly credentialed and experienced staff who have walked-the-walk – so you can, too.

Our academic staff are consistently recognised for their teaching excellence and outstanding contribution to student learning. Whichever course you choose, your learning experience can better prepare you for life after study.

With our range of scholarships, degrees, double degrees and pathways, there’s an option for everyone.

Flexible study options make it easy to fit study around your work and life commitments. Depending on your chosen course, you may be able to combine learning on and off campus, or study part-time or online.

Our courses provide opportunities for cross-disciplinary study and engagement. You might add units from a different study area to your degree or work with students from across the university on projects for real clients in industry.
Delivering employment-focused courses

Our course curriculum is designed with your career in mind. Your degree will offer the skills you need – not just the theory. You’ll gain up-to-date knowledge of your chosen profession and as much exposure to work environments as possible during your course.

Our approach is about helping you graduate with an immediate advantage in the job market. Many of our courses offer a range of major study areas from which you can choose to shape your degree. Often you can also incorporate units from different study areas to give your degree diversity and breadth.

Engage with industry

Industry advisers are active on our course panels, ensuring that what you learn now is relevant to employers in the future. Besides learning from teachers with industry experience, you’ll also have opportunities for paid work experience, industry placement and industry-engaged learning.

- Industry-Based Learning (IBL) gives you practical experience during your undergraduate degree. IBL is a six- or 12-month paid work placement in the industry in which you’re interested in pursuing a career. IBL gives you a distinct advantage over other graduates, allowing you to combine study with practical experience.

- Capstone Projects are professionally focused, practical team projects that engage students from across multiple disciplines in real challenges for local business, industry or the community. The diverse nature of these projects makes every experience unique. You could make valuable industry contacts, connect with an exciting community project or develop an industry solution that kick-starts your career.

- Internships form part of a number of degrees and can help you gain professional and practical skills in your chosen industry.

Visit www.swinburne.edu.au/iel

Add an international dimension to your course

The cultural experience of international study offers you a personal growth opportunity: to develop insight, communication skills and a depth of understanding. You can immerse yourself in a culture for one or two semesters through our International Exchange Program or internationalise your course in a short amount of time through one of our short-term programs.

Your international study experience is usually credited towards your course, and with a wide range of scholarships and travel grants, we make it easier to add an international dimension to your qualification.

Visit www.swinburne.edu.au/abroad
Industry placements offer obvious advantages to students; the workplace experience gained as part of their course makes graduates competitive in the job market and gives them confidence to step into professional careers. However, the benefits flow both ways. Businesses that engage with students often have their pick of top talent and are able to mould young employees to their corporate culture and business ethos. This in turn helps bridge the gap between academic research and commercial products to improve innovation in the market.

Fenwick Software, a Melbourne-based provider of ERP systems and consulting advice to the manufacturing, distribution and service industries, became involved with Swinburne’s Bachelor of Information Technology Industry Scholarship Program more than a decade ago. Since then it has provided sponsorship and placements to more than 30 students and employment to 15 – including CEO Greg Galloway. Another current staff member is Narada Ellis, named top student in his 2010 graduating year. Fenwick offered him a part-time job on the strength of his industry placement performance and full-time work when he completed his course.

‘Our people are business consultants as well as software engineers. They need to be articulate and affable and able to solve complex business problems, as well as having a detailed grasp of technology,’ says company chairman Peter Fenwick.

The scholarship program awards students about $40,000 over three years, sourced from a pool of contributions made by business sponsors. The intensive degree offers the equivalent of four years of study – including two five-month placements with sponsor organisations – compressed into three full calendar years. Sponsors and students attend regular meetings and professional development networking dinners. Sponsors, who include representatives of Accenture, ANZ, Deloitte, KPMG, NAB and Seek, have input into student selection and curriculum.

Andrew Ferguson, principal consultant and director at Fenwick Software, chairs the scholarship program and curriculum steering committee and is a member of Swinburne’s information and communication technologies industry advisory group.

In terms of Fenwick Software’s bottom line, Ferguson says the time and money invested in the relationship with Swinburne has a positive impact. ‘It can cost a business a lot if it recruits the wrong person. This program puts prospective employees in front of us and we can see how they perform on the job.’ The company’s retention rate, which averages 10-plus years, is high in an industry notorious for high staff turnover.

Industry engagement with the university also offers professional development benefits for staff of the sponsoring organisations. The flow of undergraduates and young graduates into their businesses challenges supervising employees to demonstrate leadership and mentoring skills.

John McPhee, Manager, Industry Engaged Learning with the Faculty of Information and Communication Technologies, says close collaboration between academic staff and employers is critical, especially in such a dynamic industry.

‘It keeps our programs fresh and is good for students,’ says McPhee. ‘Research shows that graduates with industry experience find jobs more quickly, gain more relevant and challenging jobs, and receive higher rates of pay. This course puts students on a fast-track to management.’

This is an edited version of an article published in Swinburne’s Venture magazine, issue one, 2012.
Enjoy study–life balance

Our Hawthorn campus is an exciting place to study. Located on the edge of Glenferrie Road, the range of facilities, services and local amenities help balance the demands of study with your personal commitments.

Getting here
Glenferrie train station is practically on campus, making it easy to get to and from the city and surrounding suburbs.

The Melbourne CBD is just 10 minutes away by train. There is also a tram along Glenferrie Road that can take you all the way to St Kilda beach. If public transport isn’t an option, there’s all-day, on-campus parking available, as well as off-campus ticketed parking.

Study in a relaxed environment in a convenient location
Our Hawthorn campus is set directly behind Glenferrie Road. This vibrant shopping hub includes laneways and arcades where you can get a great coffee, catch up with friends or find a quiet place to read.

There is a diverse choice of restaurants and cafés plus dozens of shops and boutiques, and a bookshop. Two supermarkets and a number of international grocers mean you’ll never have to go far for the essentials.

Visit www.swinburne.edu.au/aroundswinburne to find out about some of the places students love on and around our campus.

Get involved in clubs and events
The campus has a packed calendar of events and cultural activities – from free barbecues and lunchtime events to themed parties, balls and getaways. There are also lots of clubs and societies covering every social, religious, sporting, regional, political and cultural interest you can think of. There’s bound to be something for you and if not, you can always start your own!

There are gym facilities and personal training available (at student-friendly rates) right in the middle of the campus, plus several sporting clubs that you can join.

Check out our libraries and computer labs
As a Swinburne student you will have access to the extensive collection of resource material in our campus library. Resources available for student use include books, journals and electronic resources. The library also has workstations, computers, printers, scanners and photocopiers for student use.

Wireless network access at Swinburne means that you can turn on your laptop or mobile phone at any time, anywhere within the coverage areas, and have access to the internet and university network. The library also provides a Late Lab, which offers 24-hour, seven-day-a-week access.

Live on or off campus
From the Residential College to student apartments, to off-campus rooms and houses, there are a range of housing options available at Hawthorn.

Visit www.swinburne.edu.au/housing for all living options.

Residential College and Apartments
The 84-bed student Residential College provides a safe and supportive on-campus environment for first-year or international students. There are also 151 beds available in the two- and three-bedroom on-campus apartments, providing independent living for more senior students.

UniLodge @ Swinburne Place
The 125 UniLodge designer apartments are fully furnished, including a TV and modern kitchens with crockery and cutlery. There’s a common room with a pool table and televisions, a laundry and an outdoor barbecue area. The apartments have electronic keycard access and security camera CCTV surveillance.

UniLodge Vivida
The UniLodge Vivida complex comprises 194 fully furnished studio apartments. They feature ensuite bathrooms, security keycard access and CCTV surveillance, televisions and DVD players in each room, private balconies, air-conditioning and dishwashers (selected apartments only). Common facilities include a rooftop garden and barbecue area, and laundry facilities.

Other campuses
A range of vocational courses are also delivered at our campuses in Croydon and Wantirna. They offer studies in areas such as building, business, children’s services, community services, computing, engineering, horticulture, information technology, manufacturing, nursing and plumbing.
‘My lecturers and tutors have such extensive wisdom and experience, and can always provide real stories to support what we’re learning. Their teaching is oriented around preparing us for work in the industry and their passion for what they do is contagious.’

Freya
Bachelor of Design (Communication Design)/
Bachelor of Business (Marketing)
Your study experience

With a focus on you and your future, we invest in the facilities, technology and services to help you succeed in your studies.

Studying on campus can be an exciting and dynamic experience. You’ll have access to myriad opportunities, special events and activities.

Choose from a range of degrees and double degrees

Our three-year degrees generally comprise 24 units of study.

- Most of these units will focus on your primary area of study, which becomes your major. It allows you to deepen your knowledge in a particular area.
- 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 elective units to complete a double major, a major and a minor, or a major with two minors.

Double degrees are a great way to broaden your study experience and are highly respected by employers. Double degrees combine two areas of study, and on completion you will be awarded two degrees. The duration of a double degree is generally only one year longer than a single degree.

Pathway options

Swinburne offers a number of pathway opportunities that allow you to progress to a university degree. UniLink diplomas are an alternative to first-year university and provide a pathway into the second year of a bachelor degree. Alternatively, a vocational qualification could be the right choice for you, offering skills for work or credit towards further study.

Take advantage of our facilities and services

In addition to scheduled lectures and tutorials, you’ll need to spend time completing related readings, undertaking research and completing assignments. The on-campus library and computer labs provide resources and facilities for this work.

But with wi-fi connectivity across the campus and hotspots in many cafes beyond, your study experience doesn’t have to be limited to the library. There are plenty of additional places to study, including:
- the Project Hub
- The George building
- the Atrium
- the many cafes on and off campus.

You’ll also have access to a variety of student services, including:
- careers and employment
- counselling
- health
- housing
- disability
- financial advice
- legal advice
- child care.

My.Swinburne

The My.Swinburne portal provides all the information you need to stay informed about your study. It includes your class timetable, learning resources and links to a range of useful sites that make it easy to navigate the different aspects of your study needs.

The Blackboard system, available via My.Swinburne, provides access to announcements about your units of study and course material provided by lecturers and tutors. This may include course outlines or notes, audio recordings of lectures or information about assessment tasks. You may also be able to participate in blogs or wikis as part of your study.
Financial matters

Degrees, associate degrees and UniLink diplomas
When you commence study in a Commonwealth supported place (CSP), you must contribute towards the cost of your tuition. The amount you pay depends on which units you study and the payment method you choose.

Student contribution amounts and rules
To be eligible for a CSP you must be an Australian citizen, a New Zealand citizen or hold an Australian Permanent Resident Visa.

The student contribution is calculated based on the units of study that you enrol in. Each unit is assigned to a ‘band’ according to the subject area it comes from. The band tells us how much to charge for one Effective Full Time Student Load (EFTSL), equivalent to 100 credit points at Swinburne.

Most higher education units at Swinburne are 12.5 credit points (0.125 EFTSL), so to calculate the cost of a unit we multiply the contribution amount for that designated band by 0.125.

For example, the student contribution amount for a 12.5 credit point engineering unit of study would be $8363 \times 0.125 = $1045.38.

A typical three-year degree is made up of 24 units.

HECS-HELP
You may prefer to defer your student contribution by taking out a HECS-HELP loan. HECS-HELP is available to eligible students enrolled in a CSP. This loan can cover all or part of the student contribution amount. You are eligible for HECS-HELP if you are a Commonwealth supported student and an Australian citizen or the holder of a permanent humanitarian visa.

Under this option, the Commonwealth Government pays the loan amount directly to Swinburne. Then, when your salary reaches the minimum repayment threshold you will make compulsory repayments through the tax system.


2013 student contribution by band

<table>
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<tr>
<th>STUDENT CONTRIBUTION BAND*</th>
<th>2013 STUDENT CONTRIBUTION (PER EFTSL OR 100 CREDIT POINTS) **</th>
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</thead>
<tbody>
<tr>
<td>Band 3</td>
<td>Up to $9772</td>
</tr>
<tr>
<td>Accounting, administration, commerce, dentistry, economics, law, medicine, veterinary science</td>
<td></td>
</tr>
<tr>
<td>Band 2</td>
<td>Up to $8363</td>
</tr>
<tr>
<td>Agriculture, allied health, built environment, computing, engineering, mathematics, other health, science, statistics, surveying</td>
<td></td>
</tr>
<tr>
<td>Band 1</td>
<td>Up to $5868</td>
</tr>
<tr>
<td>Behavioural science, clinical psychology, education, foreign languages, humanities, nursing, social studies, visual and performing arts</td>
<td></td>
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</table>

* Individual units in a course can be classified in different bands. For example, a Bachelor of Design course may require some units that are classified as ‘computing’ (Band 2) and some as ‘visual and performing arts’ (Band 1).

** Fees are reviewed each year by the Commonwealth Government and may increase.

Note: This table is a guide only. Visit [www.studyassist.gov.au](http://www.studyassist.gov.au) for up-to-date student contribution bands.

