

# College of Health and Science

## Electronic Undergraduate Handbook 2010

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University of Western Sydney

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Information contained in this electronic handbook is correct at the time of production (April 2010), unless otherwise noted.

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Overseas students studying in Australia must comply with the requirements of the ESOS Act and the National Code. They should consult the Federal Government's [Australian Educational International](#) webpage for the description of the ESOS legislation and other relevant information. UWS International Postgraduate and Undergraduate Prospectuses and other promotional material specifically prepared for overseas students also provide information about CRICOS registered courses and conditions relating to study in Australia.

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## About the College of Health and Science Electronic Undergraduate Handbook

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### Sessions and dates

There are two main sessions in 2010: Autumn and Spring. Weeks shown in the dateline refer to the session weeks for these main sessions.

The dateline is available at:

<http://www.uws.edu.au/students/stuadmin/dateline>.

### Unit outlines

Brief outlines of all UWS undergraduate units listed in the course section are given in the second half of this electronic handbook.

The unit outlines give a brief overview of each unit. For some units this information is not available. Please check the UWS website for more recent information. For more information – details of textbooks, assessment methods, tutorial, group work and practical requirements – contact the unit coordinator.

More information on unit offerings can be found at:

[http://handbook.uws.edu.au/hbook/UNIT\\_SEARCH.ASP](http://handbook.uws.edu.au/hbook/UNIT_SEARCH.ASP).

### Unit not listed?

If the unit you are looking for is not in the alphabetical units section, consult your course coordinator for details or check the unit search web page for updated details on all units offered in 2010 at:

[http://handbook.uws.edu.au/hbook/UNIT\\_SEARCH.ASP](http://handbook.uws.edu.au/hbook/UNIT_SEARCH.ASP).

### Prerequisites, co-requisites and assumed knowledge

Students wishing to enrol in a unit for which they do not have the prerequisites or assumed knowledge are advised to discuss their proposed enrolment with an academic adviser.

Where it is necessary to limit the number of students who can enrol in a unit through shortage of space, equipment, library resources, and so on, or to meet safety requirements, preference will be given to students who have completed the unit recommended sequence in the course.

### Academic credit

In most courses, academic credit will be granted for previous studies. For example, UWS has a number of agreements with TAFE to grant credit for successfully completed TAFE studies. Seek advice about credit prior to, or at enrolment.

### Electives and cross-discipline study

Electives are available in many courses. These may be selected from pools of electives listed under various courses.

Also, UWS actively encourages students to take elective units in disciplines other than their major area of study. Students should seek advice from their course coordinator in the first instance.

### How to use this electronic book

The first part of this electronic book contains information about current College of Health and Science undergraduate courses. The next part contains details of undergraduate units in these courses.

The courses are arranged mainly alphabetically. If you know the course code, but not the name, consult the COURSE CODE INDEX.

The units are arranged alphabetically. If you know the code, but not the name, consult the UNIT CODE INDEX at the back of the electronic book.

#### **Tip:**

The electronic handbook contains links. These can be accessed by clicking on the text highlighted in blue. To return to the previous screen, click on the green arrow at the bottom of the page.

### Check website for updates

Every effort is taken to ensure that the information contained in this electronic book is correct at time of production. The latest information on course and unit offerings can be found at:

<http://handbook.uws.edu.au/hbook/>

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## COLLEGE OF HEALTH AND SCIENCE

### Bachelor of Applied Science (Honours) Occupational Therapy

#### 4521.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

Occupational therapy is a client centred process that facilitates an individual's performance in chosen life roles and every day tasks across the lifespan, within diverse social, cultural and physical environments. This program views occupational therapy as the practice of using occupation as a therapeutic means to optimise an individual's health, well being and quality of life. Throughout their lives, people have the right to actively choose and participate in occupations which add meaning, purpose and value to everyday life, regardless of ability, age, gender ethnicity beliefs and/or other status. The UWS occupational therapy program promotes the value of human diversity, fundamental human rights and the dignity and worth of every client.

#### Study Mode

Four years full-time.

#### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

#### Accreditation

The course is fully accredited with Occupational Therapy Australia. It is also a World Federation of Occupational Therapists (WFOT) approved course.

#### Course Structure

Qualification for this award requires the successful completion of 320 credit points which include the units listed in the recommended sequence below. Students in the embedded Honours program undertake different units in fourth year, as outlined below.

#### Recommended Sequence

##### Full-time

##### Year 1

##### Autumn session

<b>400130.1</b>	Human Medical Sciences 1
<b>400160.2</b>	Introduction to Occupational Therapy
<b>400732.1</b>	Communication in Health
<b>400733.1</b>	Occupational Analysis

##### Spring session

<b>400134.1</b>	Human Medical Sciences 3
<b>400136.1</b>	Introduction to the Psychology of Health

<b>400137.1</b>	Introduction to Research for Health Sciences
<b>400907.1</b>	Occupational Therapy Practice 1

##### Year 2

##### Autumn session

<b>400164.1</b>	Introduction to Sociology of Health
<b>400138.2</b>	Pathophysiology 1
<b>400148.2</b>	Quantitative Research
<b>400734.1</b>	Functional Analysis

##### Spring session

<b>400964.1</b>	Clinical Neurosciences
<b>400167.1</b>	Occupational Therapy Clinical Practice 2
<b>400165.1</b>	Occupation and the Environment
<b>400162.1</b>	Child and Adolescent Occupations

##### Year 3

##### Autumn session

<b>400168.1</b>	Ergonomics and Work Occupations
<b>400169.1</b>	Occupation and Mental Health
<b>400171.1</b>	Occupation and Neurology
<b>400170.1</b>	Occupation and Social Participation

##### Spring session

<b>400172.1</b>	Occupational Therapy Clinical Specialties 1
<b>400173.1</b>	Occupational Therapy Clinical Specialties 2
<b>400174.1</b>	Occupational Therapy Clinical Practice 3a
<b>400175.1</b>	Occupational Therapy Clinical Practice 3b

##### Year 4 (Honours)

##### Autumn session

<b>400154.1</b>	Integrating Evidence into Practice
<b>400176.1</b>	Occupation and Ageing
<b>400180.1</b>	Occupational Therapy Honours Thesis 1
<b>400177.1</b>	Professional Reasoning

##### Spring session

<b>400182.1</b>	Occupational Therapy Clinical Practice 4 (Honours)
<b>400181.1</b>	Occupational Therapy Honours Thesis 2

#### Elective Units

Elective units in the Bachelor of Applied Science (Occupational Therapy) may be chosen from across UWS, provided that unit prerequisites are met and space is available.

The following is a list of elective units in the Occupational Therapy discipline area which are not listed elsewhere in the Handbook. These electives are open to students from across UWS provided that pre-requisites are met and space is available. Please note that these elective units will not be offered every year:

<b>400183.1</b>	Upper Limb Rehabilitation Following Stroke
<b>400184.1</b>	Conducting Medicolegal Assessments
<b>400186.1</b>	Paediatric Practice
<b>400187.1</b>	Supervision in Clinical Practice

**400809.1** Outcome Measures and Indicators in Clinical Practice

## Bachelor of Biomolecular Science

### 3632.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

This degree equips students with specialised knowledge and understanding of the molecular basis of human health and disease. After undertaking a common first year, students select a Key Program in Human Molecular Biology or Pharmaceutical Chemistry.

Human Molecular Biology emphasises recent discoveries in molecular and cell biology relevant to human health and disease - molecular biology and functional genomics, protein science, proteomics, human metabolism, genetics, cell signalling and molecular immunology.

Pharmaceutical Chemistry emphasises the applications of chemistry for human health – biomolecular dynamics and pharmacokinetics, coordination chemistry, drug design, development, and analysis.

A range of alternate and elective units enable students to expand their knowledge in specific disciplines or develop research skills through individual projects.

The degree prepares graduates for a wide range of employment prospects as professional scientists in analytical, diagnostic and research laboratories, in science communication, technical sales and secondary science education, and provides a suitable foundation for entry into postgraduate research and coursework programs.

### Study Mode

Three years full-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

### Advanced Standing

Applications for advanced standing will be assessed in accordance with current UWS policy.

### Accreditation

It is anticipated that the Bachelor of Biomolecular Science with Key Program in Pharmaceutical Chemistry will receive accreditation from the Royal Australian Chemical Institute.

### Admission

Assumed knowledge required: HSC level Chemistry and Mathematics studies are assumed.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of

minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 240 credit points including the units listed in the recommended sequence below. All students study the same units in Year 1, and then select a Key Program for study in Years 2 and 3.

### Recommended Sequence

#### Full Time

##### Year 1

##### Autumn session

<b>300539.1</b>	Biodiversity
<b>300554.1</b>	Principles of Chemistry
<b>300558.1</b>	Physics 1

Choose one of

<b>200191.3</b>	Fundamentals of Mathematics
<b>200189.1</b>	Concepts of Mathematics

##### Spring session

<b>300543.1</b>	Cell Biology
<b>300550.1</b>	Medicinal Chemistry
<b>300541.1</b>	Biomolecular Frontiers

And one elective

##### Year 2 and Year 3

Students select a Key Program of study for years 2 and 3

<b>KP3632HMB.1</b>	Human Molecular Biology
<b>KP3632PC.1</b>	Pharmaceutical Chemistry

## Bachelor of Computer Science

### 3506.4

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2008 or later.

The Bachelor of Computer Science course is a three year course with three distinct majors which allow students to specialise in different applications of computer science and computer systems. The three majors are: computer forensics, networked systems and systems programming. The course and the three majors are all available on the Penrith Campus. Students may graduate without a major but where a major is completed it will appear on the student's transcript. Accreditation with the Australian Computer Society is being sought.



**Computer Forensics major:** Computer forensics focuses on the gathering of evidence (often as part of an investigation) from computers and computer networks. Such evidence may consist of actual files (e.g. an image) or the traces of a user's activities that are left in the activity logs of operating systems, browsers, databases, web proxies, or network firewalls, etc. Identifying such evidence requires in-depth technical knowledge of the interactions between hardware, the operating system, programs, and the network. Similarly, knowledge of cryptographic techniques is required where data has been encrypted and/or obfuscated. This major develops this requisite knowledge; it also develops the skills necessary to ensure that evidence is not corrupted, and can be documented and presented in an intelligible manner.

**Networked Systems major:** This major aims to develop graduates with sound skills in the discipline of networked computer systems. Recent advances in computer and telecommunications networked systems, particularly those based on TCP/IP, have increased the importance of network technologies in the discipline of computer science. This major covers a wide range of topics including computer communication network concepts and protocols, multimedia systems, Internet standards and technologies, network security, wireless and mobile computing, and distributed systems. The candidates are also introduced to some of the relevant current key research issues of the field.

**Systems Programming major:** This major aims to develop graduates with sound skills in the discipline of programming. The focus is on programming at the level of system calls to the underlying operating system and many of the units use the industry standard language for systems programming, namely C/C++, as the vehicle of instruction. There is a strong emphasis on the development of highly efficient and reliable code that can provide support services for higher level application oriented programs, as well as the development of programs suitable for systems administration and management. Practical work utilises both Unix and Microsoft environments. This major is appropriate where a career in systems programming or systems administration is planned, or where the student wishes to develop advanced systems programming skills.

### Study Mode

Three years full-time.

### Location

Campus	Attendance Mode
Penrith Campus	Full Time Internal

### Accreditation

The Bachelor of Computer Science currently is accredited with the Australian Computer Society at Professional Level.

### Admission

Assumed knowledge required: HSC Mathematics (2 unit) and any two units of HSC English

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of

minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.

### Recommended Sequence

#### Full-time

##### Year 1

##### Autumn session

One of:

<b>200192.1</b>	Statistics for Science
<b>300700.2</b>	Statistical Decision Making

Note: from 2010, 200192 - Statistics for Science replaced by 300700 -Statistical Decision Making

<b>300580.1</b>	Programming Fundamentals
<b>100483.1</b>	Principles of Professional Communication 1
<b>200025.1</b>	Discrete Mathematics

##### Spring session

<b>300096.4</b>	Computer Organisation
<b>300103.1</b>	Data Structures and Algorithms
<b>300104.2</b>	Database Design and Development
<b>300565.1</b>	Computer Networking

##### Year 2

##### Autumn session

<b>300167.2</b>	Systems Programming 1
<b>300581.1</b>	Programming Techniques
<b>300121.1</b>	Formal Languages and Automata

And one elective

##### Spring session

<b>300404.1</b>	Formal Software Engineering
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And two Computer Science alternate units

And one elective

##### Year 3

##### Autumn session

<b>300578.2</b>	Professional Development
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And two Computer Science alternate units

And one elective

##### Spring session

<b>300579.1</b>	Professional Experience
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And two Computer Science alternate units

And one elective

### Computer Science Alternate Units

<b>300090.1</b>	Compiler Theory and Practice
<b>300092.1</b>	Computer Architecture
<b>300093.1</b>	Computer Graphics
<b>300095.2</b>	Computer Networks and Internets
<b>300115.1</b>	Distributed Systems and Programming
<b>300128.2</b>	Information Security
<b>300130.1</b>	Internet Programming
<b>300143.2</b>	Network Security
<b>300149.1</b>	Operating Systems
<b>300165.2</b>	Systems Administration Programming
<b>300166.1</b>	Systems and Network Management
<b>300168.1</b>	Systems Programming 2
<b>300368.1</b>	Intelligent Systems
<b>300447.1</b>	Computer Forensics Workshop
<b>300507.1</b>	Extended Computing Project 1
<b>300508.1</b>	Extended Computing Project 2
<b>300575.1</b>	Networked Systems Design

### Majors

The majors listed below were designed specifically for this course and are recommended for Bachelor of Computer Science students. Other majors, from the School of Computing and Mathematics or any other School may also be selected but may require more than the standard six semesters to complete depending on their affinity with this course.

<b>M31015V2.1</b>	Computer Forensics
<b>M31026V2.1</b>	Networked Systems
<b>RU3010V2.1</b>	Systems Programming

## Bachelor of Computer Science (Advanced)

### 3634.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2008 or later.

Students in the Bachelor of Computer Science (Advanced) will follow the study program set out for 3506 Bachelor of Computer Science. Each student will have an Academic Mentor and will participate in additional compulsory activities including research projects. To maintain their enrolment in the Bachelor of Computer Science (Advanced) students must maintain an overall above 5 Grade Point Average (GPA), otherwise they will be transferred to the standard 3506 Bachelor of Computer Science course. At enrolment students will be required to sign a declaration acknowledging the requirement to maintain a GPA greater than 5.0.

For more information refer to the entry for 3506 Bachelor of Computer Science.

### Study Mode

Three years full-time.

### Location

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

### Accreditation

The Bachelor of Computer Science currently is accredited with the Australian Computer Society at Professional Level.

### Admission

Assumed knowledge required: HSC Mathematics plus any two units of English (or equivalent). Recommended studies: Mathematics (extension 1).

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Special Requirements

Students must maintain a grade point average (GPA) of above 5.0 to remain in the course; those who do not maintain this average will be transferred to the Bachelor of Computer Science. At enrolment students will be required to sign a declaration acknowledging the requirement to maintain a GPA greater than 5.0.

### Course Structure

In addition to the units outlined in the course structure for 3506 Bachelor of Computer Science, students in the advanced program must also complete the following three units.

Students must enrol in both 1H and 2H sessions.

#### Year 1

##### 1H session

**300586.1** Advanced Computer Science Activities 1

##### 2H session

**300586.1** Advanced Computer Science Activities 1

#### Year 2

##### 1H session

**300587.1** Advanced Computer Science Activities 2

##### 2H session

**300587.1** Advanced Computer Science Activities 2

**Year 3****1H session****300588.1** Advanced Computer Science Activities 3**2H session****300588.1** Advanced Computer Science Activities 3**Bachelor of Computer Science (Honours)****3614.1**

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2004 or later.

The Honours program encourages independence in learning and research; further develops academic ability, provides the opportunity to pursue undergraduate studies to a more advanced level, deepen intellectual understanding in the major field of study and develop research skills. Honours is a recognised point of entry into postgraduate research studies at PhD and Masters levels. If a career in industry is sought, Honours enables study to a more advanced level with a higher qualification. The course has the opportunity for direct commercial and industrial involvement with a diverse range of organisations through the provision and joint supervision of research projects.

**Study Mode**

One year full-time or two years part-time.

**Location**

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Campbelltown Campus	Part Time	Internal
Parramatta Campus	Full Time	Internal
Parramatta Campus	Part Time	Internal
Penrith Campus	Full Time	Internal
Penrith Campus	Part Time	Internal

**Accreditation**

Professional accreditation by the Australian Computer Society may be available, depending on a student's undergraduate degree. The Bachelor of Computer Science currently is accredited with the Australian Computer Society at Professional Level.

**Course Structure**

Qualification for this award requires the successful completion of 80 credit points including the units listed below.

The award is a year long program that will be divided into three main components: Computing Research Process and Practice (10 credit points), Computing Honours Seminar Program (10 credit points) and the Computing Honours Thesis (60 credit points).

Students must enrol in 300364 Computing Honours Seminar Program and 300363 Computing Honours Thesis in both Autumn and Spring sessions.

**Full-time****Year 1****Autumn session**

**300365.1** Computing Research Process and Practice  
**300364.2** Computing Honours Seminar Program  
**300363.2** Computing Honours Thesis

**Spring session**

**300364.2** Computing Honours Seminar Program  
**300363.2** Computing Honours Thesis

**Part-time****Year 1****Autumn session**

**300365.1** Computing Research Process and Practice  
**300363.2** Computing Honours Thesis

**Spring session**

**300364.2** Computing Honours Seminar Program  
**300363.2** Computing Honours Thesis

**Year 2****Autumn session**

**300364.2** Computing Honours Seminar Program  
**300363.2** Computing Honours Thesis

**Spring session**

**300363.2** Computing Honours Thesis

**Bachelor of Computing****3633.2**

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2009 or later.

The Bachelor of Computing is a professional Information Communication Technology course that provides graduates with a skills and knowledge base in the IS/IT areas of ICT and the ability to apply IS/IT solutions to a wide area of ICT. It allows students to develop skills in program design, systems analysis, design and security, data analysis and modelling, networks, web-design and systems planning.

This degree develops the abilities to design, develop, deploy and manage a spectrum of ICT systems.

As an ICT specialist in the ICT world, these attributes enable graduates to work in software development companies, networking companies, banking companies, IT

consulting companies, the health care industry and many other IS and business related roles.

The Bachelor of Computing course is a three year ICT course being accredited by the Australian Computer Society. The Key Program in Information Systems focuses on computing and information technology in the context of business. Majors and sub-majors may be chosen from a range of disciplines, subject to the approval of Head of Program and subject to the number of elective units available in the Key Program. Accreditation at Professional level will be sought with the Australian Computer Society.

### Study Mode

Three years full-time.

### Location

Campus	Attendance	Mode
Parramatta Campus	Full Time	Internal

### Accreditation

The Bachelor of Computing currently is accredited with the Australian Computer Society at Professional Level.

### Admission

Assumed knowledge required: HSC Mathematics and any two units of HSC English.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequences below.

Non-recent school leavers who have not studied mathematics, or those students who have completed HSC General Mathematics, or some students who have undertaken HSC Mathematics but have only achieved bands 2 or 3 may benefit from taking the following unit as an elective:

**300691.1** Mathematical Reasoning

Please seek further advice from the Head of Program.

### Bachelor of Computing (Information Systems)

**KT3000.1** Information Systems

### Majors

The following majors are only available to students enrolled in the Bachelor of Computing and Bachelor of Information and Communications Technology courses

**M3001.1** Advanced Programming  
**M3000.1** Computer Systems

The following major is available to all students except those enrolled in the Networks or Information Systems key programs within the Bachelor of Computing course, and the Bachelor of Information and Communications Technology course

**M3002.1** Information Technology

The following major is available to all students except those enrolled in the Health Informatics key program within the Bachelor of Computing course

**M3004.1** Health Informatics

The following major is available to all students except those enrolled in the Bachelor of Computing or the Bachelor of Computer Science or the Bachelor of Information and Communications Technology courses

**M3003.1** Web Systems Development

The following majors are available to all students

**M3023.1** Computational Decision Making  
**M3005.1** Entertainment Computing  
**M3024.1** Knowledge Discovery and Data Mining  
**M3021.1** Mathematics  
**M3022.1** Statistics

### Sub-majors

The following sub-majors are available to only those students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses

**SM3005.1** Applied Mathematics  
**SM3000.1** Computer Systems  
**SM3004.1** Formal Systems  
**SM3001.1** Systems Administration  
**SM3003.1** Systems Programming  
**SM3002.1** Systems Security

Two sub-majors in Web Development are available, one for computing students, the other for non-computing students.

Computing students only (that is, students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses):

**SM3006.1** Web Application Development (for Computing Students)

Non-computing students only:

**SM3007.1** Web Application Development (for Non-Computing Students)

The following sub-major is available to all students except those enrolled in the Bachelor of Computing (Networks)

**SM3008.1** Networking

The following sub-majors are available to all students except those enrolled in the Health Informatics key program within the Bachelor of Computing course

<b>SM3010.1</b>	Health Information Applications
<b>SM3009.1</b>	Health Information Management

The following sub-majors are available to all students

<b>SM3027.1</b>	Computational Decision Making
<b>SM3011.1</b>	Entertainment Computing
<b>SM3028.1</b>	Knowledge Discovery and Data Mining
<b>SM3025.1</b>	Mathematics
<b>SM3026.1</b>	Statistics

## Bachelor of Computing (Honours)

### 3588.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2002 or later.

The Honours program encourages independence in learning and research; further develops academic ability, provides the opportunity to pursue undergraduate studies to a more advanced level, deepen intellectual understanding in the major field of study and develop research skills. Honours is a recognised point of entry into postgraduate research studies at PhD and Masters levels. If a career in industry is sought, Honours enables study to a more advanced level with a higher qualification. The course has the opportunity for direct commercial and industrial involvement with a diverse range of organisations through the provision and joint supervision of research projects.

### Study Mode

One year full-time or two years part-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Campbelltown Campus	Part Time	Internal
Parramatta Campus	Full Time	Internal
Parramatta Campus	Part Time	Internal
Penrith Campus	Full Time	Internal
Penrith Campus	Part Time	Internal

### Accreditation

Professional accreditation by the Australian Computer Society may be available, depending on a student's undergraduate degree. The Bachelor of Computing currently is accredited with the Australian Computer Society at Professional Level.

### Course Structure

Qualification for this award requires the successful completion of 80 credit points as per the recommended sequence below.

The award is a year long program that will be divided into three main components: Computing Research Process and Practice (10 credit points), Computing Honours Seminar Program (10 credit points) and the Computing Honours Thesis (60 credit points).

Students must enrol in 300364 Computing Honours Seminar Program and 300363 Computing Honours Thesis in both Autumn and Spring sessions.

## Recommended Sequence

### Full-time

#### Year 1

#### Autumn session

<b>300365.1</b>	Computing Research Process and Practice
<b>300364.2</b>	Computing Honours Seminar Program
<b>300363.2</b>	Computing Honours Thesis

#### Spring session

<b>300364.2</b>	Computing Honours Seminar Program
<b>300363.2</b>	Computing Honours Thesis

### Part-time

#### Year 1

#### Autumn session

<b>300365.1</b>	Computing Research Process and Practice
<b>300363.2</b>	Computing Honours Thesis

#### Spring session

<b>300364.2</b>	Computing Honours Seminar Program
<b>300363.2</b>	Computing Honours Thesis

#### Year 2

#### Autumn session

<b>300364.2</b>	Computing Honours Seminar Program
<b>300363.2</b>	Computing Honours Thesis

#### Spring session

<b>300363.2</b>	Computing Honours Thesis
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## Bachelor of Construction Management

### 2607.4

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

This course is aimed at providing the skills and abilities necessary to perform competently at a professional level in the building industry, in one or more of the following roles: Construction Managers, Project Managers, Building Supervisors, Estimators, Quantity Surveyors and Building Researchers.