Other expenses
As well as tuition fees, all students pay a student services and amenities fee. In 2013, the fee is $273 for a full-time student. Students who are unable to pay the fee up-front can defer all or part of the fee through an element of the Higher Education Loan Payment, known as SA-HELP. The fee contributes to funding student services such as childcare, counselling, legal and health services, and sport and recreation.

You will also need to cover costs such as textbooks, materials, art supplies or software for your course.

Accommodation and general living expenses will also vary depending on your chosen living arrangements.
Advanced diploma, diploma and certificate courses

Advanced diploma, diploma and certificate fees are made up of:
- tuition fee
- amenities fee of up to $216 per calendar year
- materials fee (some courses require you to purchase materials which you then own)
- ancillary fee (some courses have additional costs for excursions or club memberships).

This information relates to government-subsidised places. To be eligible for a government-subsidised place in 2014 you must meet the citizenship requirements and, depending on your age, the prior qualification requirement.


Concessions

To be eligible for concessions, you must hold a current Health Care Card (HCC), Pensioner Concession Card (PCC) or Veterans Gold Card, or be a dependent spouse or child of such a cardholder.

A current HCC or letter of eligibility for a HCC from Centrelink must be shown at the time of enrolment to receive a concession.

VET FEE-HELP

(Advanced diploma and diploma only)

VET FEE-HELP is a Commonwealth Government loan scheme through which you can defer the payment of your tuition fees. When your income reaches a certain repayment threshold the debt is repaid through the tax system. A loan fee of 20 per cent applies to VET FEE-HELP loans, except for those students who are eligible for a funded place. VET FEE-HELP does not cover the loan fee, any amenities or materials fees, accommodation or living expenses.


Full-fee places

If you do not meet the eligibility criteria for a government-subsidised place, there are full-fee paying places available.

TAFE tuition fees for students eligible for a government-subsidised place.
How to apply

Applications can be made through the Victorian Tertiary Admissions Centre (VTAC) or direct to Swinburne, depending on your course, when you want to commence and your preferred application method.

VTAC applications
VTAC applications are accepted for Semester 1 and should be submitted electronically via the VTAC website. Application fees apply.

The application period opens in August and closes in the last week of September. Late applications will be accepted by VTAC until mid December, but some programs that have special requirements will not accept late applications.

The VTAC system allows you to preference up to 12 courses in your application.
Visit www.vtac.edu.au

Change of Preference
You can change your original VTAC application course preferences during the Change of Preference period in December.
See the current VTAC Guide or VTAC website for exact dates and details.

Direct applications
Direct applications can be accepted for all intakes. Applying directly offers more certainty and less stress for those applying for highly competitive courses.
Visit www.swinburne.edu.au/apply to download the application form or apply online.

Apprenticeships and traineeships applications
To apply for an apprenticeship or traineeship you must first find an employer who will take you on as an apprentice or trainee and arrange your training agreement.
Visit www.swinburne.edu.au/apprenticeships

Special Entry Access Scheme
Swinburne participates in the Special Entry Access Scheme (SEAS) for VTAC applicants who have been unable to reach their full educational potential or who have restricted access to the course of their choice because of their life circumstances.
Visit www.swinburne.edu.au/seas

Deferring
Once you have accepted your offer you can apply to defer your studies for up to two years.
Visit www.swinburne.edu.au/deferment

Non-Year 12 applicants
As a non-Year 12 student your application will be considered on a broad range of factors, including previous studies, work experience and any extra requirements specified for the course.

For entry into an undergraduate degree, at least one of the following must be completed:

- Year 12
- Certificate IV, diploma or advanced diploma.

Particular degrees may also require you to sit a Special Tertiary Admissions Test.
Visit www.swinburne.edu.au/stat

Entry requirements for certificates, diplomas and advanced diplomas vary.
Visit www.swinburne.edu.au/courses or see the relevant course brochure for details.

International students
International students (including Temporary or Provisional Residents and holders of Temporary Protection Visas) applying to study at a Swinburne campus in Australia should contact Swinburne International.
1800 897 973 (within Australia)
international@swinburne.edu.au
www.swinburne.edu.au/international

Application methods

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<th>Course Type</th>
<th>Semester 1/March Intake</th>
<th>Other Intakes</th>
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<tbody>
<tr>
<td>Bachelor degree</td>
<td>Direct application or VTAC</td>
<td>Direct application</td>
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<tr>
<td>Associate degree</td>
<td>Direct application or VTAC</td>
<td>Direct application</td>
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<tr>
<td>UniLink diploma</td>
<td>Direct application or VTAC</td>
<td>Direct application</td>
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<tr>
<td>Certificate IV, diploma, advanced diploma (full-time)</td>
<td>Direct application or VTAC</td>
<td>Direct application</td>
</tr>
<tr>
<td>Certificate IV, diploma, advanced diploma (part-time)</td>
<td>Direct application</td>
<td>Direct application</td>
</tr>
<tr>
<td>Certificate III and below</td>
<td>Direct application</td>
<td>Direct application</td>
</tr>
<tr>
<td>Apprenticeships and traineeships</td>
<td>Find a job and register*</td>
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Note: Some courses require supplementary application forms or have special application requirements.
## Course information

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</table>
‘My course provides me with flexibility – there is an amazing range of subjects, which means I can learn about more than just one area of study. I’ve decided to major in digital media and I’m gaining additional skills and knowledge through my Industry-Based Learning placement.’

Adila
Bachelor of Arts
Arts and Social Sciences

Studying arts and social sciences is a great choice if you’re interested in discovering why different things drive different people, learning about human interaction and behaviour, or exploring the connections between social science and communication. Whether through literature, politics or health, you’ll examine people and their environments, and gain the research, analytical and communication skills to build a career.

Our arts and social sciences courses offer depth and breadth of choice, ensuring that you will learn to see societies from a range of perspectives. You’ll develop the types of skills employers look for, such as critical thinking, decision-making and research, enabling you to get ahead in professional work environments.

Choose majors to suit your career direction

Our new arts majors are designed to help you tackle international issues and make a difference worldwide:

- criminology and forensic science
- international studies, including Italian and Japanese language studies
- security and counter terrorism, incorporating studies in diplomacy and politics
- professional writing and editing.

Make connections with industry

Your arts and social sciences degree can take you beyond the classroom to engage with industry and better prepare you for your career.

Swinburne’s Industry-Based Learning (IBL) program gives you practical experience during a six- or 12-month paid work placement. Your degree in arts and social sciences could lead to an IBL placement where you write and publish newspaper articles or press releases, conduct interviews on camera, organise events or contribute to marketing campaigns.

Capstone Projects engage students from across multiple disciplines and expose you to the kinds of collaborative environments you might experience in the workplace. You could contribute to an industry or community project, competition submission, research-based project or internally developed project.

Your interests:

- the media
- understanding what motivates people
- writing
- blogging, the internet and social media
- social justice
- social groups and interactions
- the human mind and human behaviour
- history
- politics
- philosophy
- researching ideas and theories.

Possible careers:

- advertising coordinator
- art director
- community worker
- copywriter
- criminologist
- editor
- journalist
- marketing professional
- media officer
- psychologist
- social worker
- sociologist
- teacher
- writer.
Bachelor of Arts

This degree provides students with a range of options for gaining a general understanding of contemporary social and cultural developments, as well as specialised knowledge in their chosen area(s) of study.

The course allows students to acquire a unique range of interdisciplinary skills through the practical application of theoretical knowledge and through the development of lifelong learning skills with a global and multidisciplinary awareness. They develop analytical, critical thinking, communication and research skills that will facilitate their personal and professional development. This flexibility equips students for a wide range of careers.

Students develop their capacity for critical analysis, creativity and problem-solving, as well as a thorough understanding of the relationship between theory, research and practice. They may engage in industry, community and/or research-based projects, as well as practical case studies and scenarios. Each study area emphasises problem-solving skills to prepare graduates to analyse problems, identify possible solutions and make well-informed decisions beyond the classroom.

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

Study abroad opportunities

Students are encouraged to participate in study tours and international exchange programs to broaden their understanding in a global context.

Career opportunities

Graduates are equipped for professional careers in their area of specialisation, including policy analysis and development, research, community development, administration, public relations, publishing, media, social management, journalism, psychology, internet and digital marketing, and writing.

Professional recognition

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

Major study areas*

Criminology and forensic science

Explore studies in psychology, statistics and forensic psychology. Learn about the theory and practice of criminology, policing and corrections. Undertake advanced studies in forensic psychology.

Cultural studies

Learn about the nature of culture and its transformations. Gain an understanding of the theoretical debates taking place within cultural studies. Complete units addressing literature and film as cultural phenomena; cultural politics; the problematic relationship between cultures in a globalised world; the problems associated with the disintegration of traditional cultures and the search for new foundations for beliefs; and science and philosophy as cultural phenomena.

Digital media

Digital media and marketing

Gain a comprehensive understanding of the applied and creative aspects of digital media production through practical skills and creative techniques, as well as a solid theoretical foundation. Combine digital media studies with comprehensive skills in the principles and practice of marketing. Learn about the relevant areas of web development, video production, audio production, digital imaging, experience design, information architecture, 3D modelling, interactive narrative and multimedia technology.

Games and interactivity

Learn about the role of games in contemporary society and how games are developing as a cultural industry. Develop a portfolio of analog and digital game projects and develop practical and creative research and communication skills in a games lab environment.

International studies

International studies and international business

Prepare for a range of professions in an increasingly globalised world. Learn about the political, cultural, economic and social contexts of global issues. Engage in a range of disciplines, including politics, studies in security and counter terrorism, sociology, philosophy, history, international business and languages. Develop a core understanding of global issues and relations in an international business context.

International studies and Chinese

International studies and Italian

International studies and Japanese

Explore the political, cultural, economic and social contexts of global issues. Study the structure, grammar, phonetics and phonology of a language at beginner or advanced level. Note: Advanced-level language studies are only available for Italian and Japanese.

Journalism

Combine traditional journalistic skills with online publishing, multimedia production and the skills required for interacting with audiences, social networking and building online communities. Publish and broadcast work in online, television, radio and print outlets.

Literature

Learn about how people relate to and make sense of the world through writing. Consider literary works from a variety of historical periods, ranging from the Renaissance to 20th-century cyber culture. Explore the changing nature of culture as we move into the information age.

Media

Media and communication

Gain an understanding of the key theories that help explain the pivotal role the media has come to play in society. Learn about how media is evolving by examining issues such as ownership, control of the media and the impact of new media technologies on society. Become prepared for both traditional and emerging media roles.

Philosophy

Gain an understanding of the main philosophical themes and thinkers that have shaped our contemporary world view. Develop critical and creative reasoning skills. Undertake studies in environmental philosophy, ethics, philosophical psychology, political philosophy and the history of ideas.

Politics and public policy

Explore politics through contemporary and historical perspectives to examine the diverse nature of power in local, national and global contexts. Learn about national and international politics, comparative political systems, Australia’s engagement with the Asia-Pacific region, international relations, nation-building, making public policy, political and social history, war, security and counter-terrorism, freedom and democracy, and human rights.

Professional writing and editing

Develop practical skills in writing and editing in the professional sphere. Learn how to structure and develop text. Gain an understanding of industry laws and regulations, as well as writing and editing skills for novels, non-fiction, scripts, screen-writing, advertising and the web.

Psychology

Gain the knowledge and skills to understand and explain human behaviour and relationships. Undertake specialised study in developmental psychology, cognition, social psychology, personality, design and measurement, psychological measurement and abnormal psychology.

Psychology and forensic science

Gain specialist knowledge about the application of psychology to aspects of the law, the justice system and forensic science. Learn statistical skills relevant to forensic issues.

Psychology and psychophysiology

Psychophysiology

Discover the fields of psychology and cognitive and behavioural neurosciences and explore the relationship between physiological and psychological processes. Learn about the use of biological recording technology relevant to the study of cognition and behaviour. Undertake units in sociology and philosophy.
**Psychology and sport science**
Gain an understanding of the application of psychology to sport. Learn about the influence of psychological factors on involvement and performance in a sports setting, the use of statistical techniques to evaluate sports performance and make predictions, the interaction between sport and social relationships, and the psychological factors that influence group and individual sport and exercise.

**Security and counter terrorism**
Develop knowledge about international security, terrorism and counter terrorism in the context of understanding and developing peaceful resolutions to world conflict. Learn about sources of world conflict and resolution; security, intelligence, terrorism and espionage; the history and politics of human rights; international politics; and Australian foreign policy.

**Sociology**
Become prepared for a career in research, government, non-profit organisations and other human-focused fields. Gain research skills and learn about research design and qualitative research methods. Design and carry out original research and learn skills in project management and report writing.

**Sustainability management**
Examine the concept of sustainability using case studies that explore the relationships between social, economic and environmental systems. Analyse historical, sociological and philosophical processes. Develop the skills to manage sustainable outcomes in public policy and private business. Undertake units in philosophy, sociology, science, and politics and public policy.

*Studies in applied statistics may also be available.