Students will develop specialised skills in construction management. The Construction Management program is widely recognised for delivering the full suite of theoretical, practical, and hands-on experience in the area of construction management. It offers a sophisticated, purpose-built laboratory complex where students will conduct experiments across the range of building sciences, including acoustics, heat flow through a building, corrosion of materials, concrete testing, and much more. Additionally, students will be required to undertake a total of 1,200 hours approved practical experience during the course.

There are a number of opportunities during the course for obtaining a cadetship in the building industry in areas including building surveying, construction economics, and construction management.

### Study Mode

Four years full-time or eight years part-time.

### Location

Campus	Attendance Mode
Penrith Campus	Full Time Internal

### Advanced Standing

Advanced standing is available to students who have completed the following courses at TAFE. Diploma of Building Studies, Diploma of Quantity Surveying, Diploma of Building Surveying, Diploma of Civil Engineering, Diploma of Structural Engineering, Diploma of Architectural Technology (Credit and Distinctions only).

### Accreditation

Graduates are eligible for Probationer membership with advancement to Associate membership of the Australian Institute of Quantity Surveyors after Assessment of Professional Competence.

### Admission

Assumed knowledge required: HSC Mathematics, Physics and English.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 320 credit points which include units in the recommended sequence below. Electives within the sequence may be used towards obtaining an approved submajor for this award.

## Recommended Sequence

### Full-time

#### Year 1

##### Autumn session

<b>300706.1</b>	Building 1
<b>300729.1</b>	Graphic Communication and Design
<b>300674.1</b>	Engineering, Design and Construction Practice
<b>300016.1</b>	Design Science

##### Spring session

<b>300707.1</b>	Building 2
<b>200184.2</b>	Introduction to Business Law
<b>200101.2</b>	Accounting Information for Managers
<b>MG102A.2</b>	Management Foundations

#### Year 2

##### Autumn session

<b>300720.1</b>	Construction Technology 1 (Civil)
<b>200486.1</b>	Quantity Surveying 1
<b>200472.2</b>	Material Science in Construction
<b>300723.1</b>	Development Control

##### Spring session

<b>300721.1</b>	Construction Technology 2 (Substructure)
<b>200468.1</b>	Estimating 1
<b>200482.1</b>	Construction in Practice 1

Elective 1

#### Year 3

##### Autumn session

<b>200502.2</b>	Construction Technology 3 (Concrete Construction)
<b>200485.1</b>	Decision Making for Construction Professionals
<b>300727.1</b>	Project Management
<b>300728.1</b>	Construction Planning

##### Spring session

<b>200470.2</b>	Construction Technology 4 (Steel Construction)
<b>300722.1</b>	Building Regulations Studies
<b>300053.2</b>	Professional Practice
<b>200292.1</b>	Building Law

### Non-Honours Stream

#### Year 4

##### Autumn session

<b>200471.2</b>	Construction Technology 5 (Envelope)
<b>200504.1</b>	Construction Economics
<b>300536.1</b>	Major Project in Construction

Elective 3

**Spring session**

**300725.1** Construction Technology 6 (Services)  
**200484.2** Construction in Practice 3

Elective 2

Elective 4

**Honours Stream**

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

**Year 4****Autumn session**

**200471.2** Construction Technology 5 (Envelope)  
**200504.1** Construction Economics  
**300675.1** Honours Thesis

**Spring session**

**300725.1** Construction Technology 6 (Services)  
**200484.2** Construction in Practice 3  
**300675.1** Honours Thesis

**Sub-major in Construction Economics**

**SM3029.1** Construction Economics

**To graduate with a sub-major in Construction Economics students must successfully complete the following specialist units:**

**Elective 1**

**200503.1** Construction Information Systems

**Elective 2**

**200487.1** Quantity Surveying 2

**Elective 3**

**300748.1** Quality and Value Management

**Elective 4**

**300726.1** Estimating 2

All students enrolled in Bachelor of Construction Management must obtain, through their own initiative, 1200 hours of construction management related employment prior to undertaking their final year of study.

To facilitate the recording of such experience it will be necessary to enrol in 300724 Industry Based Learning and have an Industry Experience Diary signed off by the Course Coordinator.

**300724.1** Industry Based Learning

**Bachelor of Design and Technology****3502.4**

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2009.

This course prepares students for a career in industrial design and/or industrial graphics. This is achieved by providing a sound knowledge of units in a broad range of design disciplines, including design methodology, design innovation, product design, ergonomics, manufacturing technology and design, aesthetics, management 2D and 3D CAD. Students interested in a teaching career in Design and Technology may take the end-on Bachelor of Teaching degree or Graduate diploma in Education after completing their Design and Technology degree.

**Study Mode**

Three years full-time. Combinations of full-time and part-time study or all part-time study are also permitted under the normal program.

**Location**

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

**Advanced Standing**

Advanced Standing will be assessed in accordance with UWS policy.

**Accreditation**

Graduates are eligible for membership of the Design Institute of Australia (DIA).

**Admission**

There are no specific subject prerequisites for entry into the course. Preferably, students should have successfully completed the HSC at the 2U level or better in English and at least two of the following units: Design & Technology, Arts, Physics, and Mathematics. Alternative entry: Certificate, Associate Diploma or Advanced Diploma from TAFE or another recognized teaching institution or equivalent in the discipline area. In some cases, professional experience will be counted towards alternative entry.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

## Course Structure

Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.

To be eligible to graduate from this course, students are required to complete a sub-major. Refer to the 'note' after the sub-major listing, for further details.

## Recommended Sequence

### Full-time

#### Year 1

##### Autumn session

<b>300674.1</b>	Engineering, Design and Construction Practice
<b>300016.1</b>	Design Science
<b>10943.2</b>	Applied Ergonomics
<b>200191.3</b>	Fundamentals of Mathematics

##### Spring session

<b>300462.1</b>	Engineering and Design Concepts
<b>300302.1</b>	Industrial Graphics 1: Presentation
<b>300304.2</b>	Sustainable Design: Materials Technology
<b>200083.1</b>	Marketing Principles

#### Year 2

##### Autumn session

<b>300305.2</b>	Design Studio 1: Themes and Variations
<b>300309.2</b>	Sustainable Design: Life Cycle Analysis
<b>300282.1</b>	Industrial Graphics 2: Transition

Choose one of

One sub-major alternate unit

Or one elective

##### Spring session

<b>300308.2</b>	Design Studio 2: The Design Proposal
<b>300306.2</b>	Sustainable Design: Sustainable Futures
<b>300310.2</b>	Industrial Graphics 3: 3D Solids

Choose one of

One sub-major alternate unit

Or one elective

#### Year 3

##### Autumn session

<b>300311.2</b>	Design Studio 3: Product Realisation
<b>300014.2</b>	Design Management 3: Organisational Skills for Designers

Choose one of

Two sub-major alternate units

Or two electives

##### Spring session

<b>300313.2</b>	Design Studio 4: Simulate to Innovate
<b>300314.1</b>	Designed Inquiry

Choose one of

Two sub-major alternate units

Or two electives

## Industrial Experience

**10915.2** Industrial Experience

## Majors

There are three Majors available, composed of units from the program, however these are not compulsory to complete:

<b>M3503IDM.1</b>	Innovation Design Management
<b>M3503IIG2.1</b>	Interactive Industrial Graphics
<b>M3503INTDM.1</b>	International Design Management

## Sub-majors

There are three sub-majors, composed of units from the program.

<b>S3502DM.1</b>	Design Management
<b>S3502IG.1</b>	Industrial Graphics
<b>S3502SD.1</b>	Sustainable Design

Note: In addition to the sub-major streams/electives offered from within Industrial Design (as listed above) students may choose other sub-major streams/electives within the School of Engineering and Industrial Design or the University of Western Sydney or other universities (as cross institutional studies).

## Bachelor of Design and Technology

### 3502.5

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was Spring 2010 or later.

This course prepares students for a career in industrial design and/or industrial graphics. This is achieved by providing a sound knowledge of units in a broad range of design disciplines, including design methodology, design innovation, product design, ergonomics, manufacturing technology and design, aesthetics, management 2D and 3D CAD. Students interested in a teaching career in Design and Technology may take the end-on Bachelor of Teaching degree or Graduate diploma in Education after completing their Design and Technology degree.

## Study Mode

Three years full-time. Combinations of full-time and part-time study or all part-time study are also permitted under the normal program.

## Location

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal



## Advanced Standing

Advanced Standing will be assessed in accordance with UWS policy.

## Accreditation

Graduates are eligible for membership of the Design Institute of Australia (DIA).

## Admission

There are no specific subject prerequisites for entry into the course. Preferably, students should have successfully completed the HSC at the 2U level or better in English and at least two of the following units: Design & Technology, Arts, Physics, and Mathematics. Alternative entry: Certificate, Associate Diploma or Advanced Diploma from TAFE or another recognized teaching institution or equivalent in the discipline area. In some cases, professional experience will be counted towards alternative entry.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

## Course Structure

Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.

To be eligible to graduate from this course, students are required to complete a sub-major. Refer to the 'note' after the sub-major listing, for further details.

## Recommended Sequence

### Full-time

#### Year 1

##### Autumn session

<b>300674.1</b>	Engineering, Design and Construction Practice
<b>300016.1</b>	Design Science
<b>300776.1</b>	Applied Ergonomics
<b>200191.3</b>	Fundamentals of Mathematics

##### Spring session

<b>300462.1</b>	Engineering and Design Concepts
<b>300302.1</b>	Industrial Graphics 1: Presentation
<b>300304.2</b>	Sustainable Design: Materials Technology
<b>200083.1</b>	Marketing Principles

#### Year 2

##### Autumn session

<b>300305.2</b>	Design Studio 1: Themes and Variations
<b>300309.2</b>	Sustainable Design: Life Cycle Analysis
<b>300282.1</b>	Industrial Graphics 2: Transition

Choose one of

One sub-major alternate unit

Or one elective

##### Spring session

<b>300308.2</b>	Design Studio 2: The Design Proposal
<b>300306.2</b>	Sustainable Design: Sustainable Futures
<b>300310.2</b>	Industrial Graphics 3: 3D Solids

Choose one of

One sub-major alternate unit

Or one elective

#### Year 3

##### Autumn session

<b>300311.2</b>	Design Studio 3: Product Realisation
<b>300014.2</b>	Design Management 3: Organisational Skills for Designers

Choose one of

Two sub-major alternate units

Or two electives

##### Spring session

<b>300313.2</b>	Design Studio 4: Simulate to Innovate
<b>300314.1</b>	Designed Inquiry

Choose one of

Two sub-major alternate units

Or two electives

## Industrial Experience

<b>300775.1</b>	Industrial Experience
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## Majors

There are three Majors available, composed of units from the program, however these are not compulsory to complete:

<b>M3503IDM.1</b>	Innovation Design Management
<b>M3503IIG2.1</b>	Interactive Industrial Graphics
<b>M3503INTDM.1</b>	International Design Management

## Sub-majors

There are three sub-majors, composed of units from the program.

<b>S3502DM.1</b>	Design Management
<b>S3502IG.1</b>	Industrial Graphics
<b>S3502SD.1</b>	Sustainable Design

Note: In addition to the sub-major streams/electives offered from within Industrial Design (as listed above) students may choose other sub-major streams/electives within the School

of Engineering and Industrial Design or the University of Western Sydney or other universities (as cross institutional studies).

## Bachelor of Engineering

### 3621.4

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

This course has two intakes - Start year (Autumn) and Mid year (Spring). Students will need to check the entry relevant to their intake.

The Bachelor of Engineering course is a four year course. It has a common first year program for all engineering disciplines and it also shares two units with the Bachelor of Industrial Design and one unit with the Bachelor of Construction Management, exposing students to a wide range of experiences in the first year. Students have the opportunity to focus on an area of speciality by undertaking a key program in the disciplines of Civil, Computer, Construction, Electrical, Environmental, Robotics & Mechatronics, and Telecommunications. Sub-majors can be chosen from a range that will compliment their specialist discipline. Students also have an opportunity to broaden their experience by choosing sub-majors from other disciplines or alternately outside the School.

### Study Mode

Four years full-time.

### Location

Campus	Attendance Mode
Penrith Campus	Full Time Internal

### Accreditation

The course has been designed to meet the requirements of Engineers Australia. Six Key Programs, namely, Civil, Computer, Electrical, Environmental, Robotics & Mechatronic and Telecommunications, have received full accreditation from Engineers Australia at the level of Professional Engineer. Accreditation for the Construction Key Program will be sought from Engineers Australia in 2010.

### Admission

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

Assumed knowledge required: Mathematics at Band 5 or higher, any two units of Science and any two units of English. Recommended studies: Physics and HSC Mathematics Extension 1 or HSC Mathematics Extension 2.

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

## Course Structure

### Head Of Program

Dr Fidelis Mashiri is the Head of Program for Key Programs in Civil, Construction, Environmental and Robotics and Mechatronics.

Dr Khoa Le is the Head of Program for Key Programs in Electrical, Computer and Telecommunications.

### Recommended Sequence

Qualification for this award requires the successful completion of 320 credit points as per the recommended sequence below.

### Full-time - Autumn intake

#### Year 1

##### Autumn session

<b>200237.1</b>	Mathematics for Engineers 1
<b>300464.1</b>	Physics and Materials
<b>300027.1</b>	Engineering Computing
<b>300674.1</b>	Engineering, Design and Construction Practice

##### Spring session

<b>200238.1</b>	Mathematics for Engineers 2
<b>300463.1</b>	Fundamentals of Mechanics
<b>300021.1</b>	Electrical Fundamentals
<b>300462.1</b>	Engineering and Design Concepts

#### Year 2 - Year 4

Students must then select one of the following key programs:

<b>KT3027.1</b>	Civil
<b>KT3029.1</b>	Computer
<b>KT3026.1</b>	Construction
<b>KT3032.1</b>	Electrical
<b>KT3028.1</b>	Environmental
<b>KT3033.1</b>	Robotics and Mechatronics
<b>KT3034.1</b>	Telecommunications

### Recommended Sequence

#### Full-time - Spring Intake

The sequence of units for Year 1 Spring Intake is different for each Key Program. Please see details under each Key Program link above.

### Sub-majors

The following sub-majors are available to all UWS students apart from students studying the same Key Program discipline. However, some of the units in the sub-majors may need prerequisites, which could restrict their selection to Engineering students. Please seek advice from Head of Program.

<b>SM3621CIVE.1</b>	Civil Engineering
<b>SM3032.1</b>	Computer Engineering
<b>SM3033.1</b>	Construction
<b>SM3621ECOE.1</b>	Ecological Engineering
<b>SM3034.1</b>	Electrical Engineering
<b>SM3035.1</b>	Environmental Engineering
<b>SM3621R&amp;M.1</b>	Robotics and Mechatronics
<b>SM3621SOE.1</b>	Soil Engineering
<b>SM3621STRE.1</b>	Structural Engineering
<b>SM3621WATE.1</b>	Water Engineering
<b>SM3036.1</b>	Wireless Engineering

## Bachelor of Engineering (Advanced)

### 3636.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

The Bachelor of Engineering (Advanced) course is a four year course and is designed for high achieving students to undertake advanced engineering topics and gain substantial research experience. This course is in parallel with the Bachelor of Engineering course which has a common first year program for all engineering disciplines and shares two units with the Bachelor of Industrial Design and one unit with Bachelor of Construction Management, exposing students to a wide range of experiences in the first year. Students have the opportunity to focus on an area of speciality by undertaking a key program in the disciplines of Civil, Computer, Construction, Electrical, Environmental, Robotics & Mechatronics and Telecommunications. Students in this course will be challenged with special projects and assignments to realise their full potential. Students need to maintain a specified level of performance in this course and will carry out an honours project of 60 credit points in their fourth year of study.

### Study Mode

Four years full-time.

### Location

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

### Accreditation

The course has been designed to meet the requirements of Engineers Australia. Six Key Programs, namely, Civil, Computer, Electrical, Environmental, Robotics & Mechatronic and Telecommunications, have received full accreditation from Engineers Australia at the level of Professional Engineer. Accreditation for the Construction Key Program will be sought from Engineers Australia in 2010.

### Admission

Assumed knowledge required: HSC Mathematics Extension 1, Physics and any two units of English.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

## Course Structure

### Head Of Program

Dr Fidelis Mashiri is the Head of Program for Key Programs in Civil, Construction, Environmental and Robotics and Mechatronics.

Dr Khoa Le is the Head of Program for Key Programs in Electrical, Computer and Telecommunications.

### Recommended Sequence

Qualification for this award requires the successful completion of 320 credit points as per the recommended sequence below.

### Full-time

#### Year 1

##### Autumn session

<b>200237.1</b>	Mathematics for Engineers 1
<b>300464.1</b>	Physics and Materials
<b>300027.1</b>	Engineering Computing
<b>300674.1</b>	Engineering, Design and Construction Practice

##### Spring session

<b>200238.1</b>	Mathematics for Engineers 2
<b>300463.1</b>	Fundamentals of Mechanics
<b>300021.1</b>	Electrical Fundamentals
<b>300462.1</b>	Engineering and Design Concepts

#### Year 2 - Year 4

Students must then select one of the following key programs.

<b>KT3035.1</b>	Civil
<b>KT3036.1</b>	Computer
<b>KT3037.1</b>	Construction
<b>KT3038.1</b>	Electrical
<b>KT3039.1</b>	Environmental
<b>KT3040.1</b>	Robotics and Mechatronics
<b>KT3041.1</b>	Telecommunications

## Bachelor of Health Science

### 4656.1

Students should follow the course structure for the course version relevant to the year they commenced. This course

version applies to students whose commencement year in this course is 2010 or later.

The course provides a broad introduction to the health sciences with opportunities to major in health promotion, health service management and therapeutic recreation, or to transfer to one of the other health science specialisations at UWS. Subject to meeting admission criteria, transfers are possible to the clinical programs in physiotherapy, occupational therapy and podiatric medicine. Note that transfer places may be limited.

### Study Mode

Three years full-time. Students may choose to study at a reduced load.

### Location

Campus	Attendance Mode
Campbelltown Campus	Full Time Internal

### Accreditation

Accreditation will be sought with the Australian College of Health Services Executives (for Health Services Management Key Program) and the Diversional Therapy Association of Australia (for Therapeutic Recreation Key Program).

### Admission

For local students admission is through UAC - Assumed knowledge, any 2 units of English.

For international students, admission is through direct application to the university with IELTS equal to 6.5 or above.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Special Requirements

In order to enrol in Second Year Autumn units, all students must have: 1. NSW Health National Criminal Record Check, 2. Prohibited Employment Declaration Form. In order to enrol in Second Year Spring units, all students must have: 1. First Aid Certificate. To be eligible to undertake fieldwork placements in public hospitals, students must comply with vaccination requirements and be prepared to submit a completed Adult Immunisation Card to placement institutions. Details of necessary vaccinations are available from NSW Health.

### Course Structure

Qualification for this Key Program requires the successful completion of 240 credit points including the units within one of the following Key Programs.

### Recommended Sequence

Students must select and enrol in one of the following Key Programs before selecting individual units.

<b>KT4000.1</b>	Health Promotion
<b>KT4001.1</b>	Health Service Management
<b>KT4002.1</b>	Therapeutic Recreation

### Majors

**These majors are available to Health Promotion, Health Service Management and Therapeutic Recreation students only.**

<b>M4001.1</b>	Health Promotion
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This major is not available to students enrolled in the Health Promotion Key Program of the Bachelor of Health Science.

<b>M4002.1</b>	Health Services Management
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This major is not available to students enrolled in the Health Services Management Key Program of the Bachelor of Health Science.

<b>M4000.1</b>	Therapeutic Recreation
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This major is not available to students enrolled in the Therapeutic Recreation Key Program of the Bachelor of Health Science.

### Double Majors

The sharing of some common units across the Key Programs detailed above offers students the opportunity to achieve the Bachelor of Health Science with a double major. Qualification for the double major programs requires the successful completion of 240 credit points including the units listed in the recommended sequences below.

### Bachelor of Health Science (Therapeutic Recreation) with Health Promotion double major

OR

### Bachelor of Health Science (Health Promotion) with Therapeutic Recreation double major

### Recommended sequence (Double Major)

#### Full-time

##### Year 1

##### Autumn session

<b>400870.1</b>	Population Health and Society
<b>300361.2</b>	Introduction to Human Biology
<b>400783.1</b>	Professional Pathways in Health Science
<b>400871.1</b>	Professional Health Competencies

##### Spring session

<b>101614.1</b>	Psychology and Health
<b>400863.1</b>	Foundations of Research and Evidence-Based Practice

**400732.1** Communication in Health  
**400285.1** Public Health

**Year 2****Autumn session**

**400867.1** Approaches to Health Promotion  
**400244.1** Introduction to Leisure and Recreation Theory  
**400864.1** Research Methods (Quantitative and Qualitative)  
**400866.2** Culture, Diversity and Health

**Spring session**

**400968.1** Professional Practice in Aged Care and Disability  
**400246.2** Workplace Learning 1 (Therapeutic Recreation)  
**400966.1** Health Politics, Policy and Planning  
**400286.2** Injury Prevention

**Year 3****Autumn session**

**400275.1** Health Planning Project  
**400252.1** Workplace Learning 2 (Community Placement)  
**400789.2** Leisure Education Programming and Mental Health  
**400784.2** Health Promotion Practice 1

**Spring session**

**400785.2** Health Promotion Practice 2  
**400786.1** Professional Transition Project  
**400254.2** Therapeutic Recreation Professional Project  
**400249.1** Ethical and Legal Issues in Health Care

**Bachelor of Health Science (Therapeutic Recreation) with Health Services Management double major**

OR

**Bachelor of Health Science (Health Services Management) with Therapeutic Recreation double major**

**Recommended Sequence (Double Major)**

**Full-time****Year 1****Autumn session**

**400870.1** Population Health and Society  
**300361.2** Introduction to Human Biology  
**400783.1** Professional Pathways in Health Science  
**400871.1** Professional Health Competencies

**Spring session**

**101614.1** Psychology and Health

**400277.2** Health Services Management  
**400863.1** Foundations of Research and Evidence-Based Practice  
**400732.1** Communication in Health

**Year 2****Autumn session**

**400867.1** Approaches to Health Promotion  
**400244.1** Introduction to Leisure and Recreation Theory  
**400864.1** Research Methods (Quantitative and Qualitative)  
**400866.2** Culture, Diversity and Health

**Spring session**

**400968.1** Professional Practice in Aged Care and Disability  
**400246.2** Workplace Learning 1 (Therapeutic Recreation)  
**400966.1** Health Politics, Policy and Planning  
**400788.1** Health Services Workforce Management

**Year 3****Autumn session**

**400275.1** Health Planning Project  
**400252.1** Workplace Learning 2 (Community Placement)  
**400789.2** Leisure Education Programming and Mental Health  
**400787.1** Health Services Management Practice

**Spring session**

**400249.1** Ethical and Legal Issues in Health Care  
**400786.1** Professional Transition Project  
**400254.2** Therapeutic Recreation Professional Project  
**400279.2** Health Services Financial Management

**Bachelor of Health Science (Health Promotion) with Health Services Management double major**

OR

**Bachelor of Health Science (Health Services Management) with Health Promotion double major**

**Recommended Sequence (Double Major)**

**Full-time****Year 1****Autumn session**

**400870.1** Population Health and Society  
**300361.2** Introduction to Human Biology  
**400783.1** Professional Pathways in Health Science  
**400871.1** Professional Health Competencies

**Spring session**

<b>101614.1</b>	Psychology and Health
<b>400277.2</b>	Health Services Management
<b>400863.1</b>	Foundations of Research and Evidence-Based Practice
<b>400732.1</b>	Communication in Health

**Year 2****Autumn session**

<b>400867.1</b>	Approaches to Health Promotion
<b>400864.1</b>	Research Methods (Quantitative and Qualitative)
<b>400285.1</b>	Public Health
<b>400866.2</b>	Culture, Diversity and Health

**Spring session**

<b>400286.2</b>	Injury Prevention
<b>400966.1</b>	Health Politics, Policy and Planning
<b>400788.1</b>	Health Services Workforce Management

And one elective

**Year 3****Autumn session**

<b>400787.1</b>	Health Services Management Practice
<b>400275.1</b>	Health Planning Project
<b>400784.2</b>	Health Promotion Practice 1

And one elective

**Spring session**

<b>400785.2</b>	Health Promotion Practice 2
<b>400786.1</b>	Professional Transition Project
<b>400279.2</b>	Health Services Financial Management
<b>400249.1</b>	Ethical and Legal Issues in Health Care

**Bachelor of Health Science (Honours)****4657.1**

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students whose commencement year in this course is 2010 or later.

High-achieving students in the Bachelor of Health Science can take Honours as an additional year for full-time students (or a longer equivalent for part-time students) at the end of Year 3. Honours is a key early step in the path to leadership in the profession and opens up the world of research. The honours thesis will identify new ways to address real problems and is written under the supervision of experienced academic researchers.

The honours program encourages independent learning, develops research skills and provides an opportunity for deeper investigation in the major field of study. An honours program is a recognised preparation and entry point for postgraduate research studies and the research training is valuable preparation for careers in research and development and analysis in the public and private sectors.

The honours program consists of supervised research on a topic in health science, culminating in the production of a thesis and presentation of a seminar. The coursework component covers research training, research ethics and advanced research methods. Research projects often involve clinical studies and involvement with external health organisations.

**Study Mode**

One year full-time or two years part-time.

**Location**

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Campbelltown Campus	Part Time	Internal
Penrith Campus	Full Time	Internal
Penrith Campus	Part Time	Internal

**Admission**

Assumed knowledge: students must have completed a Bachelor of Health Science from UWS or equivalent degree from another university, with a GPA greater than 5.0 (calculated over all semesters).

Entry is competitive and will depend on availability of places and supervisors.

International students must have an IELTS equal to 6.5 or above.

Applicants from other universities for an honour program in Sport and Exercise Science will, in addition to the above, be required to demonstrate competence in the use of UWS Sport & Exercise Science laboratory equipment deemed necessary to carry out their proposed research as per the applicant's research statement.

**Course Structure**

Qualification for this award requires the successful completion of 80 credit points including the units listed in the recommended sequence below.

**Recommended Sequence****Full-time****Year 1****Autumn session**

<b>400872.1</b>	Honours Research Design and Methodology
<b>400898.1</b>	Honours Thesis in Health Science A

**Spring session**

<b>400899.1</b>	Honours Thesis in Health Science B
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**Part-time****Year 1****Autumn session**

<b>400872.1</b>	Honours Research Design and Methodology
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**Spring session****400898.1** Honours Thesis in Health Science A**Year 2****Autumn****400900.1** Honours Thesis in Health Science C**Spring****400901.1** Honours Thesis in Health Science D**Bachelor of Health Science (Personal Development, Health and Physical Education)****4659.1**

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students whose commencement year in this course is 2010 or later.

The Personal Development, Health and Physical Education (PDHPE) program brings together a comprehensive foundation of health sciences, understanding of physical activity and personal development, and skills in interacting with people. Graduates stand out for their holistic understanding of the concepts of health and physical activity in personal development. The program is a popular pathway to a Master of Teaching degree, and then on to a teaching career. Teaching opportunities can be extended beyond PDHPE by studying electives, such as science and mathematics. Graduates also work as personal trainers and sports coaches and new opportunities are opening up in community-based recreation.

The course explores challenging areas of personal development, including youth health issues, sexuality, drugs, psychology and risk-taking behaviours, as well as general health science, including human biology, health systems, health promotion and research. Facilities are state of the art, including a new gymnasium and a renovated dance and gym studio, and practical experience is a strong feature of the program.

**Study Mode**

Three years full-time. Students may choose to study at a reduced load.

**Location**

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

**Accreditation**

Graduates may be eligible to apply for accreditation with the NSW Institute of Teachers following the successful completion of a recognised teaching qualification. There is no professional accrediting body for the PDHPE specialisation.

**Admission**

For local students admission is through UAC. Assumed knowledge: any 2 units of English. Recommended Studies: Personal Development, Health and Physical Education or Community and Family Studies.

For international students, admission is through direct application to the university with IELTS equal to 6.5 or above.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

**Special Requirements**

In order to enrol in Second Year Autumn units, all students must have: 1. NSW Health National Criminal Record Check, 2. Prohibited Employment Declaration Form. In order to enrol in Second Year Spring units, all students must have a First Aid Certificate. To be eligible to undertake fieldwork placements in public hospitals, students must comply with vaccination requirements and be prepared to submit a completed Adult Immunisation Card to placement institutions. Details of necessary vaccinations are available from NSW Health.

**Course Structure**

Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.

**Recommended sequence****Year 1****Autumn session**

<b>400870.1</b>	Population Health and Society
<b>300361.2</b>	Introduction to Human Biology
<b>400880.1</b>	Fundamentals of Exercise Science
<b>400871.1</b>	Professional Health Competencies

**Spring session**

<b>400808.2</b>	Outdoor Recreation
<b>400891.1</b>	Movement and Skill Development
<b>400863.1</b>	Foundations of Research and Evidence-Based Practice
<b>400732.1</b>	Communication in Health

**Year 2****Autumn session**

<b>400867.1</b>	Approaches to Health Promotion
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- 400892.1** Nutrition, Physical Activity, Fitness and Health  
**400866.2** Culture, Diversity and Health

And one elective

#### Spring session

- 101615.1** Sport and Exercise Psychology  
**400798.1** PDHPE: Games for Diverse Groups  
**101614.1** Psychology and Health  
**400962.1** Foundations of Wellbeing

#### Year 3

#### Autumn session

- 400893.1** Ethical Issues in Sports and Athletics  
**400894.1** Contemporary Youth Health Issues  
**400895.1** Aquatic Sports

And one elective

#### Spring session

- 400896.1** Gymnastics and Dance  
**400897.1** Personal Training and Coaching

And two electives

## Bachelor of Health Science (Sport and Exercise Science)

### 4658.1

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students whose commencement year in this course is 2010 or later.

Sport and exercise science encompasses the science that underpins health, physical activity and exercise, and their applications to the design, implementation and evaluation of exercise programs. There are a range of career options in health and fitness centres, for example as a personal trainer, a health and fitness specialist or a fitness assessor, in government agencies associated with sport, physical activity and health, in teaching and research, and with professional sporting groups, rehabilitation clinics and hospitals. If you gain higher-level accreditation as an exercise physiologist, you will also be able to provide healthcare services funded by Medicare (Australian Government).

The course combines studies in exercise physiology, sports psychology, biomechanics motor control and exercise prescription with a broad understanding of biomedicine and various health science fields to develop the professional competencies important for ethical and safe practice and high quality care and the skills to work in multidisciplinary teams. Facilities are state-of-the-art, centred on an Exercise and Sport Science Laboratory complex, and practical experience is a strong feature of the program.

#### Study Mode

Three years full-time. Students may choose to study at a reduced load.

#### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

#### Accreditation

Graduates may be eligible to apply for membership and accreditation with the Australian Association for Exercise and Sport Science (AAESS).

#### Admission

For local students admission is through UAC. Recommended Studies: Any 2 units of English, plus four units of Science and/or Mathematics. PDHPE can be counted as a science unit for this course.

For international students, admission is through direct application to the university with IELTS equal to 6.5 or above.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

#### Special Requirements

In order to enrol in Second Year Autumn units, all students must have: 1. NSW Health National Criminal Record Check, 2. Prohibited Employment Declaration Form. In order to enrol in Second Year Spring units, all students must have: 1. First Aid Certificate. To be eligible to undertake fieldwork placements in public hospitals, students must comply with vaccination requirements and be prepared to submit a completed Adult Immunisation Card to placement institutions. Details of necessary vaccinations are available from NSW Health.

#### Course Structure

Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.

#### Recommended sequence

##### Full-time

##### Year 1

##### Autumn session

- 400880.1** Fundamentals of Exercise Science  
**400868.1** Human Anatomy and Physiology 1  
**400866.2** Culture, Diversity and Health  
**400871.1** Professional Health Competencies



**Spring session**

<b>400881.1</b>	Functional Anatomy
<b>400869.1</b>	Human Anatomy and Physiology 2
<b>400863.1</b>	Foundations of Research and Evidence-Based Practice
<b>101614.1</b>	Psychology and Health

**Year 2****Autumn session**

<b>400882.1</b>	Introduction to Biomechanics
<b>400883.1</b>	Exercise Bioenergetics
<b>101615.1</b>	Sport and Exercise Psychology
<b>400884.1</b>	Exercise Nutrition, Body Composition and Weight Control

**Spring session**

<b>400326.2</b>	Exercise Prescription for General Populations
<b>400903.1</b>	Professional Development and Work Experience
<b>400885.1</b>	Sport and Exercise Physiology
<b>400886.1</b>	Motor Control and Skill Acquisition

**Year 3****Autumn session**

<b>400902.1</b>	Exercise in Musculo-Skeletal Rehabilitation
<b>400887.1</b>	Clinical Exercise Physiology 1
<b>400888.1</b>	Advanced Sports Physiology
<b>400864.1</b>	Research Methods (Quantitative and Qualitative)

**Spring session**

<b>400889.1</b>	Applied Biomechanics of Sport and Exercise
<b>400156.1</b>	Practice Management for Health Professionals
<b>400904.1</b>	Work Experience in Sport and Exercise Science
<b>400890.1</b>	Resistance Training and Physiology

## Bachelor of Health Science/Master of Occupational Therapy

**4663.1**

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students whose commencement year in this course is 2010 or later.

Occupational therapy is a highly regarded field in which you can apply your knowledge and skills to provide therapy for people who, because of illness, injury or circumstances, are limited in their ability to perform everyday tasks. The program promotes the value of human diversity, fundamental human rights and the dignity and worth of every client. Occupational therapists find employment in public and private hospitals, rehabilitation centres, insurance companies, schools and large corporations.

The course in occupational therapy is offered as a combined Bachelor of Health Science/Master of Occupational Therapy. The first three years of the program combine studies in occupational therapy with a broad understanding of biomedicine and various health science fields to develop the professional competencies important for ethical and safe practice and high quality care and the skills to work in multidisciplinary teams. The progression to the Master's component of the combined degree is seamless and the final year focuses predominately on occupational therapy practice skills, practical experience and specialised areas. Evidence-based practice is one of the most important trends in healthcare today and a strong feature of the program.

**Study Mode**

Four years full-time

**Location**

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

**Accreditation**

This program is designed to meet all the requirements for accreditation by the Australian Association of Occupational Therapists and accreditation is being sought.

**Admission**

For local students admission is through UAC. Assumed knowledge, any 2 units of English.

Recommended studies, Physics, Chemistry, Biology and/or Personal Development Health and Physical Education.

For international students, admission is through direct application to the university with IELTS equal to 6.5 or above.

To be eligible to undertake fieldwork or practice placements, students must also comply with the NSW Health Records and Information Privacy Act (2004) and complete a relevant declaration.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

**Special Requirements**

To be able to enrol in the first year Spring unit 400907 Occupational therapy practice 1 and subsequent occupational therapy units, all students must have a NSW Health National Criminal Record Check, a Prohibited Employment Declaration Form and a First Aid Certificate. To be eligible to undertake fieldwork placements in public hospitals, students must comply with vaccination requirements and be prepared to submit a completed Adult

Immunisation Card to placement institutions. Details of necessary vaccinations are available from NSW Health.

### Course Structure

Qualification for this award requires the successful completion of 320 credit points which include the units listed in the recommended sequence below.

### Recommended sequence

#### Full-time

##### Year 1

##### Autumn session

<b>400870.1</b>	Population Health and Society
<b>400868.1</b>	Human Anatomy and Physiology 1
<b>400160.2</b>	Introduction to Occupational Therapy
<b>400871.1</b>	Professional Health Competencies

##### Spring session

<b>400907.1</b>	Occupational Therapy Practice 1
<b>400869.1</b>	Human Anatomy and Physiology 2
<b>400863.1</b>	Foundations of Research and Evidence-Based Practice
<b>400732.1</b>	Communication in Health

##### Year 2

##### Autumn session

<b>400908.1</b>	People, Environment and Occupations
<b>400138.2</b>	Pathophysiology 1
<b>400864.1</b>	Research Methods (Quantitative and Qualitative)
<b>400866.2</b>	Culture, Diversity and Health

##### Spring session

<b>300754.1</b>	Neuroanatomy
<b>400881.1</b>	Functional Anatomy
<b>101614.1</b>	Psychology and Health
<b>400909.1</b>	Occupational Therapy Practice 2

##### Year 3

##### Autumn session

<b>400171.2</b>	Occupation and Neurology
<b>400169.2</b>	Occupation and Mental Health
<b>400912.1</b>	Occupational Therapy Process

Continuing students take:

<b>400910.1</b>	Occupational Therapy Practice 3
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Masters entry students take:

<b>400911.1</b>	Occupational Therapy Theory and Practice
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##### Spring session

<b>400162.2</b>	Child and Adolescent Occupations
<b>400165.2</b>	Occupation and the Environment
<b>400865.1</b>	Evidence-Based Practice
<b>400176.2</b>	Occupation and Ageing

**Students may exit with Bachelor of Health Science at this point.**

#### Year 4

##### Autumn session

<b>400913.1</b>	Occupational Therapy Practice 4 Project
<b>400916.1</b>	Occupational Justice
<b>400926.1</b>	Ergonomics and Work Occupations
<b>400917.1</b>	Occupational Therapy Specialties

##### Spring session

<b>400925.1</b>	Professional Reasoning
<b>400914.1</b>	Occupational Therapy Practice 4
<b>400915.1</b>	Occupational Therapy Practice 4 Workshop

**Students will exit with Bachelor of Health Science/ Master of Occupational Therapy**

### Bachelor of Health Science/Master of Physiotherapy

#### 4662.1

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students whose commencement year in this course is 2010 or later.

Physiotherapy is a highly regarded profession and demand for physiotherapists is strong. Physiotherapists work in private practice, aged care settings, private and public hospitals, workplaces, community based agencies, schools, rehabilitation centres and chronic health management clinics. Patients range across the life span, from birth to athletes and the elderly.

The course in physiotherapy is offered as a combined Bachelor of Health Science/Master of Physiotherapy. The first three years of the program combine studies in physiotherapy with a broad understanding of biomedicine and health science fields to develop the professional competencies important for ethical and safe practice, high quality care and the skills to work in multidisciplinary teams. The progression to the Master's component of the combined degree is seamless. The final year focuses predominately on the development of physiotherapy practice skills which are used during clinical placements to treat patients in the community. Evidence-based practice is one of the most important trends in healthcare today and a strong feature of the program.

#### Study Mode

Four years full-time

#### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

#### Accreditation

The program is designed to meet all the requirements for accreditation by the Australian Physiotherapy Council and accreditation is being sought.

## Admission

For local students admission is through UAC. Assumed knowledge, any 2 units of English.

Recommended studies, Mathematics, Physics and/or Biology.

For international students, admission is through direct application to the university with IELTS equal to 7.0 or above.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

## Special Requirements

In order to enrol in Second Year Autumn units, all students must have: 1. NSW Health National Criminal Record Check, 2. Prohibited Employment Declaration Form. In order to enrol in Second Year Spring units, all students must have a First Aid Certificate. To be eligible to undertake fieldwork placements in public hospitals, students must comply with vaccination requirements and be prepared to submit a completed Adult Immunisation Card to placement institutions. Details of necessary vaccinations are available from NSW Health. SPECIAL NOTE: As a requirement of the program, students must participate fully in practical classes, which includes being willing to disrobe appropriately and both carry out and have carried out on them all examination and treatment procedures utilized by physiotherapists.

## Course Structure

Qualification for this award requires the successful completion of 320 credit points which include the units listed in the recommended sequence below.

## Recommended sequence

### Full-time

#### Year 1

##### Autumn session

<b>400870.1</b>	Population Health and Society
<b>400868.1</b>	Human Anatomy and Physiology 1
<b>400906.1</b>	Introduction to Physiotherapy Practice
<b>400871.1</b>	Professional Health Competencies

##### Spring session

<b>101614.1</b>	Psychology and Health
<b>400869.1</b>	Human Anatomy and Physiology 2
<b>400863.1</b>	Foundations of Research and Evidence-Based Practice

**400881.1** Functional Anatomy

**Students may enter by transfer from Bachelor of Health Science at this point.**

#### Year 2

##### Autumn session

<b>400882.1</b>	Introduction to Biomechanics
<b>400138.2</b>	Pathophysiology 1
<b>400864.1</b>	Research Methods (Quantitative and Qualitative)
<b>400866.2</b>	Culture, Diversity and Health

##### Spring session

<b>400732.1</b>	Communication in Health
<b>400885.1</b>	Sport and Exercise Physiology
<b>300754.1</b>	Neuroanatomy

plus one unit to be advised by the school

**Please Note: The confirmed structure for years 3 and 4 which covers the theory and clinical practice of physiotherapy will be available at a later date.**

## Bachelor of Health Science/Master of Podiatric Medicine

### 4661.1

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students whose commencement year in this course is 2010 or later.

Podiatrists are best known for treating problems that people experience with their feet, but they are increasingly playing an important role in addressing chronic conditions such as diabetes. As a podiatrist, your patients can range from children to active sportspeople to the ageing. There is a large focus on footwear, from everyday wear to workwear and athletic shoes, as well as common problems such as ingrown toenails or bunions. Podiatrists are employed in sports medicine, community centres to help the aged become more mobile, private practice, ensuring children have footwear that meets their needs, and in hospital teams, addressing problems associated with chronic diseases and acute problems such as diabetes. You may also continue your training and become a podiatric surgeon.

The course in podiatry is offered as a combined Bachelor of Health Science/Master of Podiatric Medicine. The first three years of the program combine studies in podiatry with a broad understanding of biomedicine and various health science fields to develop the professional competencies important for ethical and safe practice and high quality care and the skills to work in multidisciplinary teams. The progression to the Master's component of the combined degree is seamless and the final year focuses predominately on podiatry practice skills, practical experience and specialised areas. Evidence-based practice is one of the most important trends in healthcare today and a strong feature of the program.

**Study Mode**

Four years full-time

**Location**

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

**Accreditation**

The program is designed to meet all the requirements of the Australian and New Zealand Podiatrists Accreditation Council and accreditation is being sought.

**Admission**

For local students admission is through UAC. Assumed knowledge, Any 2 units of English.

Recommended studies, Mathematics, Physics and Biology.

For international students, admission is through direct application to the university with IELTS equal to 6.5 or above.

To be eligible to undertake fieldwork or practice placements, students must also comply with the NSW Health Records and Information Privacy Act (2004) and complete a relevant declaration.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

**Special Requirements**

In order to enrol in Second Year Autumn units, all students must have: 1. NSW Health National Criminal Record Check, 2. Prohibited Employment Declaration Form. In order to enrol in Second Year Spring units, all students must have a First Aid Certificate. To be eligible to undertake fieldwork placements in public hospitals, students must comply with vaccination requirements and be prepared to submit a completed Adult Immunisation Card to placement institutions. Details of necessary vaccinations are available from NSW Health.

**Course Structure**

Qualification for this award requires the successful completion of 320 credit points which include the units listed in the recommended sequence below.

**Recommended sequence****Full-time****Year 1****Autumn session**

<b>400870.1</b>	Population Health and Society
<b>400868.1</b>	Human Anatomy and Physiology 1
<b>400905.1</b>	Introduction to Podiatry
<b>400871.1</b>	Professional Health Competencies

**Spring session**

<b>101614.1</b>	Psychology and Health
<b>400869.1</b>	Human Anatomy and Physiology 2
<b>400863.1</b>	Foundations of Research and Evidence-Based Practice
<b>400732.1</b>	Communication in Health

Students may enter by transfer from Bachelor of Health Science at this point.

**Year 2****Autumn session**

<b>400882.1</b>	Introduction to Biomechanics
<b>400138.2</b>	Pathophysiology 1
<b>400864.1</b>	Research Methods (Quantitative and Qualitative)
<b>400866.2</b>	Culture, Diversity and Health

**Spring session**

<b>300755.1</b>	The Appendicular Skeleton
<b>300505.1</b>	Pharmacology
<b>400933.1</b>	Podiatry Pre-Clinical

And one elective

**Year 3****Autumn session**

<b>400867.1</b>	Approaches to Health Promotion
<b>400935.1</b>	Podiatric Techniques 1A
<b>400936.1</b>	Podiatric Techniques 1B
<b>400929.1</b>	Podiatric Practice 1

**Spring session**

<b>400937.1</b>	Podiatric Techniques 2A
<b>400938.1</b>	Podiatric Techniques 2B
<b>400865.1</b>	Evidence-Based Practice
<b>400930.1</b>	Podiatric Practice 2

**Students may exit with Bachelor of Health Science at this point.**

**Year 4****Autumn session**

<b>400939.1</b>	Podiatric Techniques 3A
<b>400940.1</b>	Podiatric Techniques 3B
<b>400941.1</b>	Podiatric Techniques 3C
<b>400931.1</b>	Podiatric Practice 3

**Spring session**

<b>400934.1</b>	Podiatric Professional Practice Studies
<b>400928.1</b>	Podiatric Clinical Block
<b>400932.1</b>	Podiatric Practice 4

**Students will exit with Bachelor of Health Science/  
Master of Podiatric Medicine**

## **Bachelor of Health Science/Master of Traditional Chinese Medicine**

**4660.1**

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students whose commencement year in this course is 2010 or later.

This course prepares graduates for careers as practitioners of Traditional Chinese Medicine. Traditional Chinese medicine practitioners are usually either self-employed in private practice or work as a member of a team in a clinic that offers a range of therapies. They practice as acupuncturists and treating clients using Chinese herbal medications. There are also opportunities in medical research, product development, management and sales roles in pharmaceutical and herbal companies.

The course in Traditional Chinese Medicine is offered as a combined Bachelor of Health Science/Master of Traditional Chinese Medicine. The first three years of the program combine studies in traditional Chinese medicine, acupuncture and Chinese herbal medicine with a broad understanding of biomedicine and various health science fields to develop the professional competencies important for ethical and safe practice and high quality care and the skills to work in multidisciplinary teams. The progression to the Master's component of the combined degree is seamless and the final year focuses predominately on practical experience and specialised areas. Part of the clinical experience can be taken through an intensive clinical placement in China. Evidence-based practice is one of the most important trends in healthcare today and a strong feature of the program.

**Study Mode**

Four years full-time

**Location**

<b>Campus</b>	<b>Attendance</b>	<b>Mode</b>
Campbelltown Campus	Full Time	Internal

**Accreditation**

The program is designed to meet all the requirements for accreditation by the Australian Acupuncture and Chinese Medicine Association and accreditation is being sought.

**Admission**

For local students admission is through UAC. Assumed knowledge, Any 2 units of Higher School Certificate (or equivalent) English.

Recommended studies, Biology.

For international students, admission is through direct application to the university with IELTS equal to 6.5 or above.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

**Special Requirements**

In order to enrol in Second Year Autumn units, all students must have: 1. NSW Health National Criminal Record Check, 2. Prohibited Employment Declaration Form. In order to enrol in Second Year Spring units, all students must have a First Aid Certificate. To be eligible to undertake fieldwork placements in public hospitals, students must comply with vaccination requirements and be prepared to submit a completed Adult Immunisation Card to placement institutions. Details of necessary vaccinations are available from NSW Health.

**Course Structure**

Qualification for this award requires the successful completion of 320 credit points which include the units listed in the recommended sequence below.