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**Scholarships**

- **Dean’s Scholarship – Faculty of Life and Social Sciences**
  In this program students may select a single bachelor degree in the arts or social sciences area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).

- **Vice-Chancellor’s Scholarship – Arts and Social Sciences**
  In this program students may select a single or double degree in the arts and social sciences area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).


**Other courses**

- Bachelor of Social Science
- **Double degrees**
  - Business/Social Science
  - Commerce/Arts (Italian)
  - Commerce/Arts (Japanese)
- **Online study**
  - Bachelor of Social Science (Criminology and Forensic Science)
  - Bachelor of Social Science (Security and Counter Terrorism)

**Vocational training**
Vocational training courses provide hands-on learning and may offer a pathway to further study.

- Diploma of Library and Information Services
- Diploma of Professional Writing and Editing
- Certificate IV in Liberal Arts
- Certificate IV in Professional Writing and Editing

Visit [www.swinburne.edu.au/courses](http://www.swinburne.edu.au/courses)
Aviation

Aviation is an evolving industry at the forefront of technology and business. Whether you’re interested in flying commercial aircraft or managing operations on the ground, we offer courses that pave the way to a successful career.

Aviation Simulation Laboratory

As an aviation student, you may have the opportunity to try your hand at our flight simulators. There are two available – Victoria’s only Redbird flight simulator, which is used to simulate a range of aircraft, and Australia’s only FlyIt Professional Helicopter Simulator, capable of simulating six types of helicopter.

The flight simulators are used to investigate issues such as pilot fatigue and inexperience, and the impact of adverse weather on aviation operations.

Study a course reviewed by industry

The Swinburne Aviation Industry Advisory Committee reviews content of undergraduate aviation courses and ensures that they are relevant to the changing needs of the industry. Committee members include senior executives from the aviation industry, within Australia and overseas.

Undertake an honours year

The Bachelor of Aviation (Honours) program is an additional (fourth) year following the Bachelor of Aviation or Bachelor of Aviation (Management) degrees. It is designed to provide initial preparation for postgraduate study by research, with a focus on developing your research abilities and communication skills. You will require a credit average or above in stage three (usually third year) units.

Add an international edge to your course

Every two years eligible undergraduate students can participate in the aviation international study tour. The tour is a three- to four-week fully escorted tour visiting major aviation facilities around the world, including airports, airlines, aircraft and engine manufacturers, regulators, museums, fuel companies and aviation systems operations. The tour is an accredited elective unit of the course.

Your interests:
- the airline industry
- flying
- management and safety.

Possible careers:
- airport/airline management
- airworthiness inspector
- compliance officer
- flight crew
- flight dispatcher
- general aviation pilot
- network analyst
- safety analyst.
Featured courses

» Bachelor of Aviation
This course equips students for a professional career as a commercial pilot. Students undertake their professional pilot training program at CAE Oxford Aviation Academy (COAA). They complete the theory units required by Civil Aviation Safety Authority (CASA) up to and including Air Transport Pilot Licence (ATPL) standard, as well as studies in aviation human factors, aviation management and aviation technology.

Course structure
First-year studies introduce students to the structure and operation of the aviation industry. Students undertake flying training at COAA three days per week and attend classes at the Hawthorn campus two days per week.
In their second year of study students develop practical managerial and analytical skills and capabilities. This enables a deeper understanding of operations and decision-making processes. Students also continue their flying training to complete their CPL and MCIR qualifications.
In their final year of study students complete units that help them bring together aviation concepts by applying knowledge and skills to a major industry-based research project.
Swinburne also offers an honours (fourth) year for this degree.

Major study areas
Students obtain a number of qualifications:
- Commercial Pilot Licence (CPL)
- Multi-engine Command Instrument Rating (MCIR)
- Multi Crew Cooperation and Jet Orientation Course or Flight Instructor Rating
- Frozen Air Transport Pilot Licence (ATPL).
The course also introduces students to:
- aerodynamics and jet aircraft performance
- aircraft design and operations
- airline operations
- airspace management and air traffic services
- aviation business management
- aviation human factors and safety management systems.

Fees
In addition to course fees, students undertaking flying training must pay flying training fees.

Career opportunities
Graduates will be able to pursue a professional career as a pilot in the general aviation sector or via accelerated entry to an airline pilot cadet scheme. The broad aviation knowledge obtained through this course will also prepare graduates for roles in management within the aviation industry.

Professional recognition
This course is designed to take graduates beyond the requirements for the Civil Aviation Safety Authority (CASA) Air Transport Pilot Licence (ATPL) theory examination, and Commercial Pilot Licence (CPL(A)) and Multi-engine Command Instrument Rating (MCIR) practical tests.

» Bachelor of Aviation (Management)
Many careers in the aviation industry are in the operational areas. This course is designed for those who seek a management role in the aviation industry in Australia or overseas. Students gain a professional understanding of the aviation industry and its associated environment, and skills in organisational, regulatory, safety, technical and business management.

This course has been developed with input from industry professionals and focuses on trends shaping the aviation industry today.

Course structure
First-year studies introduce students to the structure and operation of the aviation industry. Students are prepared for further study via units in human factors and the aviation industry.
In their second year of study students develop practical managerial and analytical skills and capabilities. This enables a deeper understanding of operations and decision-making processes.
In their final year of study students complete units that help them bring together aviation concepts by applying knowledge and skills to a major industry-based research project.
Swinburne also offers an honours (fourth) year for this degree.

Major study areas
- Aircraft maintenance, design and operations
- Aircraft planning, operation and management
- Airline operations
- Airport management, airspace management and air traffic services
- Aviation business management
- Aviation human factors and safety management systems
- Aviation law
- Aviation marketing
- Flight planning and performance
- Project management

Career opportunities
Graduates will have the professional skills to work in a diverse range of specialist areas in airlines, airports, regulatory authorities and associated organisations. They may find roles in airline management, airports and ground operations, airport planning, aviation consultancy firms, aviation charter firms, aviation regulatory and safety services, commercial management, safety and compliance management, flight operations, network operations, engineering and maintenance, and passenger services.

Double degrees
- Aviation/Business
- Aviation (Management)/Business
‘Swinburne offers a great learning environment. Having the option of participating in an Industry-Based Learning experience allowed me to apply my skills I have learnt in the workplace. I know I have the marketing knowledge and experience needed to find work when I graduate.’

Adam
Bachelor of Business (Marketing)
Business and Management

Studying a business-related degree will give you skills and knowledge that can be applied and are valued in any industry, anywhere in the world.

You’ll learn organisational capabilities, while building on your creativity and resourcefulness. Whether you want to manage advertising campaigns, develop public relations plans, maximise business opportunities, enter the global accounting industry or gain legal problem-solving skills, you will find the business or management course that’s right for you. The breadth of course options lets you delve deeper into the areas that interest you.

Courses in these disciplines are also ideal if you’re looking to start your own business, sharpen existing knowledge or upgrade your skill set to move into a more senior position. You’ll be learning from academics who engage with industry and collaborate with colleagues from other faculties on cutting-edge research.

Make connections with industry

Your degree in business can take you beyond the classroom to engage with industry and better prepare you for your career.

Swinburne’s Industry-Based Learning (IBL) program gives you practical experience during a six- or 12-month paid work placement. Your degree in business could lead to an IBL placement where you can apply your learning in industry.

Capstone Projects engage students from across multiple disciplines and expose you to the kinds of collaborative environments you might experience in the workplace. One business student used the university’s Formula SAE team as the basis for his project. Using his business skills, he helped the racing team ensure that their car was commercially viable. The student also brought in other business students to perform in operational roles, including marketing and sponsorship.

Add an international edge to your course

A short-term international study program is perfect for internationalising your course in a short amount of time, ranging in duration from two to six weeks. Business students can apply for a range of short-term programs in Europe, Asia or the US.

Visit www.swinburne.edu.au/studytours

Your interests:

- people and society
- making things happen
- consumers and their buying habits
- markets and marketing
- economies and how they function
- starting or owning your own business
- meeting new people and discovering new places.

Possible careers:

- accountant
- business analyst
- data analyst
- e-business specialist
- economist
- export/import administrator
- financial adviser
- funds management officer
- human resources officer
- investment analyst
- legal secretary
- marketing officer
- mortgage broker.
Teaching and learning

Students undertake one or more major areas of study to prepare for their future career. They gain the skills and knowledge to:

- be capable of undertaking entry-level activities in general management, and business and enterprise
- be knowledgeable about basic principles of market-focused business
- be able to communicate with a variety of organisational stakeholders
- be able to identify and evaluate business problems and present innovative solutions.

This degree offers opportunities that link theoretical learning with applied practical work experience. Students develop a broad understanding of the business and social environment, including its global and complex nature. It also develops skills and attitudes conducive to lifelong learning. Students may have the opportunity to participate in a professionally focused, multidisciplinary project during their final year of study.

Swinburne also offers an honours (fourth) year for this degree. A range of double degree options is also available.

专业资格

Graduates may be eligible for membership of a number of organisations relevant to their major area of study, including the Australian Human Resources Institute (AHRI), Australian Institute of Banking and Finance, Financial Services Institute of Australasia (FINSIA), Stockbrokers Association of Australia (SAA), Australian Institute of Management (AIM), Australian Marketing Institute (AMI), Australian Market and Social Research Society (AMERS), Public Relations Institute of Australia (PRIA), Chartered Secretaries Australia (CSA), CPA Australia (CPAA), the Institute of Chartered Accountants of Australia (ICAA), the Institute of Public Accountants (IPA), the Chartered Institute of Management Accountants (CIMA) and the Association of Chartered Certified Accountants (ACCA).

Career opportunities

Graduates may be prepared to be employed or self-employed in a wide range of fields such as accounting, business analysis, commercial law, communications, entrepreneurship, event management, finance, human resources, international business, management, marketing, public relations or tourism.

Major study areas

Accounting

Accounting and finance professionals are in high demand. Learn about financial and capital markets, and explore the influences on those markets, investment analysis, risk management and business investments. Gain the skills to use accounting systems to record and analyse business activities, employ financial statements to guide investment decisions and use information from cost accounting systems to make decisions, price products, develop operating strategies and evaluate business performance. Become well equipped to enter the global accounting, banking, finance and consultation industries.

Advertising

Advertising drives growth for businesses of all types and sizes. Explore the role of advertising in the business environment. Become creative in making maximum use of advertising to assist in achieving organisational objectives. Learn skills to create and deliver attention-grabbing advertisements and advertising campaigns.

Commercial law

Gain legal problem-solving skills and the ability to assess the impact of law and regulation on an organisation. Learn about the legal aspects of contracts, marketing, intellectual property, taxation and finance, and company law. Note: This major does not enable students to practice as a barrister or solicitor.

Entrepreneurship and innovation

Gain the skills to differentiate a business idea from a tangible business opportunity and to use innovation to maximise that opportunity, whether economic, social or political. Learn about business scenario analysis and how to apply it to develop strategic thinking and planning skills, explore business models, interpret sales and marketing opportunities, construct an effective team and source capital funding.

Human resource management

Learn how to manage and coordinate people to achieve strategic business objectives. Study staff recruitment, selection and development; employee relations management; staff training; job evaluation; change management; and occupational health and safety.

International business

The world is one of express global transportation and instant communication, increasing demand for business graduates who are prepared to tackle the international nature of the contemporary marketplace. Discover the importance of culture, politics, trade and business policies; time zones; economic systems; currencies; and business customs in an organisation with international interests.

Management

Understand the importance of managers within business and discover how key resources must be planned, monitored and controlled to meet strategic business objectives. Develop the skills to self-manage, to organise and lead others, to make creative and well-informed decisions, and to evaluate current situations. Learn how to be an ethical and socially responsible manager.

Marketing

Gain a thorough understanding of business principles specific to marketing and learn about the significance of marketing in the wider business context. Explore how business results are achieved through the development and endorsement of a strategic customer focus, as well as buyer behaviour, marketing metrics, planning, branding, advertising and market research.

Public relations

Public relations (PR) focuses on protecting and advancing clients’ reputations through effective communication and relationship-building. Explore the importance of communication in reaching corporate objectives. Learn how PR supports the implementation of strategic plans, communication planning and campaign development.

Tourism management

Tourism affects national and international economies, and demands a new breed of manager with both management skills and a specific tourism focus. Gain a thorough grounding in both general business principles and the specific discipline of tourism theory and practice.
Scholarships

Dean’s Scholarship – Faculty of Business and Enterprise
In this program, students may select a single bachelor degree in the business or commerce area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).