**Recommended sequence****Year 1****Autumn session**

<b>400346.1</b>	Traditional Chinese Medicine 1
<b>400868.1</b>	Human Anatomy and Physiology 1
<b>400866.2</b>	Culture, Diversity and Health
<b>400871.1</b>	Professional Health Competencies

**Spring session**

<b>400348.1</b>	Traditional Chinese Medicine 2
<b>400869.1</b>	Human Anatomy and Physiology 2
<b>300543.1</b>	Cell Biology
<b>400732.1</b>	Communication in Health

**Year 2****Autumn session**

<b>400352.1</b>	Traditional Chinese Medicine 3
<b>400138.2</b>	Pathophysiology 1
<b>400874.1</b>	Channels and Points 1
<b>400876.1</b>	Chinese Materia Medica 1

**Spring session**

<b>400863.1</b>	Foundations of Research and Evidence-Based Practice
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<b>400267.2</b>	Pathophysiology 2
<b>400875.1</b>	Channels and Points 2
<b>400877.1</b>	Chinese Materia Medica 2

**Year 3****Autumn session**

<b>400864.1</b>	Research Methods (Quantitative and Qualitative)
<b>400878.1</b>	Chinese Medicinal Formulas
<b>400873.1</b>	Acupuncture Techniques
<b>400354.1</b>	Traditional Chinese Medicine Practice 1

**Spring session**

<b>300505.1</b>	Pharmacology
<b>400865.1</b>	Evidence-Based Practice
<b>400879.1</b>	Clinical Assessment Methods
<b>400356.1</b>	Traditional Chinese Medicine Practice 2

**At this point, students may exit with Bachelor of Health Science.**

**Year 4****Autumn session**

<b>400918.1</b>	Chinese Internal Medicine 1 (PG)
<b>400919.1</b>	Specialities in Traditional Chinese Medicine 1 (PG)
<b>400969.1</b>	Classical Texts in Chinese Medicine (PG)
<b>400920.1</b>	Traditional Chinese Medicine Practice 3 (PG)

**Spring session**

<b>400922.1</b>	Chinese Internal Medicine 2 (PG)
<b>400923.1</b>	Specialities in Traditional Chinese Medicine 2 (PG)
<b>400927.1</b>	Block Clinical Practicum (PG)
<b>400924.1</b>	Traditional Chinese Medicine Practice 4 (PG)

## Bachelor of Housing

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**3635.4**

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

The Bachelor of Housing will prepare students to become managers in the private housing industry. They learn how to plan, finance and construct large scale housing projects.

The Degree provides for specialised skills for working in the housing industry with a strong emphasis on the design, construction, maintenance, and economics of dwellings for human habitation. The Bachelor of Housing degree gives students the opportunity to use the university's state-of-the-art, purpose-built laboratory complex to conduct experiments across the range of building sciences including acoustics, heat flow through a building, corrosion of materials, concrete testing, and much more.

This course is aimed at providing the skills and abilities necessary to perform competently at a professional level in

the building industry, in one or more of the following roles: property developer; housing project manager site supervisor; building surveyor; estimator; facilities manager; property manager; building consultant.

**Study Mode**

Three years full-time.

**Location**

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

**Advanced Standing**

Appropriately qualified TAFE applicants may be given up to 80 credit points worth of specified advanced Standing.

**Admission**

Assumed knowledge required: Normal UWS UAI score with HSC 2 unit Mathematics, Physics and English for entry into first year.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

**Course Structure**

Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below. Students should have no more than 100 credit points of Level 1 units and no fewer than 60 credit points of Level 3 Units.

Electives within the sequence may be used towards obtaining an approved major or sub-major for this award.

In some instances due to resource and demand considerations, there may be a need to rearrange the pattern set down below.

Electives within the sequence may be used towards obtaining an approved major or sub-major for this award.

**Recommended Sequence****Full-time****Year 1****Autumn session**

<b>300706.1</b>	Building 1
<b>300729.1</b>	Graphic Communication and Design
<b>300674.1</b>	Engineering, Design and Construction Practice
<b>300016.1</b>	Design Science

**Spring session**

<b>200184.2</b>	Introduction to Business Law
<b>200101.2</b>	Accounting Information for Managers
<b>300707.1</b>	Building 2
<b>MG102A.2</b>	Management Foundations

**Year 2****Autumn session**

<b>300720.1</b>	Construction Technology 1 (Civil)
<b>200486.1</b>	Quantity Surveying 1
<b>200472.2</b>	Material Science in Construction
<b>300723.1</b>	Development Control

**Spring session**

<b>300721.1</b>	Construction Technology 2 (Substructure)
<b>200468.1</b>	Estimating 1
<b>200482.1</b>	Construction in Practice 1

And Elective 1

**Year 3****Autumn session**

<b>200485.1</b>	Decision Making for Construction Professionals
<b>300727.1</b>	Project Management
<b>300728.1</b>	Construction Planning

And Elective 2

**Spring session**

<b>300722.1</b>	Building Regulations Studies
<b>300053.2</b>	Professional Practice
<b>200292.1</b>	Building Law

And Elective 3

**Please note:**

Students may choose electives from any course at UWS including the following:

**Elective 1**

Choose one of the following:

<b>200503.1</b>	Construction Information Systems
<b>200502.2</b>	Construction Technology 3 (Concrete Construction)

**Elective 2**

<b>300748.1</b>	Quality and Value Management
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**Elective 3**

Choose one of the following:

Choose one of the following:

<b>200487.1</b>	Quantity Surveying 2
<b>200470.2</b>	Construction Technology 4 (Steel Construction)

Bachelor of Housing students wishing to continue on to gain Bachelor of Construction Management would be

required to undertake the following electives: 200502 - Construction Technology 3 and 200470 - Construction Technology 4.

**Bachelor of Industrial Design****3503.4**

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2009.

The industrial design program prepares students to be flexible and innovative, with the emphasis placed on design, and its place in and effect on society and people. The Bachelor of Industrial Design program takes account of the rapid transformation of communication and industrial technologies, and recognizes the need for designers to resolve increasingly complex issues. It provides students with the knowledge and skills to enable them to respond with flexibility to the challenges of industrial design.

**Study Mode**

Four years full-time. Reduced loads are available with consultation during Years 1 to 3 of the program.

**Location**

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

**Advanced Standing**

Where tertiary studies have been undertaken previously, credit transfer may be approved, reducing the overall study time.

**Accreditation**

Graduates are eligible for membership of the Design Institute of Australia (DIA).

**Admission**

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

**Course Structure**

Qualification for this award requires the successful completion of 320 credit points which include the units listed in the recommended sequence below. To be eligible to graduate from this course, students are required to complete a sub-major. Refer to the 'note' after the sub-major listing, for further details.

## Recommended Sequence

### Full-time

#### Year 1

##### Autumn session

<b>300674.1</b>	Engineering, Design and Construction Practice
<b>300016.1</b>	Design Science
<b>10943.2</b>	Applied Ergonomics
<b>200191.3</b>	Fundamentals of Mathematics

##### Spring session

<b>300462.1</b>	Engineering and Design Concepts
<b>300302.1</b>	Industrial Graphics 1: Presentation
<b>300304.2</b>	Sustainable Design: Materials Technology
<b>200083.1</b>	Marketing Principles

#### Year 2

##### Autumn session

<b>300305.2</b>	Design Studio 1: Themes and Variations
<b>300309.2</b>	Sustainable Design: Life Cycle Analysis
<b>300282.1</b>	Industrial Graphics 2: Transition

And one sub-major alternate unit or one elective

##### Spring session

<b>300308.2</b>	Design Studio 2: The Design Proposal
<b>300306.2</b>	Sustainable Design: Sustainable Futures
<b>300310.2</b>	Industrial Graphics 3: 3D Solids

And one sub-major alternate unit or one elective

#### Year 3

##### Autumn session

<b>300311.2</b>	Design Studio 3: Product Realisation
<b>300014.2</b>	Design Management 3: Organisational Skills for Designers

And two sub-major alternate units or two electives

##### Spring session

<b>300313.2</b>	Design Studio 4: Simulate to Innovate
<b>300314.1</b>	Designed Inquiry

And two sub-major alternate units or two electives

Students enrolled in the 3503 - Bachelor of Industrial Design may exit the course with the 3502 - Bachelor of Design and Technology at the completion of Year 3.

#### Year 4

### Honours Stream

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

##### Autumn session

<b>85032.2</b>	Industrial Design Project (Commencement)
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### Spring session

<b>85033.2</b>	Industrial Design Project (Completion)
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### Industrial Experience

<b>10915.2</b>	Industrial Experience
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#### Year 4

### Coursework Stream

##### Autumn session

<b>300459.1</b>	Major Project Commencement
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Choose one of

<b>300012.2</b>	Design Management 1: Product Design Audit
<b>300312.2</b>	Industrial Graphics 4: Surface

##### Spring session

<b>300460.1</b>	Major Project Completion
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Choose one of

<b>300013.2</b>	Design Management 2: Corporate Image and Identity
<b>300015.2</b>	Design Management 4: Design Process
<b>300315.1</b>	Industrial Graphics 5: Integrated
<b>86301.2</b>	Automated Manufacturing

### Industrial Experience

<b>10915.2</b>	Industrial Experience
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### Majors

<b>M3503IDM.1</b>	Innovation Design Management
<b>M3503IIG2.1</b>	Interactive Industrial Graphics
<b>M3503INTDM.1</b>	International Design Management

### Sub-majors

<b>S3502DM.1</b>	Design Management
<b>S3502IG.1</b>	Industrial Graphics
<b>S3502SD.1</b>	Sustainable Design

Note: In addition to the sub-major streams/electives offered from within Industrial Design (as listed above) students may choose other sub-major streams/electives within the School of Engineering and Industrial Design or the University of Western Sydney or other universities (as cross institutional studies).

## Bachelor of Industrial Design

### 3503.5

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was Spring 2010 or later.

The industrial design program prepares students to be flexible and innovative, with the emphasis placed on



design, and its place in and effect on society and people. The Bachelor of Industrial Design program takes account of the rapid transformation of communication and industrial technologies, and recognizes the need for designers to resolve increasingly complex issues. It provides students with the knowledge and skills to enable them to respond with flexibility to the challenges of industrial design.

### Study Mode

Four years full-time. Reduced loads are available with consultation during Years 1 to 3 of the program.

### Location

Campus	Attendance Mode
Penrith Campus	Full Time Internal

### Advanced Standing

Where tertiary studies have been undertaken previously, credit transfer may be approved, reducing the overall study time.

### Accreditation

Graduates are eligible for membership of the Design Institute of Australia (DIA).

### Admission

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 320 credit points which include the units listed in the recommended sequence below. To be eligible to graduate from this course, students are required to complete a sub-major. Refer to the 'note' after the sub-major listing, for further details.

### Recommended Sequence

#### Full-time

##### Year 1

##### Autumn session

<b>300674.1</b>	Engineering, Design and Construction Practice
<b>300016.1</b>	Design Science
<b>300776.1</b>	Applied Ergonomics
<b>200191.3</b>	Fundamentals of Mathematics

##### Spring session

<b>300462.1</b>	Engineering and Design Concepts
<b>300302.1</b>	Industrial Graphics 1: Presentation
<b>300304.2</b>	Sustainable Design: Materials Technology
<b>200083.1</b>	Marketing Principles

##### Year 2

##### Autumn session

<b>300305.2</b>	Design Studio 1: Themes and Variations
<b>300309.2</b>	Sustainable Design: Life Cycle Analysis
<b>300282.1</b>	Industrial Graphics 2: Transition

And one sub-major alternate unit or one elective

##### Spring session

<b>300308.2</b>	Design Studio 2: The Design Proposal
<b>300306.2</b>	Sustainable Design: Sustainable Futures
<b>300310.2</b>	Industrial Graphics 3: 3D Solids

And one sub-major alternate unit or one elective

##### Year 3

##### Autumn session

<b>300311.2</b>	Design Studio 3: Product Realisation
<b>300014.2</b>	Design Management 3: Organisational Skills for Designers

And two sub-major alternate units or two electives

##### Spring session

<b>300313.2</b>	Design Studio 4: Simulate to Innovate
<b>300314.1</b>	Designed Inquiry

And two sub-major alternate units or two electives

Students enrolled in the 3503 - Bachelor of Industrial Design may exit the course with the 3502 - Bachelor of Design and Technology at the completion of Year 3.

##### Year 4

### Honours Stream

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

##### Autumn session

<b>300773.1</b>	Industrial Design Project (Commencement)
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##### Spring session

<b>300774.1</b>	Industrial Design Project (Completion)
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##### Industrial Experience

<b>300775.1</b>	Industrial Experience
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**Year 4****Coursework Stream****Autumn session**

**300459.1** Major Project Commencement

Choose one of

**300012.2** Design Management 1: Product Design Audit  
**300312.2** Industrial Graphics 4: Surface

**Spring session**

**300460.1** Major Project Completion

Choose one of

**300013.2** Design Management 2: Corporate Image and Identity  
**300015.2** Design Management 4: Design Process  
**300315.1** Industrial Graphics 5: Integrated  
**300735.1** Automated Manufacturing

**Industrial Experience**

**300775.1** Industrial Experience

**Majors**

**M3503IDM.1** Innovation Design Management  
**M3503IIG2.1** Interactive Industrial Graphics  
**M3503INTDM.1** International Design Management

**Sub-majors**

**S3502DM.1** Design Management  
**S3502IG.1** Industrial Graphics  
**S3502SD.1** Sustainable Design

Note: In addition to the sub-major streams/electives offered from within Industrial Design (as listed above) students may choose other sub-major streams/electives within the School of Engineering and Industrial Design or the University of Western Sydney or other universities (as cross institutional studies).

**Bachelor of Information and Communications Technology****3639.1**

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2009 or later.

The Bachelor of Information and Communications Technology is a professional ICT course that provides graduates with a skills and knowledge base in networking and IT applications areas of ICT and the ability to apply practical solutions across ICT. It allows students to develop skills in application development, program design, systems analysis & design, networks, web-design, and the implementation of technology.

Their attributes can be conceptually grouped into the knowledge and skills necessary to: •investigate - the ability to draw on a solid technological and software core of ICT knowledge and practice in analysing and developing applications;

The Bachelor of Information and Communications Technology is a three year ICT course being accredited by the Australian Computer Society. It provides a solid foundation in Networks, Databases, Systems Analysis & Design, Programming, Web Technologies, Project Management, Professional Communications and Operating Systems and associated Computer Security. It also covers the necessary mathematical and statistical skills as needed by an ICT practitioner. The foundation core provides a basis for electives, sub-majors or majors in further studies including the areas of networks, web, interactive technologies, Mathematics, Statistics, Computational Decision Making, Knowledge Discovery and Data Mining, and health informatics. Some of these majors and electives may be offered at particular campuses and subject to the approval of the Head of Program. Accreditation at Professional level is being sought with the Australian Computer Society.

**Study Mode**

Three years full-time.

**Location**

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Parramatta Campus	Full Time	Internal
Penrith Campus	Full Time	Internal

**Accreditation**

The Bachelor of Information and Communications Technology is currently accredited with the Australian Computer Society at Professional level.

**Admission**

Assumed knowledge required: HSC Mathematics and any two units of HSC English.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

**Course Structure**

Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.

**Recommended Sequence****Full-time - Start Year Intake****Year 1****Autumn session**

<b>300580.1</b>	Programming Fundamentals
<b>100483.1</b>	Principles of Professional Communication 1
<b>300585.1</b>	Systems Analysis and Design
<b>300700.2</b>	Statistical Decision Making

**Spring session**

<b>300565.1</b>	Computer Networking
<b>300144.2</b>	Object Oriented Analysis
<b>300104.2</b>	Database Design and Development

And one elective

**Year 2****Autumn session**

<b>300582.1</b>	Technologies for Web Applications
<b>300581.1</b>	Programming Techniques
<b>300095.2</b>	Computer Networks and Internets

And one elective

**Spring session**

<b>300583.1</b>	Web Systems Development
<b>300699.1</b>	Discrete Structures and Complexity

And two electives

**Year 3****Autumn session**

<b>300570.2</b>	Human-Computer Interaction
<b>300578.2</b>	Professional Development
<b>300698.1</b>	Operating Systems Programming

And one elective

**Spring session**

<b>300579.1</b>	Professional Experience
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And three electives

**Full-Time Mid Year Intake****Spring session 1**

<b>300565.1</b>	Computer Networking
<b>300144.2</b>	Object Oriented Analysis
<b>300104.2</b>	Database Design and Development
<b>300580.1</b>	Programming Fundamentals

**Autumn session 2**

<b>300582.1</b>	Technologies for Web Applications
<b>300585.1</b>	Systems Analysis and Design
<b>300700.2</b>	Statistical Decision Making

And one elective

**Spring session 3**

<b>300583.1</b>	Web Systems Development
<b>300699.1</b>	Discrete Structures and Complexity

And two electives

**Autumn session 4**

<b>300570.2</b>	Human-Computer Interaction
<b>300581.1</b>	Programming Techniques
<b>100483.1</b>	Principles of Professional Communication 1
<b>300095.2</b>	Computer Networks and Internets

**Spring session 5**

<b>300579.1</b>	Professional Experience
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Three electives

**Autumn session 6**

<b>300578.2</b>	Professional Development
<b>300698.1</b>	Operating Systems Programming

And two electives

**Majors**

The following major is available only to students enrolled in the Bachelor of Information and Communications Technology

<b>M3025.1</b>	Networking
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The following majors are available to only those students enrolled in the Bachelor of Computing and Bachelor of Information and Communications Technology courses

<b>M3001.1</b>	Advanced Programming
<b>M3000.1</b>	Computer Systems

The following major is available to all students except those enrolled in the Networks or Information Systems key programs within the Bachelor of Computing course, and the Bachelor of Information and Communications Technology course

<b>M3002.1</b>	Information Technology
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The following major is available to all students except those enrolled in the Health Informatics key program within the Bachelor of Computing course

<b>M3004.1</b>	Health Informatics
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The following major is available to all students except those enrolled in the Bachelor of Computing or the Bachelor of Computer Science or the Bachelor of Information and Communications Technology courses

<b>M3003.1</b>	Web Systems Development
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The following majors are available to all students

<b>M3023.1</b>	Computational Decision Making
<b>M3005.1</b>	Entertainment Computing
<b>M3024.1</b>	Knowledge Discovery and Data Mining
<b>M3021.1</b>	Mathematics
<b>M3022.1</b>	Statistics

## Sub-majors

The following sub-major is available only to students enrolled in the Bachelor of Information and Communications Technology

**SM3031.1** IT Support

The following sub-majors are available to only those students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses

**SM3005.1** Applied Mathematics  
**SM3000.1** Computer Systems  
**SM3004.1** Formal Systems  
**SM3001.1** Systems Administration  
**SM3003.1** Systems Programming  
**SM3002.1** Systems Security

Two sub-majors in Web Development are available, one for computing students, the other for non-computing students.

Computing students only (that is, students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses):

**SM3006.1** Web Application Development (for Computing Students)

Non-computing students only:

**SM3007.1** Web Application Development (for Non-Computing Students)

The following sub-major is available to all students except those enrolled in the Bachelor of Computing (Networks)

**SM3008.1** Networking

The following sub-majors are available to all students except those enrolled in the Health Informatics key program within the Bachelor of Computing course

**SM3010.1** Health Information Applications  
**SM3009.1** Health Information Management

The following sub-majors are available to all students

**SM3027.1** Computational Decision Making  
**SM3011.1** Entertainment Computing  
**SM3028.1** Knowledge Discovery and Data Mining  
**SM3025.1** Mathematics  
**SM3026.1** Statistics

## Bachelor of Information and Communications Technology (Enhanced Pathway)

### 3661.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2010 or later.

The Bachelor of Information and Communications Technology is a professional ICT course that provides graduates with a skills and knowledge base in networking

and IT applications areas of ICT and the ability to apply practical solutions across ICT. It allows students to develop skills in application development, program design, systems analysis & design, networks, web-design, and the implementation of technology. Their attributes can be conceptually grouped into the knowledge and skills necessary to:

### Study Mode

Three years full-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Penrith Campus	Full Time	Internal

### Accreditation

Accreditation is being sought at Professional Level with the Australian Computer Society.

### Admission

Eligibility for admission to the Bachelor of Information and Communications Technology (Enhanced Pathway) is based on the following minimum requirements: Completed TAFE NSW Certificate IV of Information Technology (Networking) 19009 (ICA40405).

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Upon completion of the TAFE Diploma of IT Networking and CISCO accreditation, students will be eligible for a maximum of 130 credit points of specified and/or unspecified advanced standing. Students will then complete 110 credit points of Bachelor of Information and Communications Technology units as per recommended sequence below.

#### Year 2

##### Quarter 1

**300744.1** Tools and Techniques for Website Building

##### Autumn session

**300580.1** Programming Fundamentals

##### Spring session

**300104.2** Database Design and Development

**Year 3****Autumn session**

<b>300581.1</b>	Programming Techniques
<b>300698.1</b>	Operating Systems Programming
<b>300570.2</b>	Human-Computer Interaction

One elective

**Spring session**

<b>300144.1</b>	Object Oriented Analysis
<b>300583.1</b>	Web Systems Development
<b>300699.1</b>	Discrete Structures and Complexity
<b>300579.1</b>	Professional Experience

## Bachelor of Information and Communications Technology/Bachelor of Arts

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**3654.1**

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students who commenced study in this course in 2010 or later.

This double degree program is designed in recognition of the globalizing nature of the information technology industry. In addition to providing a strong technical background in IT, the course also provide students the necessary knowledge in the areas of Bachelor of Arts in Global Studies Key Program, as well as the following majors: Asian Studies and International Relations; Religion, Anthropology and Philosophy; and submajors in Chinese and Japanese language, Asian Studies and International Relations; Religion, Anthropology and Philosophy; and Global Studies.

In the IT area, the program allows students to develop skills in application development, program design, systems analysis & design, networks, web-design, and the implementation of technology.

**Study Mode**

Four years full-time.

**Location**

Campus	Attendance Mode
Parramatta Campus	Full Time    Internal

**Accreditation**

Accreditation at Professional level is being sought with the Australian Computer Society.

**Admission**

Assumed knowledge required: HSC Mathematics and any two units of HSC English.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

**Course Structure**

Qualification for this award requires the successful completion of 320 credit points as specified in the structure below.

Students who complete this award will graduate with a Bachelor of Information and Communications Technology and a Bachelor of Arts.

The conceptual design of this BICT/BA double degree is as follows.

Years 1 to 3 - Students will complete 160cp of Bachelor of Information and Communications Technology units as listed in the course structure below.

In years 1 to 4 they will complete the 4 BA core units and 12 BA key program units from the following key programs in the Bachelor of Arts as offered on Parramatta campus only.

- Global Studies key program
- Humanities key program with the following majors only:
  - Asian Studies and International Relations major and/or

Sub-majors are available in these BA key programs as follows.

- Asian Studies and International Relations
- Religion, Anthropology and Philosophy
- Global Studies
- Japanese
- Chinese

**Arts Units**

For details of the relevant Arts units, refer to the current listing of Bachelor of Arts, course code 1604.

**Year 1****Autumn session**

<b>300580.1</b>	Programming Fundamentals
<b>100483.1</b>	Principles of Professional Communication 1
<b>300585.1</b>	Systems Analysis and Design
<b>300700.2</b>	Statistical Decision Making

**Spring session**

- 300565.1** Computer Networking  
**300144.2** Object Oriented Analysis  
**300104.2** Database Design and Development

Arts Core 1

**Year 2****Autumn session**

- 300582.1** Technologies for Web Applications  
**300581.1** Programming Techniques  
**300095.2** Computer Networks and Internets

Arts Core 2

**Spring session**

- 300583.1** Web Systems Development  
**300699.1** Discrete Structures and Complexity

Arts Core 3

Arts Key Program Unit 1

**Year 3****Autumn session**

- 300570.2** Human-Computer Interaction  
**300578.2** Professional Development  
**300698.1** Operating Systems Programming

Arts Core 4

**Spring session**

- 300579.1** Professional Experience

Arts Key Program Unit 2

Arts Key Program Unit 3

Arts Key Program Unit 4

**Year 4****Autumn session**

Arts Key Program Unit 5

Arts Key Program Unit 6

Arts Key Program Unit 7

Arts Key Program Unit 8

**Spring session**

Arts Key Program Unit 9

Arts Key Program Unit 10

Arts Key Program Unit 11

Arts Key Program Unit 12

## Bachelor of Information and Communications Technology/Bachelor of Business and Commerce

**3655.1**

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students who commenced study in this course in 2010 or later.