Vice-Chancellor’s Scholarship – Business and Commerce
In this program students may select a single or double degree in the business and commerce area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).
Visit www.swinburne.edu.au/scholarships

Other courses
- Bachelor of Aviation (Management)
- Bachelor of Business Administration
- Bachelor of Business Information Systems
- Bachelor of Commerce (Italian)
- Bachelor of Commerce (Japanese)

Double degrees
- Aviation/Business
- Aviation (Management)/Business
- Business/Communication
- Business/Social Science
- Business Information Systems/Business
- Commerce/Arts (Italian)
- Commerce/Arts (Japanese)
- Design (Communication Design)/Business
- Engineering/Business

Online study
- Bachelor of Business (Accounting)
- Bachelor of Business (Business Administration)
- Bachelor of Business (Logistics and Supply Chain Management)
- Bachelor of Business (Management)
- Bachelor of Business (Marketing)
- Bachelor of Business (Public Relations)
- Bachelor of Business (Sports Management)

Other levels of study

Diploma of Business (UniLink)
This higher education diploma is an alternative to the first year of a bachelor degree and provides a pathway to the second year of a bachelor degree. Undertake studies in core business topics, including accounting, communication for business, business information systems, marketing, microeconomics, management and quantitative analysis. The units are similar to those offered in the first year of a bachelor degree, but classes are smaller and students have more one-on-one time with teachers.

On successful completion students may progress to the second year of a Bachelor of Business, Bachelor of Business Information Systems, Bachelor of Business Information Systems/Bachelor of Business or Bachelor of Information and Communication Technology.

Associate Degree of Business Administration
Become prepared for a range of generalist business professions with the possibility to move into study at undergraduate level. Gain practical skills and knowledge in social and personal development, an understanding of organisational management, marketing and finance; and the ability to apply these concepts in the workplace by undertaking an internship. Learn about office administration, human resource management, accounting, project management, business law and customer relations. Specialise in business administration or retail management.

On successful completion students may progress to the third year of the Bachelor of Business Administration.

Vocational training

Vocational training courses provide hands-on learning and may offer a pathway to further study.
- Advanced Diploma of Accounting incorporating Diploma of Accounting and Certificate IV in Accounting
- Advanced Diploma of Events incorporating Diploma of Events and Certificate III in Events
- Advanced Diploma of Legal Practice
- Advanced Diploma of Occupational Health and Safety
- Diploma of Business
- Diploma of Business (Public Relations)
- Diploma of Human Resources Management
- Diploma of International Business
- Diploma of Management
- Diploma of Marketing
- Diploma of Occupational Health and Safety
- Diploma of Project Management
- Diploma of Quality Auditing
- Certificate IV in Bookkeeping
- Certificate IV in Business
- Certificate IV in Frontline Management
- Certificate IV in Human Resources
- Certificate IV in International Trade
- Certificate IV in Marketing
- Certificate IV in Occupational Health and Safety
- Certificate IV in Project Management
- Certificate IV in Property Services (Real Estate)
- Certificate IV in Training and Assessment
- Certificate III in Business Administration (Medical)

Visit www.swinburne.edu.au/courses
'What I like most about this course is the range of design aspects that are covered – from cost and mass production to environmental sustainability and ergonomics. The most exciting part of the course was when my little sketch of an idea became a real product I could touch and use. I enjoy the projects we’re able to work on, the high-quality teaching and diversity of classmates.'

Nathan
Bachelor of Design (Industrial Design)
Swinburne’s prestigious design courses let you combine imagination and innovation with smart business sense. You’ll learn how to harness your natural creativity and apply it in industry.

Whether you aspire to design advertising campaigns, publications, interiors, animations, games, packaging, consumer products, transportation systems or pop-up shops, you will find a design course to realise your dream.

**Undertake honours**

High-achieving undergraduate design students may apply for entry into our honours program. This competitive program adds an additional year to undergraduate courses and equips you with skills in industry practice, research and development.

The Swinburne Design Factory is a dedicated design space where student teams work in a professional setting to solve problems or improve products and services for business, government and not-for-profit organisations. The honours year in design provides students with the opportunity to work in interdisciplinary teams in the Design Factory.

**Add an international edge to your course**

A short-term international study program is perfect for internationalising your course in a short amount of time, ranging in duration from two to six weeks. A number of short-term programs are available to design students. Destinations may include France, Germany, Hong Kong, Italy, the UK, the USA, Singapore and Vietnam.


**Your interests:**
- design
- communication
- humanistic elements of space and environments
- popular culture
- visual expression
- social change and sustainability
- style, colour and form
- working with ideas to creatively express and present them.

**Possible careers:**
- advertising/art director
- animator
- cinematographer
- design manager
- exhibition designer
- furniture designer
- graphic designer/illustrator
- industrial/product designer
- interaction designer
- interior designer/architect
- packaging designer
- post-production visual effects artist
- service designer
- video game designer/developer
- website and app designer.
Students also select one specialisation from:
- product packaging
- publishing
- web design
- graphic design
- advertising
- corporate branding
- aspects of contemporary culture.
It includes Communication design has an impact on all major study areas.

This degree. Swinburne also offers an honours (fourth) year for presentations, guest speakers and discussions.

Learning. This involves research tasks, group work, and skills through studio- and project-based tutorials focus on developing software knowledge and refined practitioners and well-informed designers.

Lectures provide the primary content, while tutorials focus on developing software knowledge and skills through studio- and project-based learning. This involves research tasks, group work, presentations, guest speakers and discussions.

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

Major study areas
Communication design has an impact on all aspects of contemporary culture. It includes graphic design, advertising, corporate branding, product packaging, publishing, web design and more.

Students complete studies in:
- 20th century design
- branding and identity design
- communication design strategy
- contemporary design issues
- design for production
- design research
- digital design
- typography.

Students also select one specialisation from:
- advertising design and strategy
- design for publication
- design management
- illustrative media
- motion graphics
- packaging and brand design
- photography
- web and mobile devices.

Facilities and resources
Students will have access to the latest design resources, including:
- A3 scanners and printers
- 3D scanners and printers
- Apple computer labs set up with Adobe Master Suite (Photoshop, Illustrator, InDesign, Flash, Dreamweaver, Fireworks)
- digital cameras
- laser cutter/engraver
- photography studio
- sketch-modelling facilities
- spray-painting finishing facilities
- woodworking and metalwork facilities.

Study abroad opportunities
Students are encouraged to participate in study tours and international exchange programs to broaden their understanding of design in a global context.

Career opportunities
Graduates may find careers in design consultancy, advertising, infographics, publishing, merchandising, packaging design, branding and communication strategy, education and research.

Professional recognition
Graduates are eligible for membership of the Australian Graphic Design Association (AGDA) and associate membership of the Design Institute of Australia (DIIA).

Scholarships

- Vice-Chancellor’s Scholarship – Design

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

Visit www.swinburne.edu.au/scholarships

Other courses
- Bachelor of Design (Communication Design) (Honours)
- Bachelor of Design (Digital Media Design)
- Bachelor of Design (Industrial Design)
- Bachelor of Design (Interior Architecture)
- Bachelor of Engineering (Product Design Engineering)

Double degrees
- Design (Communication Design)/Business

Other levels of study

- Diploma of Design (UniLink)

This higher education diploma is an alternative to the first year of a bachelor degree and provides a pathway to the second year of a bachelor degree. Undertake studies in core design topics, including 20th century design, 3D communication, 3D design, communication for design, digital design, interactive design for web technologies and methods of investigation. Extend your creative and practical design skills. The units are similar to those offered in the first year of a bachelor degree, but classes are smaller and students have more one-on-one time with teachers.

On successful completion students may progress to the second year of a range of Bachelor of Design degrees. They may also progress to the Bachelor of Design (Communication Design)/Bachelor of Business double degree with advanced standing.

Vocational training

Vocational training courses provide hands-on learning and may offer a pathway to further study.

- Diploma of Graphic Design
- Diploma of Interior Design and Decoration
- Diploma of Sustainable Landscape Design
- Diploma of Visual Merchandising
- Certificate IV in Design
- Certificate III in Design Fundamentals

Visit www.swinburne.edu.au/courses
The Design Factory model
The world’s first Design Factory opened at Aalto University, Finland, in 2008, providing a place for students, teachers, researchers and business partners to interact. The factory offers students a holistic learning experience through real-life challenges, a relaxed and enthusiastic atmosphere, and daily international collaboration. It supports world-class product design in educational, research and practical application contexts.

Swinburne will open its $100 million centre for design, innovation and advanced manufacturing in 2014. The centre will reflect the factory’s pursuit for inspiring individual uniqueness in students, providing a purpose-built teaching and learning environment where teams of design, business, engineering and information-technology students can work on industry-sponsored projects.

Making science accessible
Innovative projects by Swinburne students from across the design discipline are making a tangible difference in developing countries: from product design solutions to help improve hygiene and access to fresh water, to a digital design project that provides access to valuable information.

The Curly Questions project is a partnership between Swinburne, private company onelinegalleries.com.au and Kasese Humanist Primary School (KHPS) in Uganda. The aim is to build the school’s technology infrastructure and develop science-based learning materials for primary school students via the website curlyquestions.com.au.

Grade 6 students from Kasese posed a list of 40 questions, which were answered by 50 students from Swinburne’s digital media design course in the form of a children’s book and three-minute animation. ‘Every single student is working on an individual question. For example: “What is a mammal?” and “How does the Earth rotate?”’ designer and Swinburne lecturer James Marshall says. ‘For each of the questions asked, design students partner with scientists to make sure the answers are accurate.’ The answers are hosted on the website.

The project has also provided funds to build a computer lab at the school with internet access, as well as educational materials. Marshall says the students were passionate about the project, which teaches evidence-based thinking to students globally and aims to increase public communication of science. Students find doing this type of project more rewarding than prototypes, he says.

Swinburne digital media design student Rachel Leahy says it is refreshing and motivating to be able to design and create something for the children at KHPS. ‘I have been working on a storybook based on a question asked by a little girl: “What causes a rainbow to appear in the sky sometimes?” We have all done extensive research on our questions and have consulted scientists.’

Bwambale Robert, director of the Ugandan primary school, says the project will help them to modern technologies and information. ‘The Curly Questions project is going to equip our children to understand the world around them and beyond,’ he says. ‘The students are extremely happy for this opportunity to ask questions on things they want to know and are looking forward to receiving the answers.’

Aalto Design Factory project with UNICEF
Tom Hurd, who completed his masters in industrial design in 2012, was one of the first postgraduate students from Swinburne to travel to the Aalto Design Factory in Finland as part of the new partnership with the Swinburne Design Factory. He chose to work on a product-development project for UNICEF. The Aalto-UNICEF Finland project, in collaboration with UNICEF Uganda, started with a two-week research trip to Uganda to look at how to improve water sanitation and hygiene.

The team designed several products, including a durable auto-shut-off tap to prevent hand contamination and theft of tap water; a mode of water transportation to prevent people carrying water on their heads; and a monitoring device that reports via SMS statistics on the use of latrines and hand-washing facilities.

Hurd describes the experience as ‘intense, difficult, fun and ultimately life-changing’. The project offered up huge challenges, one of which was gaining an understanding of local manufacturing capabilities. ‘One of our primary goals was that whatever we designed must be locally producible,’ he says. Four students from Uganda’s Makerere University, who were part of the team, helped to identify what was possible. ‘We also had to consider that, if the demand is enough, then it will often become possible,’ he says. ‘To ensure our products were locally producible, every time we produced a prototype we would consider the local limitations, and our Ugandan teammates would make the same prototype and report back any issues.’

This is an edited version of an article by Fiona Killman published in Swinburne’s Venture magazine, issue three, 2012.

The innovative skills and knowledge of Swinburne students are helping to change the lives of people in developing countries.
Digital Media

Digital media is revolutionising the way we access information, do business, are governed and how we interact with each other. Our industry-relevant courses, with their hands-on approach, can open up career opportunities in the digital media, media and games industries.

The demand for people with skills in areas such as web development and web design is particularly high. There are also increasing opportunities for digital media graduates in fields such as 2D animation, 3D modelling and online content creation.

Our digital media courses focus on practical and applied knowledge, so you’ll graduate with both a theoretical understanding of the industry and the skills you’ll need to excel.

Award-winning game designers

In 2012, two Bachelor of Design (Digital Media Design) honours students were awarded the Game Design and Development Award at the Global Adobe Design Achievement Awards.

The students won the award for their video game ‘Orpheus’. The game was created over an eight-week period using pen and paper to storyboard ideas before creating the game with Adobe Flash and Illustrator. The students were flown to the DesignThinkers 2012 conference in Toronto for the awards ceremony and were awarded $3000 for their winning project.

Make connections with industry

Your digital media degree can take you beyond the classroom to engage with industry and better prepare you for your career.

Swinburne’s Industry-Based Learning (IBL) program gives you practical experience during a six- or 12-month paid work placement. Your degree in digital media could lead to an IBL placement where you design and develop websites and explore new functionality to assist your designs, contribute to online marketing campaigns, conduct interviews and write articles, or design banners, advertisements and other promotional material.

Capstone Projects engage students from across multiple disciplines and expose you to the kinds of collaborative environments you might experience in the workplace. You could contribute to an industry or community project, competition submission, research-based project or internally developed project.

Your interests:

- communication and media design
- digital design
- animation – especially for the web and mobile devices
- mobile app development
- the virtual world
- computer games
- the codes and languages that help to create a website
- search engine optimisation and digital marketing
- digital content creation.

Possible careers:

- 2D/3D animator
- art director
- digital video/sound editor
- games developer/writer
- graphic designer/illustrator
- internet marketing specialist
- multimedia designer/developer
- production assistant
- programmer
- rapid prototyping technician
- user-interface software engineer
- visual effects specialist
- website designer.
Featured course

- Bachelor of Arts (Digital Media)

This course focuses on digital media production, emphasising practical skills and creative techniques. Students may select units from a range of study areas. They also gain a solid theoretical foundation in digital media via studies in the business of media, user experience design, remix culture, media law and multimedia technology.

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

Major study areas

- 3D modelling and animation
- Digital content management
- Digital imaging
- Digital mobility
- Digital video and audio
- Interactive narrative
- Multimedia authoring and design
- Radio production
- Web development and programming

Career opportunities

Graduates may find roles in web development and usability, video production, information architecture and multimedia project management. They may also be prepared to start their own multimedia business or to pursue a career in digital marketing.

Professional recognition

Students and graduates are eligible for membership of the Australasian Interactive Media Industry Association (AIMIA).

Scholarships

- Dean’s Scholarship – Faculty of Life and Social Sciences

In this program students may select a single bachelor degree in digital media or games and interactivity. Recipients 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 – Design

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

Visit www.swinburne.edu.au/scholarships

Vocational training

Vocational training courses provide hands-on learning and may offer a pathway to further study.

- Advanced Diploma of Screen and Media specialising in Digital Media Design
- Diploma of Digital and Interactive Games
- Diploma of Digital Media Technologies
- Diploma of Screen and Media
- Certificate IV in Digital and Interactive Games
- Certificate IV in Digital Media Technologies

Visit www.swinburne.edu.au/courses

Other courses

- Bachelor of Arts (Games and Interactivity)
- Bachelor of Design (Digital Media Design)
- Bachelor of Science (Games Development)

Double degrees

- Arts (Games and Interactivity)/Computer Science
‘The biomedical engineering field appealed to me because it’s so much more than just maths and physics; there are many human factors to consider when designing medical equipment. I like that this course will lead to a career that helps to improve people’s daily lives. Swinburne provides a great environment to learn and grow as a person. You’ll get so much more than a piece of paper if you study here.’

Jaimee
Bachelor of Engineering (Biomedical Engineering)
Engineering

Across Australia and the world, businesses are seeking employees with the knowledge and skills to design, build and maintain innovative products. Next-generation computers and tablets, smartphones, low-emission cars, biomechanical limbs and industrial robots are just some of the products created by engineers. As an engineering graduate, you’ll be recognised for your ability to create solutions to today’s problems.

Award-winning robots
In 2012 a team of Swinburne engineering students won the National Instruments Autonomous Robotics Competition for the second year in a row.

Seventeen student teams from universities across Australia and New Zealand tested their robotics skills at the competition. The robots were required to traverse a chequered board avoiding obstacles to collect coloured blocks and deposit them in squares with corresponding colours.

Swinburne’s Team Suave robot completed the set of tasks in just over four minutes, earning the team the most points and a cash prize.

Get involved in the Formula SAE competition
As part of your final-year Capstone Project, you can take part in the Formula SAE competition. The competition involves designing, building and racing an electric formula race car against other university teams. Team Swinburne travelled to Japan in 2011 to compete against teams from around the world. The team placed fourth overall and were named the best rookie team. Building on past success, the team came first in the electric vehicle division of the 2012 competition.

Your interests:
- how things work and how they can work better
- the design of innovative products
- maths and science
- problem-solving
- the environment and sustainable solutions for the future
- robotics
- hardware and software development.

Possible careers:
- biomechanical engineer
- biomedical engineer
- building surveyor
- CAD engineer
- cardiac technologist
- civil engineer
- construction engineer
- draftsperson
- electrical engineer
- electronics and computer systems designer
- manufacturing engineer
- mechanical engineer
- mechatronics engineer
- network design specialist
- product design engineer
- software engineer
- structural engineer
- system-on-chip designer
- telecommunications engineer
- vascular sonographer/technician.
Featured course

Bachelor of Engineering (Robotics and Mechatronics)

Mechatronic engineers design and develop diverse systems for a range of industries, including manufacturing, medicine and the service industries. The field encompasses exciting advances in technology, from automated assembly plants to driverless vehicles.

This course integrates three traditional engineering disciplines – mechanical, electronics and software. Students learn how to use multidisciplinary skills to meet growing demand from an industry that is pushing the limits of technology.

Students design and conduct experiments, and design and develop engineering solutions to meet desired needs within realistic constraints. Robots are computer-controlled mechatronic devices, which have been used to assist humans in various tasks. While most robots have been used in manufacturing, a recent trend has seen robots used in a variety of applications including space and underwater exploration, medicine and a wide range of service industries. The discipline of robotics embraces the design and operation of these devices and their integration with other systems in the work environment.

Major study areas
First-year studies include general units in engineering mathematics and energy and motion. Students also complete units in:

- computer-aided engineering (CAE)
- control systems
- electronics
- machine dynamics and design
- mechatronics systems design and development
- programming
- project management
- structural mechanics.

Students will have the opportunity to undertake postgraduate-level elective units in their final year of study. Double degree options are also available.

Projects
Practical workshops and industry projects are key features of the course and students choose from a wide range of projects.

Past student projects have included:
- constructing a motorised robot using lego
- Ruby, the world’s fastest two-handed Rubik’s Cube-solving robot
- a robot that traverses a chequered board avoiding obstacles to collect coloured blocks and deposit them in squares with corresponding colours, which won the National Instruments Autonomous Robotics Competition two years in a row
- a multi-robot system that replicates a manned spacecraft mission, which won first place at the national Nexus Robot Competition and second place at the world final in Mumbai, India.

Career opportunities
Graduates will be prepared for roles as a design engineer, project planner/manager or product designer in industries such as robotics, airlines, chemical, automotive, appliance manufacturing and industrial research.

Professional recognition
Graduates are eligible to apply for graduate membership of Engineers Australia (EA).

Scholarships

Vice-Chancellor’s Scholarship – Engineering
In this program students may select a single or double degree in the engineering area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).
Visit www.swinburne.edu.au/scholarships

Other courses
- Bachelor of Engineering (Biomedical Engineering)
- Bachelor of Engineering (Civil Engineering)
- Bachelor of Engineering (Electrical and Electronic Engineering)
- Bachelor of Engineering (Electronics and Computer Systems)
- Bachelor of Engineering (Mechanical Engineering)
- Bachelor of Engineering (Product Design Engineering)
- Bachelor of Engineering (Software Engineering)
- Bachelor of Engineering (Telecommunication and Network Engineering)

Double degrees
- Engineering (Civil Engineering)/Business
- Engineering (Electrical and Electronic Engineering)/Business
- Engineering (Electronics and Computer Systems)/Business
- Engineering (Electronics and Computer Systems)/Computer Science
- Engineering (Mechanical Engineering)/Business
- Engineering (Robotics and Mechatronics)/Business
- Engineering (Robotics and Mechatronics)/Computer Science
- Engineering (Telecommunication and Network Engineering)/Business
- Engineering (Telecommunication and Network Engineering)/Computer Science
Other levels of study

Diploma of Engineering (UniLink)
This higher education diploma is an alternative to the first year of a bachelor degree and provides a pathway to the second year of a bachelor degree. Undertake studies in core engineering topics, including electronic systems, energy and motion, and engineering mathematics. Select elective units in bioengineering, general engineering or information technology (IT). The units are similar to those offered in the first year of a bachelor degree, but classes are smaller and students have more one-on-one time with teachers.

On successful completion students may progress to the second year of a range of Bachelor of Engineering degrees. They may also progress to a range of engineering double degrees with advanced standing.

Associate Degree in Engineering
Become prepared for employment as an associate engineer with the possibility to move into study at undergraduate level. Learn about civil engineering, electrical engineering, mechanical engineering and engineering management. Develop the knowledge and skills needed to use a systems approach to basic engineering problems and to understand the principles of sustainability.

Graduates may also progress to further study with advanced standing.

Vocational training
Vocational training courses provide hands-on learning and may offer a pathway to further study.

- Advanced Diploma of Building Design (Architectural)
- Advanced Diploma of Computer Systems Technology
- Advanced Diploma of Electronics and Communications Engineering
- Advanced Diploma of Engineering Technology – Electrical specialising in Industrial Automation and Control
- Advanced Diploma of Engineering Technology with streams in Civil Engineering, Mechanical Engineering, and Robotics and Mechatronics
- Diploma of Building and Construction (Building)
- Certificate IV in Building and Construction (Building)
- Certificate IV in Computer Systems Technology
- Certificate IV in Engineering with streams in CNC Machining, Maintenance Fluid Power and Press Toolmaking
- Certificate III in Electronics and Communications

Visit www.swinburne.edu.au/courses
'This course has given me a good background in design methodology combined with sustainable approaches. It provides great opportunities to progress as a landscape designer, such as being selected as a finalist in the 2012 Melbourne International Flower & Garden Show Student Design Competition.'

Phillip
Diploma of Sustainable Landscape Design
Environment and Land Management

If the great outdoors is where you want to work, an environment and land management course is the perfect choice. As an environment and land management graduate you can be lucky enough to do what you love and love what you do – a chance not offered to many.

Award-winning landscape designers

In 2012 two of our sustainable landscape design students were finalists in the student design competition of the Melbourne International Flower & Garden Show, with one of the students going on to win first prize.

The competition is open to any student studying landscape architecture, horticulture, landscape design or landscape construction. From the hundreds of entries received, only four finalists were chosen to build their designs.

A Swinburne landscape coordinator and group of third-year nursery students also received awards in other divisions.

Your interests:
- trees, plants and flowers
- working with your hands
- protecting the natural environment
- working outdoors
- improving the appearance of outdoor spaces.

Possible careers:
- conservation and land management professional
- environmental officer
- florist
- garden writer
- horticultural consultant
- landscape designer
- nursery wholesaler
- park ranger
- plant propagator
- retail nursery manager.

Vocational training

Vocational training courses provide hands-on learning and may offer a pathway to further study.
- Diploma of Carbon Management
- Diploma of Conservation and Land Management
- Diploma of Horticulture
- Diploma of Sustainability
- Diploma of Sustainable Landscape Design
- Certificate IV in Conservation and Land Management

Visit www.swinburne.edu.au/courses
Film and Television

A Swinburne course in film and television can help you master production skills, develop your scriptwriting talents and begin your career in cinematography, animation, special effects and more. You’ll learn how to harness your natural creativity and apply it in industry.

International award winners

In 2012 short film The Globe Collector, by graduates of Swinburne’s film and television course, was named best documentary at the St Kilda Film Festival. Swinburne film and television students also won 14 awards at the 45th Annual Worldfest-Houston International Film Festival. Among them, short film Ten Quintillion won a top prize: a Grand Remi for Experimental Film and Video.

Swinburne student films also won the top award – a Platinum Remi Award – in four categories, three of which were professional (non-student) categories. The festival is the oldest independent film and video festival in the world and is known for discovering filmmakers including Steven Spielberg and George Lucas.

Students were also winners at the 2012 California Film Awards. Created by first- and second-year Bachelor of Film and Television students, sci-fi animated film ATOM won the Gold Award in the animated film category. Two other films also received awards – a Gold Award in the student film category and a Diamond Award in the short film category.

Undertake honours

High-achieving undergraduate film and television students may apply for entry into our honours program. This competitive program adds a fourth year to three-year undergraduate courses and equips you with highly sought skills in industry practice, research and development.

Possible careers:
- cinematographer
- digital media technician
- director
- film/video/sound editor
- post-production manager
- producer
- production manager
- scriptwriter
- sound or lighting specialist
- video game and interactive media designer
- visual effects artist.

Your interests:
- making movies
- reviewing movies
- creative collaborations
- moving images
- telling stories
- popular culture
- visual and sound media
- working with ideas to express them creatively.
Featured course

Bachelor of Film and Television

This course provides students with the essential creative skills, technical knowledge and theory to make high-quality cinema, television and digital media productions.

Students collaborate to make films through research, screenwriting, direction, project management and production skills such as cinematography, sound, editing and visual effects. They also engage in digital media production and learn skills in advanced production and creative direction. Creative outcomes include:

- animations
- documentaries
- experimental films
- music videos
- narrative films
- television commercials.

Students develop academic skills and attributes necessary to undertake film and television research, and comprehend and evaluate new information, concepts and evidence from a range of sources. The course also helps develop the ability to review, consolidate, extend and apply the knowledge and techniques learnt in a professional and industry-recognised context.

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

Major study areas

- Advanced post-production and digital outcomes
- Cinematography and lighting
- Digital media techniques and post-production
- Directing
- Documentary production
- Film theory and criticism
- Post-production and editing
- Producing
- Production management
- Production techniques/photography
- Screen literacy and contemporary cinema
- Scriptwriting
- Sound recording and design

Facilities and resources

Production facilities are based around high-definition film and video production equipment, including ARRI ALEXA and RED EPIC digital cinema cameras. This production equipment interfaces with several high-end Apple computer labs and editing suites. Students also have the opportunity to work with 16mm and Super 16mm film cameras.