This double degree program targets the wide application of information technology in Business and Commerce. It provides students with a strong technical background in IT and Business and Commerce. It allows students to develop skills in application development, program design, systems analysis & design, networks, web-design, and the implementation of technology.

This degree combines information technology with one of ten key programs in:

**Study Mode**

Four years full-time.

**Location**

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Parramatta Campus	Full Time	Internal

**Accreditation**

Accreditation for the Bachelor of Information and Communications Technology at Professional level is being sought with the Australian Computer Society.

**Admission**

Eligibility for admission to the Bachelor of Information and Communications Technology/Bachelor of Business and Commerce is based on the following requirements:

Assumed knowledge required: HSC Mathematics and two units of HSC English.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

**Course Structure**

Qualification for this award requires the successful completion of 320 credit points as per the structure below.

Students are eligible to graduate with a Bachelor of Information and Communications Technology, on

completion of all the 24 units listed in the first three years of the relevant sequence below.

The conceptual design of this Bachelor of Information and Communications Technology/Bachelor of Business and Commerce double degree is as follows.

1) Years 1 to 3 students complete their BICT (16 units) and two elective units;

2) Also, in Years 1 to 3 students complete five common BBC core units and one BBC key program unit, students may also elect to take two alternate BBC units (as suggested in the course document) in Year 1 which will be deemed equivalent to two BICT units. In Year 4 they complete eight BBC key program units.

3) Students within this course will only be permitted to undertake the following key programs within 2739 Bachelor Business and Commerce.

**Please note that not all key programs are offered on both Parramatta and Campbelltown campus.**

- Applied Economics
- Applied Finance
- Global Operations and Supply Chain Management
- Hospitality Management
- Human Resource Development and Organisational Development
- Human Resource Management and Industrial Relations
- International Business
- Management
- Marketing
- Sport Management

## **Bachelor of Information and Communications Technology/ Bachelor of Business and Commerce (Applied Economics)**

### **Parramatta campus**

#### **Year 1**

##### **Autumn session**

**300585.1** Systems Analysis and Design  
**300580.1** Programming Fundamentals

Choose one of

**200336.2** Business Academic Skills  
**100483.1** Principles of Professional Communication 1

Choose one of

**300700.2** Statistical Decision Making  
**200032.2** Statistics for Business

##### **Spring session**

**200083.1** Marketing Principles  
**300144.2** Object Oriented Analysis  
**300565.1** Computer Networking  
**300104.2** Database Design and Development

#### **Year 2**

##### **Autumn session**

**200571.1** Management Dynamics  
**300582.1** Technologies for Web Applications  
**300581.1** Programming Techniques  
**300095.2** Computer Networks and Internets

##### **Spring session**

**300583.1** Web Systems Development  
**300699.1** Discrete Structures and Complexity  
**200184.2** Introduction to Business Law  
**200525.1** Principles of Economics

#### **Year 3**

##### **Autumn session**

**300570.2** Human-Computer Interaction  
**300578.2** Professional Development  
**300698.1** Operating Systems Programming  
**200101.2** Accounting Information for Managers

##### **Spring session**

**300579.1** Professional Experience  
**200549.1** The Australian Macroeconomy

And two electives

#### **Year 4**

##### **Autumn session**

**200547.1** Macroeconomic Theory  
**200048.1** Financial Institutions and Markets  
**200537.2** Economics and Finance Engagement Project

Choose one of

**200533.1** Globalisation and Asia  
**200541.1** Globalisation and Trade  
**200532.1** Government and the Economy

##### **Spring session**

**200053.2** Economic Modelling  
**200531.1** Industry Economics and Markets  
**200546.1** Macroeconomic Issues

Choose one of

**200065.1** Political Economy  
**200075.1** Urban and Regional Economics  
**200081.2** Managerial Economics

**Bachelor of Information and Communications Technology/ Bachelor of Business and Commerce (Applied Finance)****Parramatta and Campbelltown campus****Year 1****Autumn session**

**300585.1** Systems Analysis and Design  
**300580.1** Programming Fundamentals

Choose one of

**200336.2** Business Academic Skills  
**100483.1** Principles of Professional Communication 1

Choose one of

**300700.2** Statistical Decision Making  
**200032.2** Statistics for Business

**Spring session**

**200083.1** Marketing Principles  
**300144.2** Object Oriented Analysis  
**300565.1** Computer Networking  
**300104.2** Database Design and Development

**Year 2****Autumn session**

**200571.1** Management Dynamics  
**300582.1** Technologies for Web Applications  
**300581.1** Programming Techniques  
**300095.2** Computer Networks and Internets

**Spring session**

**300583.1** Web Systems Development  
**300699.1** Discrete Structures and Complexity  
**200184.2** Introduction to Business Law  
**200525.1** Principles of Economics

**Year 3****Autumn session**

**300570.2** Human-Computer Interaction  
**300578.2** Professional Development  
**300698.1** Operating Systems Programming  
**200101.2** Accounting Information for Managers

**Spring session**

**300579.1** Professional Experience  
**200488.2** Corporate Financial Management

And two electives

**Year 4****Autumn session**

**200549.1** The Australian Macroeconomy  
**200048.1** Financial Institutions and Markets  
**200537.2** Economics and Finance Engagement Project

And one alternate unit

**Spring session**

**200053.2** Economic Modelling  
**200057.2** Investment Management

And two alternate units

**Alternate units**

**200078.1** Portfolio Management  
**200055.3** International Finance  
**200077.1** The Superannuation Industry  
**200079.1** Derivatives  
**200518.1** Behavioural Finance  
**200059.1** Financial Economics

**Bachelor of Information and Communications Technology/ Bachelor of Business and Commerce (Global Operations and Supply Chain Management)****Parramatta campus****Year 1****Autumn session**

**300585.1** Systems Analysis and Design  
**300580.1** Programming Fundamentals

Choose one of

**200336.2** Business Academic Skills  
**100483.1** Principles of Professional Communication 1

Choose one of

**300700.2** Statistical Decision Making  
**200032.2** Statistics for Business

**Spring session**

**200083.1** Marketing Principles  
**300144.2** Object Oriented Analysis  
**300565.1** Computer Networking  
**300104.2** Database Design and Development

**Year 2****Autumn session**

**200571.1** Management Dynamics  
**300582.1** Technologies for Web Applications  
**300581.1** Programming Techniques  
**300095.2** Computer Networks and Internets

**Spring session**

**300583.1** Web Systems Development  
**300699.1** Discrete Structures and Complexity  
**200184.2** Introduction to Business Law  
**200525.1** Principles of Economics



**Year 3****Autumn session**

<b>300570.2</b>	Human-Computer Interaction
<b>300578.2</b>	Professional Development
<b>300698.1</b>	Operating Systems Programming
<b>200101.2</b>	Accounting Information for Managers

**Spring session**

<b>300579.1</b>	Professional Experience
<b>200677.2</b>	Global Supply Chain Management

And two electives

**Year 4****Autumn session**

<b>200528.1</b>	Management of Projects
<b>200588.1</b>	Global Operations and Logistics Management
<b>200667.1</b>	Global Enterprise Resource Planning
<b>200668.1</b>	Technology Management for Competitiveness

**Spring session**

<b>200167.1</b>	Quality Management
<b>200585.1</b>	Organisational Behaviour
<b>200565.1</b>	Operations and Logistics in Practice
<b>200162.1</b>	Business Report

**Bachelor of Information and Communications Technology/ Bachelor of Business and Commerce (Hospitality Management)****Parramatta campus****Year 1****Autumn session**

<b>300585.1</b>	Systems Analysis and Design
<b>300580.1</b>	Programming Fundamentals

Choose one of

<b>100483.1</b>	Principles of Professional Communication 1
<b>200336.2</b>	Business Academic Skills

Choose one of

<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>300144.2</b>	Object Oriented Analysis
<b>300565.1</b>	Computer Networking
<b>300104.2</b>	Database Design and Development

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
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<b>300582.1</b>	Technologies for Web Applications
<b>300581.1</b>	Programming Techniques
<b>300095.2</b>	Computer Networks and Internets

**Spring session**

<b>300583.1</b>	Web Systems Development
<b>300699.1</b>	Discrete Structures and Complexity
<b>200184.2</b>	Introduction to Business Law
<b>200525.1</b>	Principles of Economics

**Year 3****Autumn session**

<b>300570.2</b>	Human-Computer Interaction
<b>300578.2</b>	Professional Development
<b>300698.1</b>	Operating Systems Programming
<b>200273.3</b>	Managing Service and Experience

**Spring session**

<b>300579.1</b>	Professional Experience
<b>200101.2</b>	Accounting Information for Managers

And two electives

**Year 4****Autumn session**

<b>200709.1</b>	Managing the Accommodation Experience
<b>200710.1</b>	Managing the Food and Beverage Experience
<b>200708.1</b>	Hospitality Industry
<b>200707.1</b>	Service Industry Studies

**Spring session**

<b>200584.2</b>	Hospitality Management Operations
<b>200742.1</b>	Sport and Hospitality Event Management
<b>200148.1</b>	Planning and Design of Hospitality Facilities
<b>200561.2</b>	Hospitality Management Applied Project

**Bachelor of Information and Communications Technology/ Bachelor of Business and Commerce (Human Resource Development and Organisational Development)****Parramatta campus****Year 1****Autumn session**

<b>300585.1</b>	Systems Analysis and Design
<b>300580.1</b>	Programming Fundamentals

Choose one of

<b>200336.2</b>	Business Academic Skills
<b>100483.1</b>	Principles of Professional Communication 1

Choose one of

<b>300700.2</b>	Statistical Decision Making
<b>200032.2</b>	Statistics for Business

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>300144.2</b>	Object Oriented Analysis
<b>300565.1</b>	Computer Networking
<b>300104.2</b>	Database Design and Development

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
<b>300582.1</b>	Technologies for Web Applications
<b>300581.1</b>	Programming Techniques
<b>300095.2</b>	Computer Networks and Internets

**Spring session**

<b>300583.1</b>	Web Systems Development
<b>300699.1</b>	Discrete Structures and Complexity
<b>200184.2</b>	Introduction to Business Law
<b>200525.1</b>	Principles of Economics

**Year 3****Autumn session**

<b>300570.2</b>	Human-Computer Interaction
<b>300578.2</b>	Professional Development
<b>300698.1</b>	Operating Systems Programming
<b>200101.2</b>	Accounting Information for Managers

**Spring session**

<b>300579.1</b>	Professional Experience
<b>200300.1</b>	Managing People at Work

And two electives

**Year 4****Autumn session**

<b>200610.1</b>	Employee Training and Development
<b>200243.2</b>	Work Employment and the Labour Market
<b>200570.2</b>	Management of Change
<b>200175.4</b>	Managing Human Resources and Industrial Relations

**Spring session**

<b>200376.1</b>	Managing and Developing Careers
<b>200157.2</b>	Organisational Learning and Development
<b>200159.2</b>	Organisation Analysis and Design
<b>200381.3</b>	Human Resources Development Seminar

### **Bachelor of Information and Communications Technology/ Bachelor of Business and Commerce (Human Resource Management and Industrial Relations)**

#### **Parramatta and Campbelltown campus**

**Year 1****Autumn session**

<b>300580.1</b>	Programming Fundamentals
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**300585.1** Systems Analysis and Design

Choose one of

<b>200336.2</b>	Business Academic Skills
<b>100483.1</b>	Principles of Professional Communication 1

Choose one of

<b>300700.2</b>	Statistical Decision Making
<b>200032.2</b>	Statistics for Business

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>300144.2</b>	Object Oriented Analysis
<b>300565.1</b>	Computer Networking
<b>300104.2</b>	Database Design and Development

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
<b>300582.1</b>	Technologies for Web Applications
<b>300581.1</b>	Programming Techniques
<b>300095.2</b>	Computer Networks and Internets

**Spring session**

<b>300583.1</b>	Web Systems Development
<b>300699.1</b>	Discrete Structures and Complexity
<b>200184.2</b>	Introduction to Business Law
<b>200525.1</b>	Principles of Economics

**Year 3****Autumn session**

<b>300570.2</b>	Human-Computer Interaction
<b>300578.2</b>	Professional Development
<b>300698.1</b>	Operating Systems Programming
<b>200101.2</b>	Accounting Information for Managers

**Spring session**

<b>300579.1</b>	Professional Experience
<b>200300.1</b>	Managing People at Work

And two electives

**Year 4****Autumn session**

<b>200614.1</b>	Enterprise Industrial Relations
<b>200621.2</b>	International Human Resource Management
<b>200616.2</b>	Workplace Behaviour
<b>200613.1</b>	Negotiation, Bargaining and Advocacy

**Spring session**

<b>200739.1</b>	Reward and Performance Management
<b>200740.1</b>	Human Resource and Industrial Relations Strategy
<b>200575.2</b>	Processes and Evaluation in Employment Relations

Choose one of

<b>200610.1</b>	Employee Training and Development
<b>200150.1</b>	Managing Diversity
<b>200753.1</b>	Occupational Health and Safety

### **Bachelor of Information and Communications Technology/ Bachelor of Business and Commerce (International Business)**

#### **Parramatta campus**

##### **Year 1**

##### **Autumn session**

<b>300580.1</b>	Programming Fundamentals
<b>300585.1</b>	Systems Analysis and Design

Choose one of

<b>100483.1</b>	Principles of Professional Communication 1
<b>200336.2</b>	Business Academic Skills

Choose one of

<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

##### **Spring session**

<b>200083.1</b>	Marketing Principles
<b>300144.2</b>	Object Oriented Analysis
<b>300565.1</b>	Computer Networking
<b>300104.2</b>	Database Design and Development

##### **Year 2**

##### **Autumn session**

<b>200571.1</b>	Management Dynamics
<b>300582.1</b>	Technologies for Web Applications
<b>300581.1</b>	Programming Techniques
<b>300095.2</b>	Computer Networks and Internets

##### **Spring session**

<b>300583.1</b>	Web Systems Development
<b>300699.1</b>	Discrete Structures and Complexity
<b>200184.2</b>	Introduction to Business Law
<b>200525.1</b>	Principles of Economics

##### **Year 3**

##### **Autumn session**

<b>300570.2</b>	Human-Computer Interaction
<b>300578.2</b>	Professional Development
<b>300698.1</b>	Operating Systems Programming
<b>200101.2</b>	Accounting Information for Managers

##### **Spring session**

<b>300579.1</b>	Professional Experience
<b>200591.1</b>	Introduction to International Business

And two electives

##### **Year 4**

##### **Autumn session**

<b>200541.1</b>	Globalisation and Trade
<b>200094.1</b>	International Marketing
<b>200626.1</b>	International Business Strategy
<b>200595.2</b>	International Business Finance

##### **Spring session**

<b>200590.1</b>	International Business Project
<b>200374.2</b>	International Marketing Research
<b>200589.1</b>	Export Strategy and Applications

Choose one of

<b>200098.1</b>	The Markets of Asia
<b>200099.2</b>	The Markets of Europe

### **Bachelor of Information and Communications Technology/ Bachelor of Business and Commerce (Management)**

#### **Parramatta and Campbelltown campus**

##### **Year 1**

##### **Autumn session**

<b>300580.1</b>	Programming Fundamentals
<b>300585.1</b>	Systems Analysis and Design

Choose one of

<b>200336.2</b>	Business Academic Skills
<b>100483.1</b>	Principles of Professional Communication 1

Choose one of

<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

##### **Spring session**

<b>200083.1</b>	Marketing Principles
<b>300144.2</b>	Object Oriented Analysis
<b>300565.1</b>	Computer Networking
<b>300104.2</b>	Database Design and Development

##### **Year 2**

##### **Autumn session**

<b>200571.1</b>	Management Dynamics
<b>300582.1</b>	Technologies for Web Applications
<b>300581.1</b>	Programming Techniques
<b>300095.2</b>	Computer Networks and Internets

##### **Spring session**

<b>300583.1</b>	Web Systems Development
<b>300699.1</b>	Discrete Structures and Complexity
<b>200184.2</b>	Introduction to Business Law
<b>200525.1</b>	Principles of Economics

**Year 3****Autumn session**

<b>300570.2</b>	Human-Computer Interaction
<b>300578.2</b>	Professional Development
<b>300698.1</b>	Operating Systems Programming
<b>200101.2</b>	Accounting Information for Managers

**Spring session**

<b>300579.1</b>	Professional Experience
<b>200585.1</b>	Organisational Behaviour

And two electives

**Year 4****Autumn session**

<b>200158.2</b>	Business, Society and Policy
<b>200586.1</b>	Cross Cultural Management
<b>200570.2</b>	Management of Change
<b>200752.1</b>	Power, Politics and Knowledge

**Spring session**

<b>200588.1</b>	Global Operations and Logistics Management
<b>200159.2</b>	Organisation Analysis and Design
<b>200568.1</b>	Contemporary Management Issues
<b>200587.1</b>	Strategic Management

**Bachelor of Information and Communications Technology/ Bachelor of Business and Commerce (Marketing)****Parramatta and Campbelltown campus****Year 1****Autumn session**

<b>300580.1</b>	Programming Fundamentals
<b>300585.1</b>	Systems Analysis and Design

Choose one of

<b>200336.2</b>	Business Academic Skills
<b>100483.1</b>	Principles of Professional Communication 1

Choose one of

<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>300144.2</b>	Object Oriented Analysis
<b>300565.1</b>	Computer Networking
<b>300104.2</b>	Database Design and Development

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
<b>300582.1</b>	Technologies for Web Applications

<b>300581.1</b>	Programming Techniques
<b>300095.2</b>	Computer Networks and Internets

**Spring session**

<b>300583.1</b>	Web Systems Development
<b>300699.1</b>	Discrete Structures and Complexity
<b>200184.2</b>	Introduction to Business Law
<b>200525.1</b>	Principles of Economics

**Year 3****Autumn session**

<b>300570.2</b>	Human-Computer Interaction
<b>300578.2</b>	Professional Development
<b>300698.1</b>	Operating Systems Programming
<b>200101.2</b>	Accounting Information for Managers

**Spring session**

<b>300579.1</b>	Professional Experience
<b>200084.1</b>	Consumer Behaviour

And two electives

**Year 4****Autumn session**

<b>200086.2</b>	Marketing Communications
<b>200592.1</b>	Marketing Research
<b>200087.1</b>	Strategic Marketing Management
<b>200094.1</b>	International Marketing

**Spring session**

<b>200090.2</b>	Marketing of Services
<b>200088.1</b>	Brand and Product Management
<b>200091.2</b>	Business to Business Marketing
<b>200096.2</b>	Marketing Planning Project

**Bachelor of Information and Communications Technology/ Bachelor of Business and Commerce (Sport Management)****Campbelltown campus****Year 1****Autumn session**

<b>300585.1</b>	Systems Analysis and Design
<b>300580.1</b>	Programming Fundamentals

Choose one of

<b>200336.2</b>	Business Academic Skills
<b>100483.1</b>	Principles of Professional Communication 1

Choose one of

<b>300700.2</b>	Statistical Decision Making
<b>200032.2</b>	Statistics for Business

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>300144.2</b>	Object Oriented Analysis

**300565.1** Computer Networking  
**300104.2** Database Design and Development

## Year 2

### Autumn session

**200571.1** Management Dynamics  
**300582.1** Technologies for Web Applications  
**300581.1** Programming Techniques  
**300095.2** Computer Networks and Internets

### Spring session

**300583.1** Web Systems Development  
**300699.1** Discrete Structures and Complexity  
**200184.2** Introduction to Business Law  
**200525.1** Principles of Economics

## Year 3

### Autumn session

**300570.2** Human-Computer Interaction  
**300578.2** Professional Development  
**300698.1** Operating Systems Programming  
**200705.1** The World of Sport Management

### Spring session

**300579.1** Professional Experience  
**200101.2** Accounting Information for Managers

And two electives

## Year 4

### Autumn session

**200665.1** Strategic Communication in Sport  
**200273.3** Managing Service and Experience  
**200754.1** Sports Management - Planning and Development  
**200707.1** Service Industry Studies

### Spring session

**200664.1** Sport Management Internship  
**200742.1** Sport and Hospitality Event Management  
**200751.1** Sport Management Applied Project  
**400335.2** Contemporary Issues in Sport Management

## Bachelor of Information and Communications Technology/Bachelor of Business and Commerce (Accounting)

### 3656.1

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students who commenced study in this course in 2010 or later.

This double degree program targets the wide application of information technology in Business and Commerce in Accounting. It provides students with a strong technical

background in IT and Business and Commerce in Accounting. It allows students to develop skills in application development, program design, systems analysis & design, networks, web-design, and the implementation of technology.

This degree combines information technology with knowledge required by professional Accountants.

### Study Mode

Four years full-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Parramatta Campus	Full Time	Internal

### Accreditation

Accreditation for the Bachelor of Information and Communications Technology at Professional level is being sought with the Australian Computer Society. Accreditation of this course with CPA Australia and The Institute of Chartered Accountants in Australia is being sought.

### Admission

Eligibility for admission to the Bachelor of Information and Communications Technology/Bachelor of Business and Commerce (Accounting) is based on the following requirements:

Assumed knowledge required: HSC Mathematics and two units of HSC English.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 320 credit points as per the structure below.

Students are eligible to graduate with a Bachelor of Information and Communications Technology, on completion of all the 24 units listed in the first three years of the relevant sequence below.

The conceptual design of this Bachelor of Information and Communications Technology/Bachelor of Business and Commerce (Accounting) double degree is as follows.

- 1) Years 1 to 3 students complete their Bachelor of Information and Communications Technology (16 units);
- 2) Also, in Years 1 to 3 students complete two common core units of the Bachelor of Business and Commerce and six of the Bachelor of Business and Commerce Accounting key program units. Students may also elect to take two

alternate Bachelor of Business and Commerce units (as suggested in the course document) in Year 1 which will be deemed equivalent to two Bachelor of Information and Communications Technology units. In Year 4 they complete three Bachelor of Business and Commerce common core units and five Bachelor of Business and Commerce Accounting key program units.

#### Year 1

##### Autumn session

**300580.1** Programming Fundamentals  
**300585.1** Systems Analysis and Design

Choose one of

**100483.1** Principles of Professional Communication 1  
**200336.2** Business Academic Skills

Choose one of

**300700.2** Statistical Decision Making  
**200032.2** Statistics for Business

##### Spring session

**300565.1** Computer Networking  
**300144.2** Object Oriented Analysis  
**300104.2** Database Design and Development  
**200101.2** Accounting Information for Managers

#### Year 2

##### Autumn session

**300582.1** Technologies for Web Applications  
**300581.1** Programming Techniques  
**300095.2** Computer Networks and Internets  
**200111.1** Financial Accounting Applications

##### Spring session

**300583.1** Web Systems Development  
**300699.1** Discrete Structures and Complexity  
**200116.2** Management Accounting Fundamentals  
**200488.2** Corporate Financial Management

#### Year 3

##### Autumn session

**300570.2** Human-Computer Interaction  
**300578.2** Professional Development  
**300698.1** Operating Systems Programming  
**200536.1** Intermediate Financial Accounting

##### Spring session

**300579.1** Professional Experience  
**200534.1** Accounting Information Systems  
**200109.3** Corporate Accounting Systems  
**200571.1** Management Dynamics

#### Year 4

##### Autumn session

**200535.1** Auditing and Assurance Services

**200108.1** Contemporary Management Accounting  
**200183.2** Law of Business Organisations  
**200525.1** Principles of Economics

##### Spring session

**200184.2** Introduction to Business Law  
**200083.1** Marketing Principles  
**200267.1** Advanced Accounting  
**200118.2** The Accountant as a Consultant

## Bachelor of Information Technology (Honours)

### 3613.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2004 or later.

The Honours program encourages independence in learning and research; further develops academic ability, provides the opportunity to pursue undergraduate studies to a more advanced level, deepen intellectual understanding in the major field of study and develop research skills. Honours is a recognised point of entry into postgraduate research studies at PhD and Masters levels. If a career in industry is sought, Honours enables study to a more advanced level with a higher qualification. The course has the opportunity for direct commercial and industrial involvement with a diverse range of organisations through the provision and joint supervision of research projects.

### Study Mode

One year full-time or two years part-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Campbelltown Campus	Part Time	Internal
Parramatta Campus	Full Time	Internal
Parramatta Campus	Part Time	Internal
Penrith Campus	Full Time	Internal
Penrith Campus	Part Time	Internal

### Accreditation

Professional accreditation by the Australian Computer Society may be available, depending on a student's undergraduate degree.

### Course Structure

Qualification for this award requires the successful completion of 80 credit points including the units listed below.

The award is a year long program that will be divided into three main components: Computing Research Process and Practice (10 credit points), Computing Honours Seminar Program (10 credit points) and the Computing Honours Thesis (60 credit points).

Students must enrol in 300364 Computing Honours Seminar Program and 300363 Computing Honours Thesis in both Autumn and Spring sessions.

## Full-time

### Year 1

#### Autumn session

<b>300365.1</b>	Computing Research Process and Practice
<b>300364.2</b>	Computing Honours Seminar Program
<b>300363.2</b>	Computing Honours Thesis

#### Spring session

<b>300364.2</b>	Computing Honours Seminar Program
<b>300363.2</b>	Computing Honours Thesis

## Part-time

### Year 1

#### Autumn session

<b>300365.1</b>	Computing Research Process and Practice
<b>300363.2</b>	Computing Honours Thesis

#### Spring session

<b>300364.2</b>	Computing Honours Seminar Program
<b>300363.2</b>	Computing Honours Thesis

### Year 2

#### Autumn session

<b>300364.2</b>	Computing Honours Seminar Program
<b>300363.2</b>	Computing Honours Thesis

#### Spring session

<b>300363.2</b>	Computing Honours Thesis
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## Bachelor of Medical Research

### 4647.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

This course gives students who are enrolled in the UWS Bachelor of Medicine / Bachelor of Surgery the opportunity to take leave of absence from the normal medical course for 12 months full-time or 24 months part-time, after successfully completing Years 1 and 2 of MBBS, in order to gain a more detailed experience in medical research than is provided in the normal medical course. Years 1 and 2 of the Bachelor of Medical Research are identical to Years 1 and 2 of MBBS. It is expected that students will return to the medical course on completion of the intercalated year, which will complete the requirements for the Bachelor of Medical Research, but the degree is also available as an exit point for those who do not wish to resume MBBS.

## Study Mode

Two semesters.

## Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Campbelltown Campus	Part Time	Internal

## Accreditation

The Australian Medical Council accredits the MBBS program, and the addition of an extra year of research, as proposed here, meets one of their standards concerning provision of opportunities for research during medical courses.

## Admission

Must be currently enrolled in Bachelor of Medicine/Bachelor of Surgery (MB BS) at UWS, and have successfully completed at least two years of that course, normally with a credit average, before being admitted to year 3 of the intercalated Bachelor of Medical Research.

Applications from Australian citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

## Course Structure

Qualification for this award requires the successful completion of 240 credit points including the units listed in the recommended sequence below.

### For students entering Year 3 in 2010

#### Year 1

##### 1H session (year long subjects)

<b>400737.1</b>	Scientific Basis of Medicine 1
<b>400738.1</b>	Health Practice 1

##### 2H session

<b>400737.1</b>	Scientific Basis of Medicine 1
<b>400738.1</b>	Health Practice 1

#### Year 2

##### 1H session (year long subjects)

<b>400862.1</b>	Foundations of Medicine 2
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**2H session****400862.1** Foundations of Medicine 2**Year 3****1H session****400813.1** Medical Research Project

Choose one of

**300411.3** Research Methodology and Experimental Design**400148.2** Quantitative Research**Note: 300411 is a 20cp unit - if students elect to undertake this unit, they must enrol for both 1H and 2H sessions.****2H session****400813.1** Medical Research Project

Choose one of

**300411.3** Research Methodology and Experimental Design**400137.1** Introduction to Research for Health Sciences**For students entering Year 3 in 2011****Year 1****1H session (year long subjects)****400861.1** Foundations of Medicine 1**2H session****400861.1** Foundations of Medicine 1**Year 2****1H session (year long subjects)****400862.1** Foundations of Medicine 2**2H session****400862.1** Foundations of Medicine 2**Year 3****1H session****400813.1** Medical Research Project

Choose one of

**300411.3** Research Methodology and Experimental Design**400148.2** Quantitative Research**Note: 300411 is a 20cp unit - if students elect to undertake this unit, they must enrol for both 1H and 2H sessions.****2H session****400813.1** Medical Research Project

Choose one of

**300411.3** Research Methodology and Experimental Design**400137.1** Introduction to Research for Health Sciences**Bachelor of Medical Science****3577.4**

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

This degree comprises three areas of major: biomedical science, medicinal chemistry and human bioscience. The biomedical science major focuses on microbiology, biochemistry and aspects of health. The medicinal chemistry major focuses on chemistry and biochemistry, while the human bioscience major focuses on anatomy, physiology and pharmacology. Graduates of this degree will find employment in areas such as medical research laboratories, hospital laboratories and in pathology laboratories and be well suited for positions in the pharmaceutical, medical sales and various research and quality control laboratories, as well as further study including research degrees and graduate medicine degrees.

**Study Mode**

Three years full-time.

**Location**

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Campbelltown Campus	Part Time	Internal
Hawkesbury Campus	Full Time	Internal
Hawkesbury Campus	Part Time	Internal

**Accreditation**

The Bachelor of Medical Science (Medicinal Chemistry Major) is accredited by The Royal Australian Chemical Institute Incorporated.

**Admission**

Assumed knowledge required: At least two of biology, chemistry, mathematics and physics.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of



minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.

### Recommended Full-time Sequence

#### Year 1

**300752.1** Introduction to Anatomy and Histology  
**300753.1** Introduction to Human Physiology

Plus one unit from each of the following combinations:

Choose one of

**300543.1** Cell Biology  
**300221.1** Biology 1

Choose one of

**300554.1** Principles of Chemistry  
**300224.2** Chemistry 1

Choose one of

**300539.1** Biodiversity  
**300222.1** Biology 2

Choose one of

**300550.1** Medicinal Chemistry  
**300225.2** Chemistry 2

And two Alternate units (Note 1)

#### Note 1 - Year 1 Alternate Units

Choose one of

**300558.1** Physics 1  
**300134.1** Introduction to Information Technology

Only one of the following mathematics/statistics units may be selected

**200263.1** Biometry  
**200189.1** Concepts of Mathematics  
**200191.3** Fundamentals of Mathematics  
**300700.2** Statistical Decision Making

#### Year 2

**300323.1** Pathological Basis of Disease

Choose one of

**300555.1** Proteins and Genes  
**300219.2** Biochemistry 1

And four Major units

And two electives

#### Year 3

Four Major units

And four electives

### Biomedical Science Major - Campbelltown campus

**M3577BS\_C.1** Biomedical Science

### Biomedical Science Major - Hawkesbury campus

**M3577BS\_H.1** Biomedical Science

### Medicinal Chemistry Major - Campbelltown campus

**M3577MCV2.1** Medicinal Chemistry

### Human Bioscience Major - Campbelltown campus

**M3577HBV2.1** Human Bioscience

### Bachelor of Medical Science (Honours)

#### 3610.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2004 or later.

The Honours program encourages independent learning and research, further develops academic ability, provides the opportunity to pursue undergraduate studies to a more advanced level, deepens intellectual understanding in the major field of study and develops research skills. An Honours degree is a recognised point of entry for postgraduate research studies at PhD level and enhances a graduate's ability to perform at a high level in a commercial or public organisation. The Honours program consists of a rigorous program of supervised research on a medically related topic, culminating in the production of a thesis and presentation of a final seminar. Students enrol in a 60 credit point honours project and either a 20 credit point research methodology and experimental design unit or a 20 credit point advanced topics and research skills unit, allowing them to explore more advanced topics, including wider areas of research and their applications in science technology and medicine. Although the Honours course is available on several different campuses, some or all of the lectures, workshops and seminars may be held centrally at a single campus to ensure that students are exposed to as wide a range of research topics as possible. The course can provide opportunities for direct commercial and industrial involvement with a diverse range of organisations through the provision of, and joint supervision of, research projects.

#### Study Mode

One year full-time or two years part-time.

**Location**

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Campbelltown Campus	Part Time	Internal
Hawkesbury Campus	Full Time	Internal
Hawkesbury Campus	Part Time	Internal
Parramatta Campus	Full Time	Internal
Parramatta Campus	Part Time	Internal
Penrith Campus	Full Time	Internal
Penrith Campus	Part Time	Internal

**Course Structure**

Qualification for this award requires the successful completion of 80 credit points as per the recommended sequence below.

Please note: Students must enrol in 300410 Advanced Topics and Research Skills and 300412 Science, Technology and Environment Honours Projects in both 1H and 2H sessions.

**Recommended Sequence****Full-time****Year 1****1H**

<a href="#">300410.2</a> <a href="#">300412.2</a>	Advanced Topics and Research Skills Science, Technology and Environment Honours Project
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**2H**

<a href="#">300410.2</a> <a href="#">300412.2</a>	Advanced Topics and Research Skills Science, Technology and Environment Honours Project
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**Part-time****Year 1****1H**

<a href="#">300410.2</a>	Advanced Topics and Research Skills
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**2H**

<a href="#">300410.2</a>	Advanced Topics and Research Skills
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**Year 2****1H**

<a href="#">300412.2</a>	Science, Technology and Environment Honours Project
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**2H**

<a href="#">300412.2</a>	Science, Technology and Environment Honours Project
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**Bachelor of Medical Science/Bachelor of Information and Communications Technology****3657.1**

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students who commenced study in this course in 2010 or later.

This double degree program targets the explosion of information in biomedical science. In addition to a strong grounding in medical science, it provides graduates with skills and a knowledge base in networking and IT applications and the ability to apply practical solutions across ICT. It allows students to develop skills in application development, program design, systems analysis & design, networks, web-design, and the implementation of technology.

This degree combines information technology with one of three majors: biomedical science, medicinal chemistry and human bioscience. The biomedical science major focuses on microbiology, biochemistry and molecular biology. The medicinal chemistry major focuses on chemistry and biochemistry, while the human bioscience major focuses on anatomy, physiology and pharmacology.

**Study Mode**

Four years full-time.

**Location**

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

**Accreditation**

Accreditation for the Bachelor of Information and Communications Technology at Professional level is being sought with the Australian Computer Society.

**Admission**

Assumed knowledge required: HSC Mathematics, any two units of HSC English and at least one of biology, chemistry, or physics.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

## Course Structure

Qualification for this award requires the successful completion of 320 credit points as specified in the structure below.

Requirements for the Bachelor of Medical Science include completion of one of three majors: Biomedical Science, Medicinal Chemistry or Human Bioscience. The structures for the combined degrees below show the sequence of units necessary for each of these three majors.

Students who complete this award will graduate with a Bachelor of Medical Science and a Bachelor of Information and Communications Technology.

### Bachelor of Medical Science / Bachelor of Information and Communications Technology - Biomedical Science Major

#### Year 1

##### Autumn session

<b>300539.1</b>	Biodiversity
<b>300554.1</b>	Principles of Chemistry
<b>300580.1</b>	Programming Fundamentals
<b>300752.1</b>	Introduction to Anatomy and Histology

##### Spring session

<b>300543.1</b>	Cell Biology
<b>300550.1</b>	Medicinal Chemistry
<b>300700.2</b>	Statistical Decision Making
<b>300753.1</b>	Introduction to Human Physiology

#### Year 2

##### Autumn session

<b>300555.1</b>	Proteins and Genes
<b>300300.1</b>	Microbiology 1
<b>300582.1</b>	Technologies for Web Applications
<b>300585.1</b>	Systems Analysis and Design

##### Spring session

<b>300548.1</b>	Human Metabolism and Disease
<b>300321.1</b>	Microbiology 2
<b>300323.1</b>	Pathological Basis of Disease
<b>300144.2</b>	Object Oriented Analysis

#### Year 3

##### Autumn session

<b>300549.1</b>	Human Molecular Biology
<b>100483.1</b>	Principles of Professional Communication 1
<b>300581.1</b>	Programming Techniques

And one unit from Schedule A

##### Spring session

<b>300749.1</b>	Medical Microbiology
<b>300565.1</b>	Computer Networking

And two units from Schedule A

#### Year 4

##### Autumn session

<b>300570.2</b>	Human-Computer Interaction
<b>300095.2</b>	Computer Networks and Internets
<b>300698.1</b>	Operating Systems Programming
<b>300578.2</b>	Professional Development

##### Spring session

<b>300104.2</b>	Database Design and Development
<b>300583.1</b>	Web Systems Development
<b>300699.1</b>	Discrete Structures and Complexity
<b>300579.1</b>	Professional Experience

### Schedule A Units

<b>300307.1</b>	Analytical Microbiology
<b>300756.1</b>	Topics in Physiology
<b>300407.1</b>	Mammalian Molecular Medicine
<b>300408.1</b>	Mammalian Cell Biology and Biotechnology
<b>300505.1</b>	Pharmacology
<b>300757.1</b>	Molecular Biology of the Immune System
<b>300556.1</b>	Analytical Protein Science
<b>BC306A.1</b>	Human Physiology 3.1
<b>BI201A.1</b>	Genetics 2.2
<b>SC301A.1</b>	Laboratory Quality Management
<b>300544.1</b>	Cell Signalling

### Bachelor of Medical Science / Bachelor of Information and Communications Technology - Medicinal Chemistry Major

#### Year 1

##### Autumn session

<b>300539.1</b>	Biodiversity
<b>300554.1</b>	Principles of Chemistry
<b>300580.1</b>	Programming Fundamentals
<b>300752.1</b>	Introduction to Anatomy and Histology

##### Spring session

<b>300543.1</b>	Cell Biology
<b>300550.1</b>	Medicinal Chemistry
<b>300700.2</b>	Statistical Decision Making
<b>300753.1</b>	Introduction to Human Physiology

#### Year 2

##### Autumn session

<b>300555.1</b>	Proteins and Genes
<b>300582.1</b>	Technologies for Web Applications
<b>300585.1</b>	Systems Analysis and Design

Choose one of

<b>300545.1</b>	Coordination Chemistry
<b>300540.1</b>	Biomolecular Dynamics

##### Spring session

<b>300548.1</b>	Human Metabolism and Disease
<b>300297.1</b>	Analytical Chemistry 2

**300553.1** Molecules of Life: Synthesis and Reactivity  
**300144.2** Object Oriented Analysis

**Year 3****Autumn session**

**300546.1** Drug Design and Synthesis  
**300537.1** Advanced Chemical Analysis  
**100483.1** Principles of Professional Communication 1  
**300581.1** Programming Techniques

**Spring session**

**300324.1** Pharmacological Chemistry  
**300323.1** Pathological Basis of Disease  
**300565.1** Computer Networking

Choose one of:

**300538.1** Advanced Inorganic Chemistry  
**300475.1** Molecular Pharmacokinetics

**Year 4****Autumn session**

**300570.2** Human-Computer Interaction  
**300095.2** Computer Networks and Internets  
**300698.1** Operating Systems Programming  
**300578.2** Professional Development

**Spring session**

**300104.2** Database Design and Development  
**300583.1** Web Systems Development  
**300699.1** Discrete Structures and Complexity  
**300579.1** Professional Experience

### **Bachelor of Medical Science / Bachelor of Information and Communications Technology - Human Bioscience Major**

**Year 1****Autumn session**

**300539.1** Biodiversity  
**300554.1** Principles of Chemistry  
**300580.1** Programming Fundamentals  
**300752.1** Introduction to Anatomy and Histology

**Spring session**

**300543.1** Cell Biology  
**300550.1** Medicinal Chemistry  
**300700.2** Statistical Decision Making  
**300753.1** Introduction to Human Physiology

**Year 2****Autumn session**

**300555.1** Proteins and Genes  
**300751.1** Anatomy of the Thorax and Abdomen  
**300582.1** Technologies for Web Applications  
**300585.1** Systems Analysis and Design

**Spring session**

**300548.1** Human Metabolism and Disease  
**300755.1** The Appendicular Skeleton  
**300323.1** Pathological Basis of Disease  
**300144.2** Object Oriented Analysis

**Year 3****Autumn session**

**300754.1** Neuroanatomy  
**100483.1** Principles of Professional Communication 1  
**300581.1** Programming Techniques

And one unit from Schedule B

**Spring session**

**300505.1** Pharmacology  
**300565.1** Computer Networking

And two units from Schedule B

**Year 4****Autumn session**

**300570.2** Human-Computer Interaction  
**300095.2** Computer Networks and Internets  
**300698.1** Operating Systems Programming  
**300578.2** Professional Development

**Spring session**

**300104.2** Database Design and Development  
**300583.1** Web Systems Development  
**300699.1** Discrete Structures and Complexity  
**300579.1** Professional Experience

**Schedule B Units**

**300749.1** Medical Microbiology  
**300307.1** Analytical Microbiology  
**300750.1** Anatomy of the Head and Neck  
**300321.1** Microbiology 2  
**300549.1** Human Molecular Biology  
**400138.2** Pathophysiology 1  
**400267.2** Pathophysiology 2

Choose one of:

**300756.1** Topics in Physiology  
**BC306A.1** Human Physiology 3.1

### **Bachelor of Medicine, Bachelor of Surgery**

**4641.3**

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

This course prepares graduates for eligibility for registration as a medical practitioner in Australia or New Zealand. It is an integrated program in which the basic sciences and

areas of knowledge underpinning medical practice are learnt in a framework that emphasises active learning, based on clinical and other relevant scenarios. Teaching of clinical skills begins in the first year and continues throughout the program. In the last three years of the course, students undertake clinical placements in a wide range of settings across Greater Western Sydney and beyond. The course is arranged around three vertical themes: Professional Skills and Attitudes; The Scientific Basis of Medical Practice; and Health and Illness in Societies. Students who undertake the embedded Honours program during the final two years of the course will also carry out a research project.

### Study Mode

Five years full-time. In the first two years of the course, students will study at both the Campbelltown campus of the University and at the Liverpool TAFE precinct. In the later years, students may be required to spend a period of time in one or more clinical rotations outside the Sydney metropolitan area, and will also be rotated to a substantial number of different locations within Sydney.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

### Advanced Standing

The course is extensively integrated horizontally, and as a result it will not be possible to grant credit for units taken in other courses.

### Accreditation

Graduates will be eligible for registration by medical boards in all Australian states and territories and New Zealand, and able to apply for registration in a number of overseas countries.

### Admission

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

Potential students should apply through the Universities Admission Centre (UAC). Selection is on the basis of:

- academic merit (UAI or its equivalent, for those without a completed degree; grade point average in their most recent degree, for graduate applicants)
- Results of the Undergraduate Medicine and Health Sciences Admission Test (UMAT); and
- Performance at an interview.

Evidence of connection to Greater Western Sydney may also be taken into account.

The requirements for International applicants to be considered for admission to the medical course are:

- Achieve a scholastic performance in the final year of secondary school equivalent to a New South Wales University Admission Index of 95 (International Baccalaureate 34) or higher
- for those who have completed a 3 year or longer Bachelors degree, the grade point average in the degree must be at least 5.5 on the 7 point scale
- Have completed IELTS or equivalent examination (Academic Module) and achieve a minimum score of 6.5 in each of the four components, and an overall score of at least 7.0
- Sit the International Student Admissions Test (ISAT) administered by the Australian Council for Educational Research (ACER). For details see the ACER web page at [www.acer.edu.au](http://www.acer.edu.au)

For more information on entry requirements and how to apply please see the School of Medicine web page.

For Honours Students:

Assumed knowledge required: Completion of Year 3 of UWS MBBS, with a grade-point average in the course to that time of 5.0 or better. Students whose GPA is 6.0 or better in Year 3 only (and whose GPA over Years 1-3 is <5.0) will also be eligible, provided they have not failed a unit in either Year 1 or 2.

Applications will be directly to the School, from currently enrolled students in Year 3 of MBBS.

### Special Requirements

To be enrolled in this course students must comply with the current occupational screening and vaccination policy of NSW Health at course commencement. Students must obtain Student Registration by the Medical Board of NSW, and must successfully complete a Work Cover Authority approved First Aid Certificate prior to the completion of the first semester of the course.

### Course Structure

Qualification for the award requires the successful completion of 400 credit points including the units listed in the sequence below.

*Please note that successfully passing the previous year's units is a prerequisite for attempting the units in the following year, therefore deviations from the sequence below will not be possible.*

### Recommended Sequence

#### Full-time

##### Year 1

##### 1H Session

**400861.1** Foundations of Medicine 1

##### 2H Session

**400861.1** Foundations of Medicine 1

**Year 2****1H Session**

**400862.1** Foundations of Medicine 2

**2H Session**

**400862.1** Foundations of Medicine 2

**Year 3**

**400810.2** Integrated Clinical Rotations 1

**Year 4 (Non-Honours stream)**

**400811.1** Integrated Clinical Rotations 2

**Year 4 (Honours stream)**

Honours stream students will complete the following units:

**400811.1** Integrated Clinical Rotations 2  
**400959.1** Honours Research Project 1

**Year 5 (Non-Honours stream)**

**400812.1** Integrated Clinical Rotations 3

Please Note: the curriculum for year 5 is subject to approval, and therefore may be altered.

**Year 5 (Honours stream)**

Honours stream students will complete the following units:

**400812.1** Integrated Clinical Rotations 3  
**400960.1** Honours Research Project 2

**Honours Stream**

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

**Bachelor of Medicine, Bachelor of Surgery/Bachelor of Arts****4671.1**

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students who commenced study in this course in 2010 or later.

This combined program is offered to a small number of students (quota of 3) who have demonstrated extremely high academic achievement during their Year 12 school studies, and who wish to broaden their medical studies by also completing the requirements for a Bachelor of Arts. In addition to completing all components of the medical course, they will also complete 160 credit points of studies for the BA, one year of which will be taken off from the MBBS program to study 80 cp of units for the BA full-time. Some students will choose to complete the program in 7 years rather than 6, in which case no overload would be needed. Students accepted into the combined program will need to consult with course advisors for both MBBS and BA

to plan how to dovetail the commitments needed for each component course. Students should refer to the separate handbook entries for the component degrees.

**Study Mode**

Six years if 80 credit points of Bachelor of Arts units taken in overload. Seven years if no overload.

**Location**

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

**Accreditation**

The Bachelor of Medicine, Bachelor of Surgery course is accredited by the Australian Medical Council until end 2013.

**Admission**

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

The admissions requirements and processes will be the same as for the MBBS (including the requirements to apply directly to the School of Medicine by the September closing date each year, to have a current UMAT score, and to have taken part in the School's Multi-mini Interview (MMI), but with the following differences:

- The UAI (or its equivalent) cutoff for consideration for entry to this combined degree is 99.90.
- There will be a quota of three places for the combined degree in the first instance (it is important to set a quota, since the NSW hospitals and IMET do their planning for Intern places based on a steady pipeline of graduates emerging from the NSW medical courses; the quota could be adjusted slowly in future years if the level of demand supports it).
- Up to ten places will be set aside for the MMI for applicants with the MBBS/BA UAC course code (i.e. the same ratio of interview places to actual course places as for the straight MBBS). If there are more than 10 eligible applicants, they will be ranked by their UMAT score.
- The final ranked selection list, for the UAC admissions process, will be based solely on the interview performance.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

**Course Structure**

Qualification for the award requires the successful completion of 400 credit points including the units listed in the sequence below.