Facilities include:

- Apple computer labs equipped with industry-standard production software
- digital film capture and editing suites offering Avid Media Composer, Apple Final Cut Pro and Adobe Premiere Pro
- green-screen studio
- production meeting room
- sound recording booth and industry-standard mixing desks.

Study abroad opportunities

Students are encouraged to participate in study tours and international exchange programs to enhance their filmmaking skills. Destinations may include Germany, Hong Kong, Italy, the UK and the USA.

Short-term international study programs provide students with opportunities to gain a rich cultural experience, participate in site visits and attend local events or film festivals such as the Berlin International Film Festival and the Venice Biennale.

Career opportunities

Graduates will be equipped to explore a career in cinematography, directing, producing, scriptwriting, editing or sound roles in documentary, television or film production contexts. They will also be prepared for advertising, animation or video post-production roles, or business roles in the film and television industries.

Scholarships

Vice-Chancellor’s Scholarship – Design

In this program students may select a single or double degree in the design or film and television area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).

Visit www.swinburne.edu.au/scholarships

Vocational training

Vocational training courses provide hands-on learning and may offer a pathway to further study:

- Advanced Diploma of Screen and Media specialising in Film and Television
- Diploma of Screen and Media

Visit www.swinburne.edu.au/courses
'My course has provided a broad range of interesting and engaging subjects. I’ve particularly enjoyed the science-based subjects such as microbiology and food science. One of the highlights was conducting laboratory analysis on the bacteria that exist on your hands and in your mouth – that was an eye-opener! Swinburne ensures that students don’t feel like just a number, and is large enough and connected with industry to provide the best opportunities for students’ development and growth.'

Roselyn
Bachelor of Health Science (Public and Environmental Health)
Health Sciences and Community Care

Health sciences and community care courses provide the skills required to assist and improve the wellbeing of communities and groups across Australia and the world – and make a real difference.

Our health sciences and community care courses examine the physical, psychological and social aspects of health in a variety of settings. These could include educating remote communities in the principles of health, applying psychology to sporting teams, creating policies and laws to support health choices, or providing advice on food safety for communities and the food industry.

You’ll develop specialised skills, as well as a broad understanding of your chosen area of expertise. The ageing population – and the ever-increasing importance placed on areas such as mental health, aged care, Indigenous health, obesity, bullying, gambling addiction and children’s services – means new job opportunities are emerging rapidly.

Our courses are delivered in supportive and communicative environments, giving you the chance to develop the skills that will help you succeed in a challenging yet rewarding career.

Your interests:
- applying compassionate qualities to your work
- community and social welfare
- health promotion
- human behaviour
- Indigenous issues
- making a difference to society
- nursing
- nutrition and food science
- psychology
- public health issues
- social justice
- sport science.

Possible careers:
- alcohol and drugs counsellor
- childcare worker
- child protection worker
- community development officer
- community health worker
- environmental health officer
- food scientist
- health educator
- mental health support worker
- nurse
- occupational health and safety professional
- psychologist
- youth and family support worker.
the latest technology. Students may also access a range of technologies and approaches adopted in contemporary health science practice. These include:

- educating remote communities in the principles of health
- applying psychology to sporting teams
- creating policies and laws to support healthy choices
- providing advice on food safety to communities and the food industry.

Students learn how to reflect critically on issues relating to health science and analyse and evaluate information from a range of health-related sources. Students also develop competency in the use of technologies and approaches adopted in contemporary health science practice. These range from procedures developed in chemistry and physiological recording methods to the statistical processes involved in biostatistics and epidemiology. Students may also access a range of laboratories and testing facilities equipped with the latest technology.

**Major study areas**

**Health promotion**

Explore the fields of public health and health in an Australian and international context, focusing on the practical application of health education strategies. Learn how to plan, implement and evaluate health promotion programs and strategies in order to address health priorities such as smoking, heart disease, diabetes or the prevention of communicable diseases.

**Nutrition**

Examine the relationships between diet, health and disease, and how these principles can be applied to public health issues. Explore issues relating to nutritional science, food science and food sources, from a biological, psychological, cultural and social perspective.

**Psychology**

Examine how behavioural and social factors relate to health, wellness and disease. Learn how to apply psychological practices and principles to a range of health issues focusing on developmental, social and abnormal psychology, cognition and personality.

**Sport science**

Learn about the scientific factors influencing physical activity, wellbeing and exercise in sport. Develop in-depth knowledge about the application of health science in sport, such as the development and monitoring of skills-performance activities, injury rehabilitation and talent identification.

**Career opportunities**

Health science graduates are in high demand and may find employment in government, business and the community, or health service providers, as laboratory or community-based researchers, health promotion and policy roles, or in sporting groups or schools.

**Professional recognition**

Developed in conjunction with industry, our health science options feature our Australian Psychology Accreditation Council (APAC) recognised psychology program. Students who choose to major in health promotion and nutrition are also eligible to apply for membership with the Nutrition Society of Australia, and the Australian Health Promotion Association.

**Scholarships**

- **Dean’s Scholarship – Faculty of Life and Social Sciences**
  
  In this program students may select a single bachelor degree in the health or social sciences area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).
  
  Visit www.swinburne.edu.au/scholarships

**Other courses**

- Bachelor of Community Health
- Bachelor of Health Science (Public and Environmental Health)

**Online study**

- Bachelor of Education (Early Childhood)

**Other levels of study**

- Associate Degree of Health and Community Care

Become prepared for employment in community health, education and development services with the possibility to move into study at undergraduate level. Learn about policy, communication and counselling, as well as community care. Develop the knowledge to work in the community development and engagement sectors. Gain skills to explore a career in community and public health promotion and planning, policy development, social research, risk management, health education or counselling.

On successful completion students may progress to the third year of the Bachelor of Community Health.

**Vocational training**

Vocational training courses provide hands-on learning and may offer a pathway to further study.

- Advanced Diploma of Nursing (Enrolled/Division 2 Nursing)
- Diploma of Children’s Services (Early Childhood Education and Care)
- Diploma of Community Services Work
- Diploma of Nursing (Enrolled-Division 2 Nursing)
- Certificate IV in Community Services Work
- Certificate IV in Mental Health
- Certificate III in Aged Care
- Certificate III in Children’s Services
- Certificate III in Health Services Assistance
- Certificate III in Home and Community Care

Visit www.swinburne.edu.au/courses
GASTRO
CSI

Swinburne and the Victorian Department of Health are working together to improve detection of bacteria causing gastroenteritis.

Each year in Australia there are more than 5.4 million cases of gastro, involving 15,000 hospitalisations and 80 deaths. The burden on the healthcare system is over $1.2 billion per annum, with additional costs arising from loss in lifestyle and productivity.

Gastrointestinal illnesses are generally caused by three types of bacteria: E. coli, salmonella and campylobacter jejuni. The general public tends to be more familiar with salmonella outbreaks, but Louise Dunn, investigator and program manager for Swinburne’s Bachelor of Health Science degree, notes that campylobacter jejuni is the most significant cause of food-borne illness in Australia and worldwide.

‘We have about 6000 cases per year being reported in Victoria. It is a significant burden. The incidence of infection also appears to be increasing across all age groups, including children and young adults.’

Difficult to detect

A big problem with identifying and controlling campylobacter jejuni is that most of the infections seem to be sporadic. It might be from contaminated water or contact with pets, birds, animals or food (such as chicken, offal or undercooked meat).

‘Outbreaks aren’t always occurring in a particular pattern or interval, they are just an occurrence, and each year only one or two outbreaks are detected,’ says Dunn. ‘This means that there is not enough information about how to manage and detect the source of the infection.’

Current testing methods are time consuming and require skilled personnel. The current ‘gold standard’ uses gel electrophoresis to genetically differentiate the specific strain (genotyping). Growing cultures of the sample for genotyping analysis takes three to four days, a delay that makes tracing the origin of the contamination through accurate interviews and further sample collecting more difficult.

Finding the source

Tracing the origin or source of the contamination is critical if health outcomes are to improve. The Victorian Department of Health is looking for ways in which they can use evidence for better decision-making. To this end they have awarded a research scholarship to Swinburne PhD student Monir Ahmed to focus on more rapid ways to detect campylobacter jejuni and better inform the Victorian Department of Health’s policies.

‘Swinburne has a long-term relationship with the Victorian Department of Health,’ says Dunn. ‘We produce a lot of graduates who work in regulatory and surveillance areas within local and state government departments and this scholarship allows us to investigate how we can help the food safety system by developing techniques for detecting outbreaks of campylobacter jejuni more readily.’

Instead of relying on genotyping, Ahmed has obtained samples from the University of Melbourne’s Microbiological Diagnostic Unit and is working to identify a selection of virulent (toxin) genes associated with the campylobacter infection. These gene groupings could then be used to more quickly and accurately identify and categorise different strains.

Ahmed uses Swinburne’s MALDI-TOF mass spectrometer to accurately identify strain-specific metabolic fingerprints. These results are then fed into a database of different cell proteins allowing the comparison of new strains with those previously identified. In an outbreak situation this method could be used to quickly differentiate between unrelated strains and those from the same source.

Faster results

‘Analysis is very quick,’ says Professor Elena Ivanova, microbiologist and one of Ahmed’s PhD supervisors. ‘You can get the preparation stage down to one day and then get the results through the MALDI-TOF in half an hour.’ This greatly reduces the time and effort required to identify the origin of a campylobacter jejuni contamination, meaning that improved education, regulation or clean-up policies could be applied, therefore also addressing some of the public health costs.

Developing a field-portable biosensor to aide in tracing the source is the project’s ultimate goal. Fighting future outbreaks of gastroenteritis will draw on these technologies, ensuring better health outcomes for Victorians.

This is an edited version of an article by James Hutson published in Swinburne’s Venture magazine, issue three, 2012.
‘I chose to study at Swinburne because it suited my needs perfectly. The campus is in a central location, and the IT staff and facilities are excellent. The course has given me the opportunity to make a large group of great friends, meet many interesting people in industry and understand what I could be doing in the future.’

Hamish
Bachelor of Information Technology
Dynamic and constantly evolving, the field of information and communication technologies (ICT) provides exciting and challenging career opportunities. ICT is the backbone of many industries – health, transport, finance, media, manufacturing and automotive – so the skills you’ll learn will be highly valued by many employers.

Swinburne’s ICT courses are developed in close consultation with key industry representatives. The skills and knowledge gained in our ICT courses are transferable across countries and industries, which means your studies could lead to work opportunities anywhere in the world.

Use cutting-edge technology
Students studying networking will have the opportunity to work with equipment used in industry to create live network systems in our three state-of-the-art Cisco networking labs.

Research excellence
Our commitment to high-quality teaching and research was reflected in our rating for computer software of ‘above world standard’ in the Australian Government’s 2012 Excellence in Research for Australia report. Swinburne was the highest rated university in this field in Victoria.

Our researchers foster extensive national and international networks and connections with industry, providing excellent opportunities for Swinburne students.

Your interests:
- developing software programs, models and processes to solve problems
- software development for mobile or web applications
- creating innovative technology
- coming up with creative solutions to problems
- guiding business decisions through analytics.

Possible careers:
- applications developer
- business and systems analyst
- computer programmer
- database administrator
- games designer/developer/programmer
- information technology consultant
- mobile application developer
- multimedia developer/programmer
- network designer/administrator
- network security analyst
- software engineer
- telecommunication network engineer
- user-interface analyst
- web developer.
Featured course

Bachelor of Information Technology

This course is one of Australia’s most prestigious IT degrees and aims to provide future leaders for the ICT industry. It has been designed in partnership with leading Australian companies to equip students to move quickly into senior ICT positions after graduation. This innovative course is sponsored by 20 leading Australian organisations and all students receive an industry-funded scholarship totalling $40,000, paid in fortnightly instalments over the three-year course.

Students spend two 20-week periods working in a sponsor organisation – such as ANZ Bank, Fenwick Software, Fujitsu, Melbourne Water, seek.com.au or Sensis – gaining broad exposure to the use of IT in business. Students develop the abilities and skills important for effective participation and leadership in industry.

The course focuses on the acquisition, design, implementation and management of information systems (IS) in all types of organisations. Students are exposed to a range of hardware and software to illustrate how technology can be used to solve typical business problems.

Students learn skills in:
- business analysis and problem-solving
- business process management
- databases and programming
- managing IS in organisations
- mobile business and connectivity
- project management
- social networking in organisations
- the provision of IS services.

The course has been designed to produce graduates who are competent and knowledgeable in the discipline; who possess excellent interpersonal and communication skills; and who are able to critically analyse business problems and develop creative and innovative enterprise solutions. It also includes business units aimed at developing managerial and leadership skills.