Students will take a year off from the MBBS program (ideally between Years 2 and 3 or between Years 3 and 4) to study BA full-time. Some students will prefer to take a second full-time year off to complete the 160 credit points of Arts units required for the BA, while others will request and be approved to carry a small overload (average of 10 credit points per semester) in Years 1-4 of MBBS to complete 80 credit points of Arts units.

A typical structure is set out below, but the overload (or decision to NOT overload) and the particular year in which a student would intercalate from the MBBS program can be tailored to individual students' needs.

## Recommended Sequence

### Full-time

#### Year 1

1H session

**400861.1** Foundations of Medicine 1

10 credit point Bachelor of Arts unit

#### 2H Session

**400861.1** Foundations of Medicine 1

10 credit point Bachelor of Arts unit

#### Year 2

##### 1H Session

**400862.1** Foundations of Medicine 2

10 credit point Bachelor of Arts core unit

##### 2H Session

**400862.1** Foundations of Medicine 2

10 credit point Bachelor of Arts core unit

#### Year 3

**400810.2** Integrated Clinical Rotations 1

20 credit point Bachelor of Arts core units - 10 credit points per semester

#### Year 4

80 credit point full-time Bachelor of Arts studies

#### Year 5

**400811.1** Integrated Clinical Rotations 2

20 credit point Bachelor of Arts units - 10cp per semester

#### Year 6

**400812.1** Integrated Clinical Rotations 3

(Bachelor of Arts requirements complete)

## Bachelor of Natural Science

### 3637.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2009 or later.

The Bachelor of Natural Science is a broadly based, multi-disciplinary undergraduate degree offering flexibility and choice through a range of complementary key programs, each of which embodies a particular discipline. The degree seeks to equip all students with a good understanding of fundamental academic skills complemented by a high level of discipline specific knowledge. Each specific discipline has a capstone unit in engaged learning, to ensure that graduates will be 'business ready' in terms of dealing with real world issues and problems and generating real world supply chain solutions. In addition to the key programs, students will be able to complete (and will be encouraged to do so) either a major or a sub-major related to another key program. For example, the Agriculture key program has the related Managing Enterprises major which is available to all Bachelor of Natural Science students. In addition to these majors and sub-majors, most students (except for key programs that have professional accreditation requirements) will be able to select six elective units from across UWS, subject to availability and UWS rules. Finally, there is the option of completing a separate business honours course for high achieving students who meet the associated entry requirements.

### Study Mode

Three years full-time or six years part-time.

### Location

Campus	Attendance	Mode
Hawkesbury Campus	Part Time	External
Hawkesbury Campus	Full Time	Internal
Hawkesbury Campus	Part Time	Internal

### Accreditation

The Bachelor of Natural Science (Environment and Health) key program includes a major in Environmental Health Management which if completed in addition to the key program is accredited by Environmental Health Australia (EHA), formerly the Australian Institute of Environmental Health (AIEH).

### Admission

For UAC entry the following sets of Assumed Knowledge and Recommended Studies apply:

**Agriculture - Recommended studies:** One or more of agriculture, business studies, geography, society and culture, and any two units of mathematics and any two units of science.

**Agricultural Business - Assumed knowledge:** Any two units of English. **Recommended studies:** One or more of agriculture, business studies, geography, society and culture, and any two units of mathematics and any two units of science.

Animal Science - Assumed knowledge: Any two units of English and any two units of mathematics. Recommended studies: One or more of biology, chemistry, geography or agriculture.

Environment and Health - NSW HSC mathematics or equivalent and NSW HSC science or equivalent.

Environmental Management - Any two units of science (biology or chemistry recommended) and any two units of English.

Food Systems - Assumed knowledge: Any two units of English and any two units of mathematics. Recommended studies: One or more of biology, chemistry or agriculture.

Horticulture - Recommended studies: Any two units of mathematics and any two units of science (biology or chemistry recommended).

Nature Conservation - Assumed knowledge: Any two units of English and any two units of mathematics. Recommended studies: One or more of biology, chemistry, geography or agriculture.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

## Course Structure

Qualification for this award requires the successful completion of 240 credit points which includes compulsory units plus units associated with a particular Natural Science discipline (together making up the Key Program) and free elective units as outlined in the key program structures.

Students must complete a minimum of 60 credit points within their Key Program at Level 3; for some Key Programs this may include a combination of core units and elective units.

## Key Programs

All students must complete a Key Program.

**KT3010.1** Agriculture

Agriculture is an exciting, inter disciplinary area that is essential to feeding the growing world population.

**KT3011.1** Agricultural Business

The agribusiness sector is one of Australia's largest and most vibrant industry sectors, and provides a broad range of exciting career opportunities. The Sydney basin is the focus for Australia's agricultural business.

**KT3013.1** Animal Science

Interactions between people and animals are increasing as we become more dependent on animals for companionship

and food production, and strive to understand the greater pressures being placed on our unique native wildlife.

**KT3008.1** Environment and Health

The air we breathe, the water we drink, the food we eat, and the places we live, work and play all have major impacts on our health and well being. The Environment and Health key program is available on campus or by distance mode (UAC code 706385).

**KT3007.1** Environmental Management

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

**KT3012.1** Food Systems

The food industry is vital to Australia in terms of profitability, exports and jobs growth, with lots of employment opportunities. The Food Systems program covers the value chain management of the food industry, from farm to fork.

**KT3009.1** Horticulture

Horticulture is an exciting and diverse field encompassing science, technology, business, tourism and sociology. It impacts our lives through parks and gardens, organic farming, recreational landscape development, rural tourism and the use of plants in alternative therapies, and its practitioners play a key role in our country's economic future.

**KT3014.1** Nature Conservation

Nature conservation is shaped by the interplay of diverse political, cultural, economic, scientific and technological forces across Australia and internationally. With the increasing exploitation of the world's non-renewable resources and the rapidly unfolding degradation of the planet's natural systems there is an urgent need to conserve those wild places we have left and begin to restore the damage man has done.

## Environmental Health Management Major

Students undertaking the Environment and Health key program may complement their studies by completing the Environmental Health Management major, which is accredited through the Environmental Health Australia (EHA), formerly the Australian Institute of Environmental Health (AIEH).

**M3006.1** Environmental Health Management

## Bachelor of Nursing

### 4642.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2009 or later.

This course prepares graduates for eligibility to apply for registration throughout Australia as beginning professional generalist registered nurses. The focus of the course is on



inquiry-based learning, critical thinking and reflective practice in relation to the theory and practice of nursing in health and health breakdown across the lifespan. Students study application of physical and behavioural sciences to nursing; inquiry and evidence-based practice principles and utilisation within nursing; nursing care of individuals, families and groups from diverse backgrounds across the lifespan. The acquisition of nursing knowledge and skills occurs initially in campus-based simulated clinical practice settings and consolidation occurs as students undertake clinical placements in a variety of health care settings. Prospective students should be aware that full disclosure of any issues of impairment or misconduct is a declaration requirement when applying for registration as a registered nurse.

### Study Mode

Three years full-time or maximum six years part-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Hawkesbury Campus	Full Time	Internal
Parramatta Campus	Full Time	Internal

### Advanced Standing

Prospective students holding the Enrolled Nurses Certificate Level IV or Advanced Certificate with Medication Administration Module will be granted automatic entry to the B Nursing. In recognition of their TAFE studies and professional experience, this group will be granted advanced standing in the following units:

- Elective (unspecified 10 credit points)
- Nursing for Health and Wellbeing
- Understanding Good Health
- Behavioural Foundations for Nursing Practice

### Accreditation

The Bachelor of Nursing has accreditation and approval by the Nurses and Midwives Board NSW.

### Admission

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Special Requirements

Students will need to have completed the NSW Health Special Requirements for clinical practicum attendance. At present these include: Prohibited Persons Employment

Declaration (PPED), Criminal Record Check (CRC), Adult Health Immunisation Schedule and Workcover accredited Senior First Aid Certificate.

### Course Structure

Qualification for this award requires the successful completion of 240 credit points including the units listed in the recommended sequence below.

#### Full-time

##### Year 1

##### Autumn session

<b>400745.2</b>	Nursing for Health and Wellbeing
<b>400746.2</b>	Understanding Good Health
<b>400747.2</b>	Behavioural Foundations of Nursing Practice
<b>400748.2</b>	Becoming a Nurse

##### Spring session

<b>400749.2</b>	Nursing and Health Breakdown
<b>400750.2</b>	Introduction to Health Breakdown
<b>400751.2</b>	Nursing and Healthy Communities
<b>400752.2</b>	Knowing Nursing

##### Year 2

##### Autumn session

<b>400753.3</b>	Medical-Surgical Nursing 1
<b>400814.2</b>	Alterations in Nutrition, Elimination and Sexuality
<b>400755.2</b>	Evidence-Based Nursing 1
<b>400756.2</b>	Family Health Care: Health Issues and Australian Indigenous People

##### Spring session

<b>400757.3</b>	Medical-Surgical Nursing 2
<b>400815.2</b>	Alterations in Breathing, Work/Leisure and Mobility
<b>400759.3</b>	Mental Health Nursing 1
<b>400760.2</b>	Family Health Care: Child and Adolescent Nursing

##### Year 3

##### Autumn session

<b>400761.2</b>	Family Health Care: High Acuity Nursing
<b>400762.2</b>	Mental Health Nursing 2
<b>400763.2</b>	Family Health Care: Chronicity and Palliative Care Nursing

And one elective

##### Spring session

<b>400764.2</b>	Transition to Graduate Practice
<b>400765.2</b>	Evidence-Based Nursing 2
<b>400766.2</b>	Leadership in Graduate Practice
<b>400767.2</b>	Family Health Care: Older Adult Nursing

## Bachelor of Nursing - Graduate Entry

### 4643.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2009 or later.

This course prepares graduates for eligibility to apply for registration throughout Australia as beginning professional registered nurses. The focus of the course is on inquiry-based learning, critical thinking and reflective practice in relation to the theory and practice of nursing in health and health breakdown across the lifespan. Students study application of physical and behavioural sciences to nursing; inquiry and evidence-based practice principles; and utilisation within nursing; and the nursing care of individuals, families and groups from diverse backgrounds across the lifespan. The acquisition of nursing knowledge and skills will occur in campus-based simulated clinical practice settings and consolidation occurs as students undertake clinical placements in a variety of health care settings.

### Study Mode

Two years full-time.

### Location

Campus	Attendance Mode
Hawkesbury Campus	Full Time Internal

### Advanced Standing

In the Bachelor of Nursing (Graduate Entry) course recognition of prior learning results in admission to the course. No further advanced standing (RPL) will be granted.

### Accreditation

The Bachelor of Nursing - Graduate Entry is accredited with the Nurses and Midwives Board of New South Wales.

### Admission

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

Applicants must have successfully completed an undergraduate degree in biological sciences: human biological sciences, anatomy and physiology, chemistry, physics, biology, natural science, microbiology, medicine, dentistry, pharmacy, human science, naturopathy, complimentary medicine

OR

An undergraduate degree in arts/behavioural sciences: human behavioural and social sciences, psychology, sociology, human communications, human behaviour

### Special Requirements

To be enrolled in this course students must comply with the current occupational screening and vaccination policy of NSW Health at course commencement. The Bachelor of Nursing (Graduate Entry) program incorporates the teaching of nursing practical techniques/ skills and clinical training through physical contact between supervising clinicians, lecturers, students and patients of both genders and all backgrounds. This contact is guided by protocols and codes of conduct and is a compulsory requirement of the course as currently accredited. Students entering the program must do so with an understanding that accommodations cannot be made in this area for any reason.

### Course Structure

Qualification for this award requires the successful completion of 170 credit points including the units listed in the recommended sequence below.

### Recommended Sequence

#### Full-time

##### Year 1

##### Quarter 1 session

**400776.2** Introduction to Nursing Practice

##### Autumn session

**400753.3** Medical-Surgical Nursing 1  
**400814.2** Alterations in Nutrition, Elimination and Sexuality  
**400755.2** Evidence-Based Nursing 1  
**400756.2** Family Health Care: Health Issues and Australian Indigenous People

##### Spring session

**400757.3** Medical-Surgical Nursing 2  
**400815.2** Alterations in Breathing, Work/Leisure and Mobility  
**400759.3** Mental Health Nursing 1  
**400760.2** Family Health Care: Child and Adolescent Nursing

##### Year 2

##### Autumn session

**400761.2** Family Health Care: High Acuity Nursing  
**400762.2** Mental Health Nursing 2  
**400763.2** Family Health Care: Chronicity and Palliative Care Nursing

##### Spring session

**400764.2** Transition to Graduate Practice  
**400765.2** Evidence-Based Nursing 2  
**400766.2** Leadership in Graduate Practice

**400767.2** Family Health Care: Older Adult Nursing

## Bachelor of Nursing (Advanced)

### 4648.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2009 or later.

This course prepares graduates for eligibility to apply for registration throughout Australia as beginning professional generalist registered nurses. The focus of the course is on inquiry-based learning, critical thinking and reflective practice in relation to the theory and practice of nursing in health and health breakdown across the lifespan. Students study application of physical and behavioural sciences to nursing; inquiry and evidence-based practice principles and utilisation within nursing; nursing care of individuals, families and groups from diverse backgrounds across the lifespan. The acquisition of nursing knowledge and skills occurs initially in campus-based simulated clinical practice settings and consolidation occurs as students undertake clinical placements in a variety of health care settings. Prospective students should be aware that full disclosure of any issues of impairment or misconduct is a declaration requirement when applying for registration as a registered nurse.

Students in the Bachelor of Nursing (Advanced) will follow the study program set out for the 4642 - Bachelor of Nursing. Each student will have an Academic Mentor and will participate in additional compulsory activities related to nursing research and professional practice. To maintain their enrolment in the Bachelor of Nursing (Advanced) students must maintain a Grade Point Average (GPA) of 5.5 or above, otherwise they will be transferred to the standard 4642 – Bachelor of Nursing course. At enrolment students will be required to sign a declaration acknowledging the requirement to maintain a GPA greater than or equal to 5.5.

### Study Mode

Three years full-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Hawkesbury Campus	Full Time	Internal
Parramatta Campus	Full Time	Internal

### Accreditation

The Bachelor of Nursing (4642) has accreditation and approval by the Nurses and Midwives Board NSW until 2013. The professional registration body will be notified of this proposal and accreditation for the Bachelor of Nursing (Advanced) course will be sought if required.

### Admission

Students may apply for admission to the course through the Universities Admission Centre (UAC) or as a Year 1 Bachelor of Nursing student with GPA greater than 5.5.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 240 credit points including the units listed in the recommended sequence below.

### Recommended Sequence

#### Year 1

##### Autumn session

<b>400745.2</b>	Nursing for Health and Wellbeing
<b>400746.2</b>	Understanding Good Health
<b>400747.2</b>	Behavioural Foundations of Nursing Practice
<b>400748.2</b>	Becoming a Nurse

##### Spring session

<b>400749.2</b>	Nursing and Health Breakdown
<b>400750.2</b>	Introduction to Health Breakdown
<b>400751.2</b>	Nursing and Healthy Communities
<b>400752.2</b>	Knowing Nursing

#### Year 2

##### Autumn session

<b>400753.3</b>	Medical-Surgical Nursing 1
<b>400814.2</b>	Alterations in Nutrition, Elimination and Sexuality
<b>400824.2</b>	Evidence-Based Nursing 1 (Advanced)
<b>400854.2</b>	Family Health Care: Health Issues and Australian Indigenous People (Advanced)

##### Spring session

<b>400825.2</b>	Medical Surgical Nursing 2 (Advanced)
<b>400815.2</b>	Alterations in Breathing, Work/Leisure and Mobility
<b>400759.3</b>	Mental Health Nursing 1
<b>400760.2</b>	Family Health Care: Child and Adolescent Nursing

#### Year 3

##### Autumn session

<b>400761.2</b>	Family Health Care: High Acuity Nursing
<b>400762.2</b>	Mental Health Nursing 2
<b>400855.1</b>	Family Health Care: Chronicity and Palliative Care Nursing (Advanced)

One elective

### Spring session

<b>400764.2</b>	Transition to Graduate Practice
<b>400827.2</b>	Evidence-Based Nursing 2 (Advanced)
<b>400767.2</b>	Family Health Care: Older Adult Nursing
<b>400849.1</b>	Leadership in Graduate Practice (Advanced)

## Bachelor of Nursing (Honours)

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### 4529.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2008 or later.

This program is designed for graduates of the Bachelor of Nursing degree and other similar degrees. Successful completion of the program will provide students with a sound basis for subsequent research within their own work environments as well as enabling them to progress to higher researcher-related programs.

This program provides an opportunity for students, under guidance, to plan and implement a research project in the area of nursing practice. Knowledge and experience gained by students through completing this program will contribute to the knowledge base for nursing practice.

The program of study combines a research project with course work. The course work, undertaken during the first semester of enrolment, comprises two units of study. The remainder of the program is devoted to completion of a research project and the preparation of a thesis.

This program can be undertaken concurrently with any new graduate transitional program offered by various hospitals.

### Study Mode

One year full-time or two years part-time.

### Location

Campus	Attendance	Mode
Parramatta Campus	Full Time	Multi Modal
Parramatta Campus	Part Time	Multi Modal

### Advanced Standing

Advanced Standing will be assessed in accordance with UWS policy.

### Admission

The Bachelor of Nursing (Honours) degree is a second award as nursing students must satisfy the requirements for State registration as a Registered Nurse with a Bachelor's pass before proceeding into an Honours program.

Applicants must have obtained a Grade Point Average (GPA) of 5 (Credit level) or better throughout their Bachelor of Nursing course or a GPA of 5.75 or better in the final year of their Bachelor of Nursing (pass) degree. This criterion ensures that candidates are capable of achieving the high standards required for BN (Hons) studies. In addition, applicants must have completed at least 20 credit points of research or equivalent at an undergraduate level.

International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

### Special Requirements

To be enrolled in this course you must comply with the Occupational Screening and Vaccination Policy of NSW Health at course commencement.

### Course Structure

Qualification for this award requires the successful completion of 80 credit points including the units listed in the recommended sequence below.

### Recommended Sequence

#### Full-time

##### Year 1

##### Autumn session

<b>400803.2</b>	Research in Nursing Practice
<b>400202.2</b>	Nursing Honours Thesis A (Full-time)
<b>400201.3</b>	Readings and Methodology

##### Spring session

<b>400203.2</b>	Nursing Honours Thesis B (Full-time)
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#### Part-time

##### Year 1

##### Autumn session

<b>400803.2</b>	Research in Nursing Practice
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##### Spring session

<b>400201.3</b>	Readings and Methodology
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##### 2H session

<b>400204.2</b>	Nursing Honours Thesis (Part-time)
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##### Year 2

##### 1H session

<b>400204.2</b>	Nursing Honours Thesis (Part-time)
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##### 2H session

<b>400204.2</b>	Nursing Honours Thesis (Part-time)
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## Bachelor of Nursing Studies

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### 4646.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2008 or later.

This course is designed to provide a bridging program for registered nurses from India who hold a Diploma of Nursing with an opportunity to convert their qualification to a Bachelors level. The program is 12 months in duration and has been developed to enhance and advance nursing skills and knowledge in the professional nursing domain. The course does not entitle the graduate to apply for registration as a Registered Nurse in Australia.

### Study Mode

One year full-time.

### Location

Campus	Attendance	Mode
Hawkesbury Campus	Full Time	Internal

### Admission

Applicants must have completed a Diploma of Nursing and be registered with the India Nursing Council.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 80 credit points including the units listed in the recommended sequence below.

### Recommended Sequence

#### Spring Session

- 400816.2** Critical Thinking and Reflective Nursing Practice
- 400818.2** Leadership and Management in Graduate Practice
- 400820.2** Community Health and the Nurse

Choose one of

- 400823.2** Nursing and the Older Person
- E1250.2** Drugs on Line
- HC318A.1** Women's Health

#### Autumn Session

- 400817.2** Evidence Based Nursing Practice
- 400819.2** Child and Adolescent Nursing Studies
- 400821.2** Issues in Chronic and Palliative Nursing Care
- 400822.2** Contemporary Issues in Health and Nursing

## Bachelor of Science

### 3640.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

Course Enquiries:

Please contact the Head of Program for the Key Program your enquiry relates to. The 11 Key Programs available in the Bachelor of Science and the Head of Program details are listed below under "Key Programs".

A Bachelor of Science prepares students for a professional career in science. Fundamental to this degree are the skills necessary for quantification and analysis, the capacity for critical analysis, problem solving, and independent thinking. Students may choose one of the available Key Programs, or they may elect to take a Bachelor of Science without a Key Program. Units from a range of scientific and other disciplines may be combined to suit a student's interests and educational aims. Students complete a core of basic science units, to which other science units and, if desired, non-science electives can be added.

### Study Mode

Three years full-time. Students may study at a reduced load.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Hawkesbury Campus	Full Time	Internal
Parramatta Campus	Full Time	Internal

### Accreditation

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

### Admission

The following sets of Assumed Knowledge and Recommended Studies apply:

**Agricultural Science - Assumed knowledge:** Any two units of English and any two units of science. **Recommended studies:** One or more of Biology, Chemistry or Agriculture.

**Animal Science- Assumed knowledge:** Any two units of English and any two units of science. **Recommended studies:** One or more of Biology, Chemistry or Agriculture.

**Biological Science - Recommended studies:** Mathematics and Chemistry.

**Biotechnology - Recommended studies:** Chemistry.

**Chemistry - Recommended studies:** Chemistry.

**Environmental Science - Assumed knowledge:** Any two units of English and any two units of science (Biology or Chemistry recommended). **Recommended studies:** Geography.

**Food Science - Recommended studies:** Biology, Chemistry and Mathematics.

**Mathematical Science- Recommended studies:** Mathematics.

Medical Nanotechnology - Recommended studies: Mathematics and Chemistry.

Nutrition and Food - Assumed knowledge: Mathematics and Biology. Recommended studies: Chemistry and Food Technology.

Plant Science- Assumed knowledge: At least two of Biology, Chemistry and Mathematics.

Science (No Key Program) - Assumed knowledge: At least two of Biology, Chemistry, Mathematics, Physics.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Special Requirements

Students who do not satisfy the Assumed Knowledge for the Level 1 unit in mathematics, statistics or biometry will be advised to complete unit 300691 - Mathematical Reasoning as one of their electives, as preparation for this core requirement of the degree.

### Course Structure

Qualification for this award requires the successful completion of 240 credit points with no more than 100 credit points at Level 1, including electives. 60 credit points must be at Level 3 or above, of which 40 must be science-based units, including a Capstone Unit which draws the overall academic program together. The degree must include six core units from the Bachelor of Science Unit Pool (shown below), including one Level 1 unit in mathematics, statistics or biometry, plus at least one Level 1 unit from two of the following discipline areas: Biology, Chemistry, Computer Science, Geoscience and Physics.

### Key Program in Agricultural Science

**KT3015.1** Agricultural Science

This key program equips graduates with specialised knowledge and understanding of agronomy, animal science and soil science underpinned by a sound background in biology, chemistry and biometry. Graduates will understand how agriculture impacts on the structure and function of production ecosystems in the context of nutrient, water and energy flows, carbon sequestration and use of introduced and genetically modified organisms. There is an emphasis on developing field and laboratory skills related to the major study areas that will prepare students for technical, production, research or advisory careers.

### Key Program in Animal Science

**KT3016.1** Animal Science

This key program recognises the increased demand for knowledge of how to best care for and protect our animals, including scientific knowledge of companion animals, production animals and their products, as well as knowledge related to our native animals.