Major study areas

Areas of study areas include:
- business analysis and modelling
- business information systems
- business intelligence
- database management
- enterprise systems
- information systems management
- management, marketing and accounting
- mobile business and security
- organisational behaviour
- programming (.NET or C++)
- project management.

Many units are also designed to develop skills in interpersonal communication, teamwork and management.

Career opportunities

Graduates may find employment in a range of ICT positions, including systems analyst, software developer, ICT security analyst, business analyst, ICT policy and governance, IT/IS consultant or project manager.

Professional recognition

This degree is accredited at the professional level with the Australian Computer Society (ACS), ensuring it meets the highest standards of the profession and industry.

Scholarships

Vice-Chancellor’s Scholarship – Information Technology/Science

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

Visit www.swinburne.edu.au/scholarships

Other courses

- Bachelor of Applied Information and Communication Technology
- Bachelor of Business Information Systems
- Bachelor of Computer Science
- Bachelor of Engineering (Software Engineering)
- Bachelor of Engineering (Telecommunication and Network Engineering)
- Bachelor of Information and Communication Technology
- Bachelor of Information and Communication Technology (Network Design and Security)
- Bachelor of Science (Games Development)

Double degrees

- Arts (Games and Interactivity)/Computer Science
- Business Information Systems/Business
- Engineering (Electronics and Computer Systems)/Computer Science
- Engineering (Robotics and Mechatronics)/Computer Science
- Engineering (Telecommunication and Network Engineering)/Business
- Engineering (Telecommunication and Network Engineering)/Computer Science
Other levels of study

Diploma of Information Technology (UniLink)

This higher education diploma is an alternative to the first year of a bachelor degree and provides a pathway to the second year of a bachelor degree. Undertake studies in core information technology (IT) topics, including communication for IT, database analysis and design, information communication technology environments, business information systems, programming .Net, requirements analysis and modelling, and web development. The units are similar to those in the first year of a bachelor degree, but classes are smaller and students have more one-on-one time with teachers.

On successful completion students may progress to the second year of a Bachelor of Business Information Systems, Bachelor of Business Information Systems/Bachelor of Business or Bachelor of Information and Communication Technology.

Vocational training

Vocational training courses provide hands-on learning and may offer a pathway to further study.

- Advanced Diploma of Computer Systems Technology
- Diploma of Information Technology Networking
- Diploma of Information Technology Systems Administration
- Diploma of Software Development
- Diploma of Website Development
- Certificate IV in Computer Systems Technology
- Certificate IV in Information Technology Networking
- Certificate IV in Web-Based Technologies
- Certificate III in Information, Digital Media and Technology

Visit www.swinburne.edu.au/courses
‘It’s great having tutors and lecturers who all have experience working in the industry – one of my tutors has even received a Walkley Award. The Hawthorn campus is always being upgraded with cutting-edge technology and I love that it’s easily accessible by public transport. Swinburne has been everything I’ve needed; I’ve been given great support from my educators and it has made my experience here brilliant.’

Ben
Bachelor of Arts (Journalism)
Media and Communications

A media and communications qualification could be your entry point into a wide range of exciting career opportunities. You’ll discover how to develop innovative communications campaigns, learn about new media technologies and the way media is evolving, and explore the connections between media, public relations and design.

Our career-focused courses will give you the latest skills employers are looking for across a wide range of communications positions, including writing, production and online media. Courses also provide opportunities for membership with key industry associations such as the Design Institute of Australia, Public Relations Institute of Australia or Australian Interactive Media Industry Association.

Whether you would like to work in an advertising agency, write for news media or develop communications strategies for a not-for-profit organisation, a media and communications course will help you discover your potential, challenge conventions and get started in your chosen profession.

Get involved in The Burn magazine

Produced by and for students at Swinburne, The Burn magazine provides an opportunity for media, communications, journalism, design and digital media students to use the skills gained throughout their degree and experience the process of producing a magazine from conception to print.

An option in the journalism Capstone Project, the project replicates a real magazine publishing environment, complete with the demands, deadlines and expectations required to produce a professional publication. Anyone with an idea can contribute to the magazine or accompanying website.

Your interests:
- the media
- understanding what motivates people
- writing and editing
- blogging, the internet and social media
- social justice
- improving your community
- social groups and interactions.

Possible careers:
- advertising coordinator
- art director
- audio/video engineer
- copywriter
- editor
- journalist
- marketing professional
- media officer
- multimedia designer/developer
- online writer or editor
- production assistant
- public relations professional
- writer.
Featured course

Bachelor of Communication

This course equips students with the knowledge and practical skills to deliver strategic communication in a complex, dynamic marketplace. Recognising that people receive messages visually as well as through language, this degree features a strong design component to help students build visual and other communication skills.

Students study three distinct but related areas: media studies, public relations and design. They learn about media and media production, public relations and the impact of design on these specialised areas of communication.

Students learn how to:

■ design, manage and evaluate visual, written and event-based elements of a professional communication campaign.
■ create briefs for communication designers, researchers and other professional colleagues.
■ integrate theory with practice in professional communication projects.

They also have the opportunity to participate in hands-on projects designed to help them confront the challenges of the dynamic professional communication sector.

Major study areas

Advertising

Advertising has become such an integral part of the new media environment that people rarely stop to think about it. Gain skills and knowledge about effective design and strategy, as well as advertising development, implementation and evaluation. Learn how to design advertisements that not only please clients but achieve the ultimate purpose of reaching the audience in the desired way.

Communication

Become prepared for the broad communication field. Learn about the role of media, media production, public relations, and the place and impact of design in communication.

Media studies

Develop knowledge about current media theories and learn to write for print, broadcast and digital media outlets. Engage in debate about globalisation, media ownership, policy and regulation, as well as advances in digital technologies and social media such as blogs and YouTube. Gain hands-on digital and communication experience through practical project units.

Public relations

Public relations professionals frequently work alongside designers of graphics, multimedia, websites, products and events. Learn the language of design to become prepared to write effective briefs for design colleagues. Produce a portfolio that can serve as academic and professional achievements for employment purposes.

Career opportunities

Employment may be found in advertising, public relations, journalism, radio, film and television, and communications research.

Professional recognition

The public relations major is fully accredited by the Public Relations Institute of Australia (PRIA) and graduates are eligible to apply for membership.

Scholarships

Dean’s Scholarship – Faculty of Life and Social Sciences

In this program students may select a single bachelor degree in the arts or social sciences area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).

Vice-Chancellor’s Scholarship – Arts and Social Sciences

In this program students may select a single or double degree in the arts and social sciences area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).

Visit www.swinburne.edu.au/scholarships

Other courses

■ Bachelor of Arts (Journalism)
■ Bachelor of Arts (Media and Communication)
■ Bachelor of Arts (Professional Writing and Editing)
■ Bachelor of Business (Advertising)
■ Bachelor of Business (Public Relations)

Double degrees

■ Business/Communication

Online study

■ Bachelor of Business (Public Relations)
■ Bachelor of Communication (Media Studies)
■ Bachelor of Communication (Public Relations)
■ Bachelor of Social Science (Media Studies)
■ Bachelor of Social Science (Public Relations)

Vocational training

Vocational training courses provide hands-on learning and may offer a pathway to further study.

■ Diploma of Business (Public Relations)
■ Diploma of Professional Writing and Editing
■ Diploma of Screen and Media specialising in Broadcasting Journalism
■ Certificate IV in Professional Writing and Editing

Visit www.swinburne.edu.au/courses
How do you decide which running shoes to buy? Why do you prefer the iPhone over all other smart phones? Why did smokers crave a cigarette after watching an ad designed to turn people off smoking, while non-smokers were disgusted by it? These are the questions advertisers, marketers and market researchers are constantly faced with and Swinburne Neuroscience Professor Richard Silberstein has some of the answers.

Neuromarketing or consumer neuroscience is a relatively new area of research that combines neuroscience with market research. It uses brain-measuring technology to find out what consumers really think of advertising. Until recently, market research companies had access to limited methods to assess the effectiveness of an ad. According to Professor Silberstein, ‘The current research tools that people are using for market research are good for fact-based ads, but they are no good for advertising that is more creative and emotional, which we are getting more and more of,’ he says.

Brain-measuring technology

Research is proving that emotions are the most powerful drivers of our decision-making. But there’s another reason why advertising is working to appeal to our emotions. And that is due to heavy competition between brands that have little to set them apart, except for our emotional connection to them. Take a tube of toothpaste, for example. Why do some people buy Colgate Total White Stripe over Macleans Ultimate White Ice Sensation? Professor Silberstein explains we make these decisions based on emotion, not fact. It is important to note, however, that there are some cases when rational processes come in to play. People will often choose a home loan, for example, based on the lowest interest rate a bank can offer.

Professor Silberstein’s company Neuro-Insight uses a technology invented at Swinburne called Steady State Topography (SST) to measure the effectiveness of a piece of commercial communication by tracking rapid changes in the speed of neural processing in different parts of the brain.

‘When a part of the brain becomes more active it tends to process neural information faster. SST is probably the only technology that can measure that particular feature of brain response,’ he says. ‘The right hemisphere of our brain is concerned with imagery, but also with the emotional connection and that’s the one that’s hard to get at by using traditional market research methodologies.’

SST can measure if an ad is being stored in our long-term memories – probably the most important aspect of judging whether an ad is effective or not. The company can also measure whether the subject likes or dislikes something, their engagement with the ad, and emotional intensity experienced while watching an ad. ‘We can give an insight into the mind and emotions of the people a company is trying to communicate with. We can tell not what are people thinking, but how people are thinking,’ says Professor Silberstein.

Your decision-making personality

Swinburne’s Dr Joseph Ciorciari has been working in the same area, but specialises in how the biology of personality and thinking style impact decision-making. Through their joint research, Dr Ciorciari and Dr John Gountas, from Murdoch University, recently found that there is a neurobiological validation for the four broad personality types Dr Gountas believes each of us lean towards when making decisions. These four personality types are logical, pragmatic, emotional and imaginative.

The ability of consumer neuroscience to determine whether an ad is effective is the reason more corporations, including Google, Coca-Cola and General Motors, are using it to influence consumer attitudes. ‘If you want to put together a better ad, you can work out where the negative bits are, based on neuroscience. You can then better construct the ad to help maintain attention, to make it more effective,’ says Dr Ciorciari, a senior lecturer who has taught in the biomedical sciences, biomedical engineering and psychophysiology undergraduate, honours and postgraduate programs, and is the program coordinator for the undergraduate psychology/ psychophysiology course at Swinburne.

This technology and research is illuminating the human mind and our decision-making processes. It offers insight into the most effective ways companies can communicate with us and helps scientists and advertisers to understand what resonates, and therefore what is most powerful. It is shaping advertising.

This is an edited version of an article by Virginia Millen published in Swinburne’s Venture magazine, issue one, 2012.
‘The flexible degree structure has allowed me to complete subjects in sociology and politics, which I’ve found both complement and critique psychology and provide a broader understanding of people and their environments. What I enjoy most about my studies at Swinburne is being encouraged to learn beyond the textbook, to follow my own areas of interest and to contribute rather than simply being taught.’

Meredith
Bachelor of Arts (Psychology)
Psychology

If being able to understand and explain human behaviour and relationships interests you, a degree in psychology could be the right choice.

Psychology graduates are sought by a wide range of organisations, and not just in clinical and counselling roles. A psychology degree could help you work in industries such as human resources, marketing, journalism or policy development.

**Make connections with industry**

Your psychology degree can take you beyond the classroom to engage with industry and better prepare you for your career.

Swinburne’s Industry-Based Learning (IBL) program gives you practical experience during a six- or 12-month paid work placement. Your degree in psychology could lead to an IBL placement at the Royal Children’s Hospital helping to perform respiratory function tests or at St Vincent’s Hospital performing EEGs and other neurological diagnostic tests.

Capstone Projects engage students from across multiple disciplines and expose you to the kinds of collaborative environments you might experience in the workplace. You could contribute to an industry or community project, competition submission, research-based project or internally developed project.

**Research excellence**

Our commitment to high-quality teaching and research was reflected in our rating for psychology of ‘above world standard’ in the Australian Government’s 2012 Excellence in Research for Australia report. The rating was awarded for research conducted in the areas of psychopharmacology and brain sciences.

Our researchers foster extensive national and international networks and connections with industry, providing excellent opportunities for Swinburne students.

**Your interests:**
- understanding what motivates people
- improving your community
- social groups and interactions
- the human mind
- human behaviour
- researching ideas and theories.

**Possible careers:**
- clinical psychologist
- community worker
- counselling psychologist
- counsellor
- criminologist
- forensic psychologist
- occupational health and safety officer
- organisational psychologist
- rehabilitation counsellor
- social worker
- sport psychologist
- youth worker.
Featured courses

- Bachelor of Arts (Psychology)
- Bachelor of Social Science (Psychology)

Studying psychology provides students with the knowledge and skills to understand and explain human behaviour and relationships. Students develop their capacity for critical analysis, creativity and problem-solving, as well as a thorough understanding of the relationship between theory, research and practice. They complete a variety of research projects and develop skills in project management, research design and report writing.

Students may graduate with either a Bachelor of Arts or a Bachelor of Social Science, depending on their career aspirations.

Major study areas

Undertaking a psychology major provides specialised study in:

- abnormal psychology
- cognitive psychology
- developmental psychology
- personality
- psychological measurement and assessment
- research methods
- social psychology
- statistics.

Career opportunities

Psychology graduates are highly sought after in a range of human services positions, including roles in community and mental health, human resource management, policy development, research, welfare, journalism, marketing and advertising. This course provides the first step to becoming a professional psychologist. Graduates may apply to undertake a fourth year in psychology with further study in specialist areas of professional psychology such as clinical, counselling, health, organisational and sports psychology.

Professional recognition

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

Scholarships

- Dean’s Scholarship – Faculty of Life and Social Sciences

In this program students may select a single bachelor degree in the arts, social sciences or science area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).

- Vice-Chancellor’s Scholarship – Arts and Social Sciences

In this program students may select a single or double degree in the arts and social sciences area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).

Visit www.swinburne.edu.au/scholarships

Other courses

- Bachelor of Arts (Psychology and Forensic Science)
- Bachelor of Arts (Psychology and Psychophysiology)
- Bachelor of Arts (Psychology and Sport Science)
- Bachelor of Science (Psychology and Psychophysiology)
- Bachelor of Science (Psychology)
- Bachelor of Social Science (Psychology and Forensic Science)
- Bachelor of Social Science (Psychology and Sport Science)

Online study

- Bachelor of Social Science (Psychology)
Until quite recently the study of bipolar disorder was limited to psychiatric research, conducted purely from a biomedical perspective. Professor Greg Murray, Head of Psychological Sciences and Statistics at Swinburne, has observed a number of changes in thinking that have occurred over the past decade. He believes that studying bipolar disorder using psychological theories and combining psychological therapies with medication treatments can lead to a more holistic understanding of the disorder and therefore better outcomes for the patient.

‘At the genetic level, bipolar disorder involves the interaction between multiple genes and the environment,’ says Professor Murray. Behaviourally, bipolar disorder appears to involve two fundamental tendencies: one is the tendency to become unmotivated or depressed and the other tendency is to become highly energised or manic. While people with bipolar disorder experience clearly pathological manic and depressive states, all of us are capable of experiencing some level of emotion dysregulation, suggesting that bipolar disorder is not well understood as a disease.

‘I believe that characterising bipolar disorder as the extreme clinical manifestation of a trait or traits that are present in the normal population has quite a different meaning to characterising it as a disease present in only a small percentage of people,’ he says. ‘That’s really quite a significant change in how we think. To take one example, thinking about bipolar disorder as traits in the community enables us to consider what strengths might be associated with the condition.’

The importance of a support network
There is now evidence to suggest that combining psychosocial interventions with medication improves patient outcomes. A central element in psychosocial interventions is psycho-education – understanding that bipolar disorder is a chronic condition and one that waxes and wanes, that medication is a part of management, the importance of a team approach to the condition (which often includes a psychiatrist, a psychologist and family members), and looking out for the early warning signs of sliding into a depression or mania.

Professor Murray believes that changes in thinking across a number of areas of bipolar disorder are leading to new and better ways of treating what can be an extremely debilitating condition. ‘We are moving towards a fully biopsychosocial understanding of bipolar disorder and its treatment,’ Murray argues. ‘This more holistic approach is already showing benefits for patients, and over the next decade will lead to better models of the condition, which in turn will lead to further clinical improvements.’

This is an edited version of an article by Virginia Millen published in Swinburne’s Venture magazine, issue two, 2012.
‘I chose this course because it offers a pathway to research in a specialist science area. The quality of teaching and opportunity to take part in a work placement were also appealing. My subjects are fascinating and the electives I can choose from are really diverse, allowing me to study areas that are more theoretical but still practical.’

Mahdi
Bachelor of Science
Science

Scientific and technological knowledge is advancing at an unprecedented rate. By encouraging you to put your natural curiosity to practical use, Swinburne’s science qualifications put you on a career path of inquiry and discovery.

From solving environmental problems to making discoveries in state-of-the-art laboratories, Swinburne gives you the head start you need for the science career you want.

**World-ranked in physics**

Our commitment to excellence in science teaching and research was reflected in our inclusion again in the 2012 Academic Ranking of World Universities (ARWU). In addition to ranking Swinburne one of the world’s top 400 research-intensive universities, the ARWU named Swinburne a top-100 research university in the field of physics.

**Make connections with industry**

Your science degree can take you beyond the classroom to engage with industry and better prepare you for your career.

Swinburne’s Industry-Based Learning (IBL) program gives you practical experience during a six- or 12-month paid work placement. Your degree in science could lead to an IBL placement at a local council performing site inspections, conducting food sampling and investigating food incidents, or with a public health services provider collaborating with doctors to assess patients’ lung function tests.

Capstone Projects engage students from across multiple disciplines and expose you to the kinds of collaborative environments you might experience in the workplace. You could contribute to an industry or community project, competition submission, research-based project or internally developed project.

**Your interests:**
- biology, chemistry, environmental health, mathematics and statistics, physics or psychology
- technology and technological change
- subjects and arguments based on reason and analysis
- discovering through inquiry and observation
- solving problems through experimentation
- human anatomy
- health sciences.

**Possible careers:**
- biophysicist
- cardiovascular technologist
- chemist
- laboratory technician
- medical imaging administrator
- medical sales
- microbiologist
- neuroscientist
- psychologist
- respiratory technologist.
This course provides students with a broad science overview with the ability to specialise in a field of their choice. The course aims to equip students with the skills, knowledge and key theoretical insights required to work in many professional scientific environments. Students learn how to understand and apply basic scientific principles and theory across a range of disciplines. A distinctive feature of the course is the practical application of knowledge through project-based units of study.

The major study areas provide students with a scientific basis for understanding the natural and constructed world around them. They seek to blend a range of key scientific skills and knowledge required by current and projected industry needs. Students learn strong quantitative, problem-solving and numerical skills which are highly regarded by employers. They also develop the knowledge to competently use technology, instrumentation and techniques appropriate to their chosen field of study.

### Career opportunities

Graduates will enjoy a wide range of employment opportunities in science and technology, determined by their major studies.

### Professional recognition

All graduates may apply for membership of the Association of Professional Engineers, Scientists and Managers, Australia (APESMA). Graduates with a chemistry major may apply for membership of the Royal Australian Chemical Institute (RACI). The three-year undergraduate major in psychology is accredited by the Australian Psychology Accreditation Council (APAC). Swinburne also offers an APAC-accredited honours (fourth) year in psychology.

### Major study areas

#### Advanced biochemistry

- Biochemistry is put into action wherever an understanding of the molecular basis of biology is important – from nutrition and agriculture to medicine and psychology. Explore the business, ethics and environmental issues surrounding biochemistry. Examine how bioethical knowledge can be applied to a range of industries and medical investigations, such as the culturing of microorganisms or investigating complex molecules such as enzymes and DNA. Learn practical skills that are important to a range of medical, industrial, environmental and research applications.

#### Biomedical sciences

- Learn how the application of biology-based sciences – such as anatomy and physiology – is put to clinically related uses, particularly in health monitoring, treatment or related research. Gain a basic scientific understanding of chemistry, biochemistry, microbiology, human anatomy and physiology. Explore the technology and modern instrumentation used in clinical care and monitoring environments such as analytical and research laboratories.

#### Chemistry

- **Advanced chemistry**
  - Chemistry involves the fundamental study of how molecules react and the applied study of how we can detect and use them. It is applied in a range of fields such as medicine, food production, cleaning products and environmental protection. Learn about the applications of chemistry, including forensic science, polymer formation, water analysis, the creation of new materials, agricultural chemistry and environmental science.

#### Computer science

- Learn about general computing, including software development, databases, data communications and software engineering. Undertake specialist studies in scientific computing.

#### Environmental science

- Gain an understanding of and develop solutions to environmental issues on small and large scales. Learn skills in analytical, water and environmental chemistry to understand environmentally sustainable systems in a scientific context and provide ways to improve them.

### Food science

- Develop the knowledge and skills to ensure the safety and quality of our food supply. Learn about the application of chemistry, microbiology and risk management to the handling, processing and packaging of foods from the farm to the consumer’s plate.

### Medical instrumentation

- Gain an understanding of modern monitoring technology through studies in engineering mathematics and medical electronics. Learn how these instruments fit into the context of human physiology, from cells to systems.

### Physics

- Gain fundamental knowledge of classical and modern physics, as well as physics of nano-science and technology. Enhance studies in biotechnology, bioscience, chemistry and medical biophysics.

### Physiology

- Gain an understanding of some of the processes involved in human nervous system function. Learn about sensory functions as well as the physiology of the musculoskeletal system.

### Psychology

#### Psychology and psychophysiology

- Gain the knowledge and skills to understand and explain human behaviour and relationships. Undertake specialised study in developmental psychology, cognition, social psychology, personality, design and measurement, psychological measurement and abnormal psychology. Complete research projects and develop skills in project management, research design and report writing. Learn about physiological processes relevant to the study of psychology and address neuroanatomy; neurophysiology; physiological responses to sleep, dreaming, memory and cognition; and brain disorders.

### Public health

- Explore the art and science of preventing illness and promoting health through the organised efforts and informed choices of society, public and private organisations, communities and individuals. Gain an understanding of the range of social, environmental, biological and individual determinants of health. Examine how they can be measured, monitored and addressed to improve the health of individuals and the population.

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*This course is currently under review. Changes may affect major study areas for students commencing from 2014.*
Scholarships

- Dean’s Scholarship – Faculty of Life and Social Sciences
  In this program students may select a single bachelor degree in the science area. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).

- Vice-Chancellor’s Scholarship – Information Technology/Science
  In this program students may select a single or double degree in the information technology and science areas. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).

Visit www.swinburne.edu.au/scholarships

Vocational training

Vocational training courses provide hands-on learning and may offer a pathway to further study.

- Diploma of Laboratory Technology
- Diploma of Laboratory Technology specialising in Biotechnology
- Diploma of Laboratory Technology specialising in Forensic and Pathology Testing
- Certificate IV in Laboratory Techniques
- Certificate IV in Science

Visit www.swinburne.edu.au/courses
‘I transferred into my degree after two years studying a diploma in digital media. As a result, I felt like I had an advantage in the practical sense. The Industry-Based Learning program really attracted me to the course and I’ve been able to gain further industry experience through my placement.’

Daniele
Bachelor of Arts
Vocational education and training

Whether you are preparing for your first job, looking to retrain or taking the first step in a career change, a certificate, diploma or advanced diploma could be the right choice for you. These courses are focused on learning for work, or in many cases, learning at work. They help you to build the practical skills and technical expertise that make you employable.

Swinburne offers vocational courses across a diverse range of study areas, including:
- arts
- building, construction and plumbing
- business and management
- children’s services
- community services
- design
- digital media
- engineering
- English as a second language
- environment and land management
- film and television
- information and communication technologies
- media and communications
- nursing
- science
- study skills.

Preparation for your career

Learn the skills that are in demand by employers and be taught by experienced teachers who are practitioners in their field. During your course you will use the equipment and technology used in industry, and gain insights and abilities that are expected in modern workplaces.

All of our courses have work-based elements, which can include work placements and projects, and workplace scenarios and simulations. This ensures you are prepared to get a job, make a significant contribution at work or further develop your career.

Vocational Learning Framework

Our Vocational Learning Framework focuses on helping you achieve your learning, workplace and career needs. The framework provides you with individual attention to assist you with all aspects of your study experience. It offers individual learning and assessment planning, support and a full range of services.

You will be assigned a learner mentor who will help to identify your learning needs and establish a corresponding learning and career pathway plan. Throughout your course you will have the support and guidance of your teacher and learner mentor.

This approach also allows you to choose where, how and how often you undertake your study through our flexible study options.

These can include:
- on-campus attendance
- day, evening or weekend classes
- part-time study
- online learning
- blended learning (a combination of on-campus and online study)
- workplace delivery
- consolidated blocks (intensive workshops with individual learning and assessment between sessions).

The framework also takes into consideration prior learning, existing skills and life experience, which may accelerate your training or mean you could already be eligible for a formal qualification.

Apprenticeships and traineeships

Apprenticeships and traineeships are certificate and diploma courses that combine paid work with nationally recognised training, so you can earn while you learn. Your employer will teach you on the job, while Swinburne provides the formal training for a nationally recognised qualification.

Visit www.swinburne.edu.au/apprenticeships
More information

Brochures
Our study area brochures can provide more detailed information about the study area and course/s that interests you.
Visit www.swinburne.edu.au/future/brochures to download a brochure. To order a copy of a brochure, phone 1300 275 794.
You can also visit www.swinburne.edu.au/courses to search for course information.

Speak to a course adviser
You can organise a one-on-one appointment with a course adviser to discuss your study options and where your qualification may take you.
Visit www.swinburne.edu.au/appointment