### Key Program in Biological Science

**KT3017.1** Biological Science

This key program focuses on the areas of biology that are most relevant to industry and research: biochemistry, microbiology and molecular biology. Other areas of study include anatomy and physiology, environmental science, biotechnology, human biology and plant biology.

### Key Program in Biotechnology

**KT3018.1** Biotechnology

This key program harnesses microbial, plant and animal cells to produce useful goods and services, including food, drink, medicines and chemicals. Biotechnology also plays an important role in dealing with waste materials, the removal of pollutants from the environment, and microbial control of plants, pests and diseases.

### Key Program in Chemistry

**KT3019.1** Chemistry

This key program consists of core studies in analytical, inorganic, organic and physical chemistry. A major in geochemistry will prepare you for a career in the minerals and mining industries. A sub-major in biochemistry or microbiology will prepare you for a career in the pharmaceutical, health or food industries.

### Key Program in Environmental Science

**KT3020.1** Environmental Science

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

### Key Program in Food Science

**KT3021.1** Food Science

This key program recognises that the manufacture of food is vital to Australia in terms of investment, export income and jobs growth. Within this framework there is a strong demand for practical food scientists who have skills in chemistry and microbiology and who can apply this knowledge to food processing, ensuring a safe, nutritious and appetising food supply.

### Key Program in Mathematical Science

**KT3022.1** Mathematical Science

Specialise in mathematics, statistics or a combination of both. You'll develop skills that allow you to model and solve real world problems using mathematical techniques. Minor studies can be completed in science related areas such as computer science and the physical sciences or in areas such as marketing, management, accounting, economics and finance, arts, humanities and social sciences.

**Key Program in Medical Nanotechnology****KT3031.1** Medical Nanotechnology

This Key Program prepares students for professional careers in the multidisciplinary field of nanotechnology, covering biological, chemical and physical processes at the nanoscale. Students will develop fundamental skills in the technology of advanced imaging and characterisation techniques for seeing and manipulating of atoms/ molecules, creating chemical and biological nanomachines, smart materials, biomaterials and biodevices, molecular mimics and fabrication of nanostructured devices through the specialised units in this program. Graduates will be skilled to pursue further postgraduate research and/or many challenging career options, examples include as nanotechnologists, smart and effective product developers, managers and consultants in biotechnology, defence, petroleum and pharmaceutical and health industries, chemical, material and engineering focused industries.

**Key Program in Nutrition and Food****KT3024.1** Nutrition and Food

Healthy eating is a vital part of good health. Nutrition and Food covers a range of subjects from the nutritional benefits of particular foods to food safety and medical conditions affected by diet, such as diabetes and heart disease.

**Science (no Key Program)****KP3000.1** Science (No Key Program)

Intended for students who do not wish to specialise in a single key area of study, but who want a versatile and flexible course of study in science, this program includes a core of basic science units including biology, chemistry, mathematics and physics. You can then add units from a range of scientific and other disciplines to suit your interests and career aspirations.

**Year 1 - Autumn Session**

Three Level 1 units from the Bachelor of Science Unit Pool  
And one elective

**Year 1 - Spring session**

Three Level 1 units from the Bachelor of Science Unit Pool  
And one elective

**Year 2 - Autumn Session**

Three Level 2 units from the Bachelor of Science Unit Pool  
And one elective

**Year 2 - Spring session**

Three Level 2 units from the Bachelor of Science Unit Pool  
And one elective

**Year 3 - Autumn Session**

Two Level 3 units from the Bachelor of Science Unit Pool  
And one Level 3 elective  
And one elective

**Year 3 - Spring session**

Two Level 3 units from the Bachelor of Science Unit Pool  
And one Level 3 elective  
And one elective

**Majors**

**M3016.1** Animal Science  
**M3011.1** Biochemistry and Molecular Biology  
**M3018.1** Biotechnology  
**M3019.1** Chemistry  
**M3023.1** Computational Decision Making  
**M3012.1** Conservation Biology  
**M3020.1** Geochemistry  
**M3013.1** General Biology  
**M3024.1** Knowledge Discovery and Data Mining  
**M3021.1** Mathematics  
**M3014.1** Microbiology  
**M3017.1** Nutrition and Physiology  
**M3015.1** Plant Science  
**M3022.1** Statistics  
**M3033.1** Forensic Science Major

**Sub-majors**

**SM3020.1** Animal Science  
**SM3016.1** Biochemistry and Molecular Biology  
**SM3027.1** Computational Decision Making  
**SM3017.1** Conservation Biology  
**SM3023.1** Environmental Chemistry  
**SM3024.1** Forensic Chemistry  
**SM3022.1** Geochemistry  
**SM3011.1** Entertainment Computing  
**SM3010.1** Health Information Applications  
**SM3009.1** Health Information Management  
**SM3028.1** Knowledge Discovery and Data Mining  
**SM3025.1** Mathematics  
**SM3018.1** Microbiology  
**SM3008.1** Networking  
**SM3021.1** Nutrition and Physiology  
**SM3019.1** Plant Science  
**SM3026.1** Statistics  
**SM3007.1** Web Application Development (for Non-Computing Students)

**Bachelor of Science Unit Pool****Level 1****Biology Core Units**

Choose one of

**300221.1** Biology 1  
**300543.1** Cell Biology

Choose one of

**300222.1** Biology 2  
**300539.1** Biodiversity

**Chemistry Core Units**

Choose one of

**300224.2** Chemistry 1

**300554.1** Principles of Chemistry  
**300469.1** Introductory Chemistry

Choose one of

**300225.2** Chemistry 2  
**300550.1** Medicinal Chemistry

#### Computing and Information Technology Core Units

**300134.1** Introduction to Information Technology  
**300580.1** Programming Fundamentals

#### Geoscience Core Units

**300232.1** Introduction to Earth Sciences  
**300613.1** Introductory Geochemistry: Earth, Resources and Environments

#### Mathematics and Statistics Core Units

**200025.1** Discrete Mathematics  
**200191.3** Fundamentals of Mathematics  
**300672.1** Mathematics 1A  
**300673.1** Mathematics 1B

Choose one of

**200263.1** Biometry  
**300700.2** Statistical Decision Making  
**200032.2** Statistics for Business

#### Physics Core Units

**300558.1** Physics 1  
**300559.1** Physics 2

#### Professional Skills Core Unit

**300497.1** Professional Skills for Science

#### Professional Skills Alternate Unit

**300661.1** Integrated Science 1

#### Level 2

##### Biology Core Units

**300321.1** Microbiology 2

Choose one of

**300219.2** Biochemistry 1  
**300555.1** Proteins and Genes

Choose one of

**300220.1** Biochemistry 2  
**300548.1** Human Metabolism and Disease

Choose one of

**300300.1** Microbiology 1  
**300331.2** General Microbiology

##### Biology Alternate Units

**300608.1** Animal Physiology  
**300328.1** Botany

**300634.1** Ecology  
**300658.1** Endocrinology and Metabolism  
**300333.1** Introductory Plant Physiology  
**300323.1** Pathological Basis of Disease  
**300609.1** Plant Physiology  
**300646.1** Principles of Biotechnology

Choose one of

**300623.1** Genetics  
**300547.1** Human Genetics

##### Chemistry Core Units

**300297.1** Analytical Chemistry 2

Choose one of

**300230.1** Inorganic Chemistry 2  
**300545.1** Coordination Chemistry

Choose one of

**300301.1** Organic Chemistry 2  
**300553.1** Molecules of Life: Synthesis and Reactivity

Choose one of

**300236.1** Physical Chemistry 2  
**300540.1** Biomolecular Dynamics

##### Chemistry Alternate Units

**300493.1** Forensic and Environmental Analysis

##### Geoscience Alternate Units

**300611.1** Chemical Mineralogy  
**300612.1** Geochemical Systems

##### Mathematics and Statistics Core Units

**200028.2** Advanced Calculus  
**200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200027.1** Linear Algebra  
**200029.1** Numerical Analysis

#### Level 3

##### Biology Alternate Units

**300556.1** Analytical Protein Science  
**300307.1** Analytical Microbiology  
**300427.1** Animal Production  
**300327.1** Australian Plants  
**300465.1** Aquatic Ecology  
**300542.1** Biomolecular Science Project  
**300610.1** Biotechnology  
**300644.1** Biophysics  
**300544.1** Cell Signalling  
**300617.1** Conservation Biology  
**300607.1** Environmental Biology  
**300647.1** Environmental Biotechnology  
**300504.1** Fermentation Science  
**300648.1** Food and Pharmaceutical Biotechnology



300656.1	Laboratory Quality Management
300757.1	Molecular Biology of the Immune System
300229.1	Immunology
300408.1	Mammalian Cell Biology and Biotechnology
300407.1	Mammalian Molecular Medicine
300749.1	Medical Microbiology
300621.1	Plant Biotechnology
300615.1	Science Research Project 1
300645.1	Science Research Project 2
300470.1	Vertebrate Biodiversity

Choose one of

300234.1	Molecular Biology
300549.1	Human Molecular Biology

### Chemistry Alternate Units

300218.1	Applied Aspects of Inorganic Chemistry
300542.1	Biomolecular Science Project
300557.1	Molecular Spectroscopy
300615.1	Science Research Project 1
300645.1	Science Research Project 2

Choose one of

300298.1	Analytical Chemistry 3
300537.1	Advanced Chemical Analysis

Choose one of

300231.1	Inorganic Chemistry 3
300538.1	Advanced Inorganic Chemistry

Choose one of

300235.1	Organic Chemistry 3
300546.1	Drug Design and Synthesis

Choose one of

300303.1	Physical Chemistry 3
300475.1	Molecular Pharmacokinetics

### Geoscience Alternate Units

300614.1	Environmental Geochemistry
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### Mathematics and Statistics Alternate Units

200193.1	Abstract Algebra
200023.1	Analysis
200036.2	Data Mining and Visualisation
200024.1	Mathematical Finance
200022.1	Mathematical Modelling
300670.1	Optimisation Techniques
300671.1	Principles and Practice of Decision Making
200040.1	Probability & Stochastic Processes
200045.2	Quantitative Project
200037.1	Regression Analysis & Experimental Design
200044.1	Simulation Techniques
200039.1	Surveys and Multivariate Analysis
200038.1	Time Series and Forecasting

### Bachelor of Science Capstone Units

300530.1	Advances in Agronomy
300427.1	Animal Production
300542.1	Biomolecular Science Project
300610.1	Biotechnology

300617.1	Conservation Biology
300648.1	Food and Pharmaceutical Biotechnology
300637.1	Food Product Development Practicum
300656.1	Laboratory Quality Management
300643.1	Plant Protection
200045.2	Quantitative Project
300615.1	Science Research Project 1
300645.1	Science Research Project 2

## Bachelor of Science - Pathway to Teaching (Secondary)

### 3638.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

The consecutive combination of an undergraduate Bachelor of Science degree and a postgraduate Masters qualification gives you direct access to a teaching career in four years with improved prospects for career advancement.

The first three years of study in the Bachelor of Science - Pathway to Teaching (Secondary) will allow you to focus on a general science program of your choice and to structure your units of study to gain the necessary learning areas to satisfy the NSW Institute of Teachers discipline knowledge requirements for entry into teaching. It also gives the advantage of early access to Education Studies units through mandatory completion of an Education Studies sub major offered on both the Penrith and Bankstown campuses. The sub major is taken as part of the elective strand in the Bachelor of Science. You will need to take advice to ensure that your program of study meets these requirements during your Bachelor of Science degree by consulting your Head of Program and the Institute of Teachers document, Subject Content Requirements for Teaching in a NSW Primary or Secondary School.

The fourth year of study in the Master of Teaching will concentrate on the skills and knowledge needed to translate your disciplinary expertise to a classroom setting. Initial enrolment in this combined program will be enrolment into the Bachelor of Science (Pathway to Secondary Teaching.)

Graduates of this degree who complete the requisite units to meet the requirements of the Institute will receive guaranteed entry to M Teaching.

Students can select a Key Program in Biological Science, Biotechnology, Chemistry, Food Technology or Mathematical Science, or choose a more flexible program within the degree rules, including a Major that is related to a Secondary Teaching discipline. Students may combine their Key Program or Bachelor of Science (no Key Program) with one or more Majors or Sub-majors, as listed in the UWS Handbook entry for 3640 Bachelor of Science. A range of elective units in the Earth and Environmental Sciences is also available, depending on the campus of study.

As well as being equipped with all the necessary elements for initial teacher training, a Bachelor of Science - Pathway to Teaching (Secondary) prepares students for a professional career in science. Fundamental to this degree are the skills necessary for quantification and analysis, the

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

Students who complete a specified Key Program will be eligible for the title of the Key Program to appear on their Testamur and will graduate with Bachelor of Science (Key Program Title), as follows:

Students who elect to complete the degree without selecting a specific Key Program will not be eligible for a Key Program title to appear on their testamur, and will graduate with the generic course title Bachelor of Science.

### Study Mode

Three years full-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Hawkesbury Campus	Full Time	Internal
Parramatta Campus	Full Time	Internal

### Accreditation

The Bachelor of Science (Chemistry) is accredited by The Royal Australian Chemical Institute Incorporated. Bachelor of Science (Biotechnology) - Graduates satisfy the requirements for membership of the Australian Society for Microbiology and the Australian Biotechnology Association. Bachelor of Science (Mathematical Science) - Membership of the Australian Mathematical Society and the Statistical Society of Australia depending on the units studied. Bachelor of Science (Food Technology) - Graduates would be qualified to become professional members of the Australian Institute of Food Science. Bachelor of Science (Biological Science) - Depending on the units chosen within the course, graduates can satisfy the requirements for membership of professional bodies such as the Australian Society for Microbiology and the Australian Institute of Biology. Graduates may also join other professional societies such as the Australian Society for Biochemistry and Molecular Biology, Australian Biotechnology Organisation, Australian Society for Medical Research and the Royal Zoological Society.

### Admission

Assumed knowledge required: At least two of Biology, Chemistry, Mathematics and Physics.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills

Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Students may combine their studies with one or more Majors or Sub-majors from science or non-science disciplines.

To be eligible to graduate from the course, students must:

- obtain an aggregate of 240 credit points with no more than 100 credit points at Level 1, including electives.
- complete 60 credit points at Level 3 or above, of which 40 credit points must be science-based units, including a Capstone Unit that will draw the overall academic program together.
- include at least six core units from the Bachelor of Science Unit Pool (shown below), including one Level 1 unit in mathematics, statistics or biometry, plus at least one Level 1 unit from two out of the following discipline areas: Biology, Chemistry, Computer Science, Geoscience and Physics.
- satisfy the Assumed Knowledge for the Level 1 unit in mathematics, statistics or biometry.
- students who do not satisfy the Assumed Knowledge for the Level 1 unit in mathematics, statistics or biometry. will be recommended to complete 300601 Mathematical Reasoning as one of their electives, as preparation for this core requirement of the degree.
- complete 300497 Professional Skills for Science (available in both internal and external modes) or an equivalent academic skilling unit as recommended by the Head of Program.
- Students must complete a mandatory Education Studies Sub Major within their elective stream, comprising any 40 credit points from the units within the Education Studies Sub Major.

**SM1031.1** Education Studies

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Each Key Program consists of 160-180 credit points of specified units or alternates, satisfying the core requirements for the degree, plus 60-80 credit points of electives, to a total of 240 credit points. At least 40 credit points at Level 3 will be specified within the Key Program. At least one of these will be a Capstone Unit.

### Key Program in Biological Science

**KT3017.1** Biological Science

To satisfy the requirements for Secondary Biotechnology teaching, students should take two units from one of the following unit combinations as their Level 1 Bachelor of Science Unit Pool units, or as elective units.

Choose one from

**300224.2** Chemistry 1  
**300554.1** Principles of Chemistry

And one from

**300225.2** Chemistry 2  
**300550.1** Medicinal Chemistry

Or select the following two units

- 300558.1**     Physics 1  
**300559.1**     Physics 2

### Key Program in Biotechnology

**KT3018.1**             Biotechnology

To satisfy the requirements for Secondary Biotechnology teaching, students should take at least two of the following units as electives.

#### Level 2

- 300328.1**     Botany  
**300634.1**     Ecology  
**300333.1**     Introductory Plant Physiology

#### Level 3

- 300327.1**     Australian Plants  
**300465.1**     Aquatic Ecology  
**300617.1**     Conservation Biology  
**300470.1**     Vertebrate Biodiversity

### Key Program in Chemistry

**KT3019.1**             Chemistry

To satisfy the requirements for Secondary Chemistry teaching, students should take two units from one of the following unit combinations as their Level 1 Bachelor of Science Unit Pool units, or as elective units.

Choose one of

- 300221.1**     Biology 1  
**300543.1**     Cell Biology

And one of

- 300222.1**     Biology 2  
**300539.1**     Biodiversity

Choose one of

- 300558.1**     Physics 1  
**300559.1**     Physics 2

### Key Program in Food Technology

**KT3030.1**             Food Technology

### Key Program in Mathematical Science

**KT3022.1**             Mathematical Science

### Majors

Additional majors are also available from course 3640 Bachelor of Science.

- M3019.1**             Chemistry  
**M3013.1**             General Biology  
**M3021.1**             Mathematics

### Course Structure - no Key Program

Students with no Key Program must satisfy the mandatory requirements of the course which include, completing at

least 160 credit points from the Bachelor of Science Unit Pool (shown below), completing one of the available Majors listed in the course structure and completing the mandatory Education Studies.

#### Full-time

##### Year 1 - Autumn Session

Three Level 1 units from the Bachelor of Science Unit Pool  
 And one elective

##### Year 1 - Spring session

Three Level 1 units from the Bachelor of Science Unit Pool  
 And one elective

##### Year 2 - Autumn session

Three Level 2 units from the Bachelor of Science Unit Pool  
 And one elective

##### Year 2 - Spring session

Three Level 2 units from the Bachelor of Science Unit Pool  
 And one elective

##### Year 3 - Autumn session

Three Level 3 units from the Bachelor of Science Unit Pool  
 And one elective

##### Year 3 - Spring session

Three Level 3 units from the Bachelor of Science Unit Pool  
 And one elective

### Bachelor of Science Unit Pool

#### Level 1

##### Biology Core Units

Choose one of

- 300221.1**     Biology 1  
**300543.1**     Cell Biology

Choose one of

- 300222.1**     Biology 2  
**300539.1**     Biodiversity

##### Chemistry Core Units

Choose one of

- 300224.2**     Chemistry 1  
**300554.1**     Principles of Chemistry  
**300469.1**     Introductory Chemistry

Choose one of

- 300225.2**     Chemistry 2  
**300550.1**     Medicinal Chemistry

##### Computing and Information Technology Core Units

- 300134.1**     Introduction to Information Technology  
**300580.1**     Programming Fundamentals

##### Geoscience Core Units

- 300232.1**     Introduction to Earth Sciences

**300613.1** Introductory Geochemistry: Earth, Resources and Environments

#### Mathematics and Statistics Core Units

**200025.1** Discrete Mathematics  
**200191.3** Fundamentals of Mathematics  
**300672.1** Mathematics 1A  
**300673.1** Mathematics 1B  
**200042.2** Introduction to Operations Research

Choose one of

**200263.1** Biometry  
**300700.2** Statistical Decision Making  
**200032.2** Statistics for Business

#### Physics Core Units

**300558.1** Physics 1  
**300559.1** Physics 2

#### Professional Skills Core Unit

**300497.1** Professional Skills for Science

#### Professional Skills Alternate Unit

**300661.1** Integrated Science 1

#### Level 2

##### Biology Core Units

**300321.1** Microbiology 2

Choose one of

**300219.2** Biochemistry 1  
**300555.1** Proteins and Genes

Choose one of

**300220.1** Biochemistry 2  
**300548.1** Human Metabolism and Disease

Choose one of

**300300.1** Microbiology 1  
**300331.2** General Microbiology

##### Biology Alternate Units

**300608.1** Animal Physiology  
**300328.1** Botany  
**300634.1** Ecology  
**300658.1** Endocrinology and Metabolism  
**300333.1** Introductory Plant Physiology  
**300323.1** Pathological Basis of Disease  
**300609.1** Plant Physiology  
**300646.1** Principles of Biotechnology

Choose one of

**300227.1** General Biochemistry  
**300623.1** Genetics  
**300547.1** Human Genetics

#### Chemistry Core Units

**300297.1** Analytical Chemistry 2

Choose one of

**300230.1** Inorganic Chemistry 2  
**300545.1** Coordination Chemistry

Choose one of

**300301.1** Organic Chemistry 2  
**300553.1** Molecules of Life: Synthesis and Reactivity

Choose one of

**300236.1** Physical Chemistry 2  
**300540.1** Biomolecular Dynamics

#### Chemistry Alternate Units

**300493.1** Forensic and Environmental Analysis

#### Geoscience Alternate Units

**300611.1** Chemical Mineralogy  
**300612.1** Geochemical Systems

#### Mathematics and Statistics Core Units

**200028.2** Advanced Calculus  
**200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200027.1** Linear Algebra  
**200029.1** Numerical Analysis

#### Level 3

##### Biology Alternate Units

**300556.1** Analytical Protein Science  
**300307.1** Analytical Microbiology  
**300427.1** Animal Production  
**300327.1** Australian Plants  
**300465.1** Aquatic Ecology  
**300542.1** Biomolecular Science Project  
**300610.1** Biotechnology  
**300644.1** Biophysics  
**300544.1** Cell Signalling  
**300617.1** Conservation Biology  
**300607.1** Environmental Biology  
**300647.1** Environmental Biotechnology  
**300504.1** Fermentation Science  
**300648.1** Food and Pharmaceutical Biotechnology  
**300656.1** Laboratory Quality Management  
**300757.1** Molecular Biology of the Immune System  
**300229.1** Immunology  
**300408.1** Mammalian Cell Biology and Biotechnology  
**300407.1** Mammalian Molecular Medicine  
**300749.1** Medical Microbiology  
**300621.1** Plant Biotechnology  
**300615.1** Science Research Project 1  
**300645.1** Science Research Project 2  
**300470.1** Vertebrate Biodiversity

Choose one of

- 300234.1** Molecular Biology  
**300549.1** Human Molecular Biology

#### Chemistry Alternate Units

- 300218.1** Applied Aspects of Inorganic Chemistry  
**300542.1** Biomolecular Science Project  
**300557.1** Molecular Spectroscopy  
**300615.1** Science Research Project 1  
**300645.1** Science Research Project 2

Choose one of

- 300298.1** Analytical Chemistry 3  
**300537.1** Advanced Chemical Analysis

Choose one of

- 300231.1** Inorganic Chemistry 3  
**300538.1** Advanced Inorganic Chemistry

Choose one of

- 300235.1** Organic Chemistry 3  
**300546.1** Drug Design and Synthesis

Choose one of

- 300303.1** Physical Chemistry 3  
**300475.1** Molecular Pharmacokinetics

#### Geoscience Alternate Units

- 300614.1** Environmental Geochemistry

#### Mathematics and Statistics Alternate Units

- 200193.1** Abstract Algebra  
**200023.1** Analysis  
**200036.2** Data Mining and Visualisation  
**200024.1** Mathematical Finance  
**200022.1** Mathematical Modelling  
**300670.1** Optimisation Techniques  
**300671.1** Principles and Practice of Decision Making  
**200040.1** Probability & Stochastic Processes  
**200045.2** Quantitative Project  
**200037.1** Regression Analysis & Experimental Design  
**200044.1** Simulation Techniques  
**200039.1** Surveys and Multivariate Analysis  
**200038.1** Time Series and Forecasting

#### Bachelor of Science Capstone Units

- 300530.1** Advances in Agronomy  
**300427.1** Animal Production  
**300542.1** Biomolecular Science Project  
**300610.1** Biotechnology  
**300617.1** Conservation Biology  
**300648.1** Food and Pharmaceutical Biotechnology  
**300637.1** Food Product Development Practicum  
**300656.1** Laboratory Quality Management  
**300643.1** Plant Protection  
**200045.2** Quantitative Project  
**300615.1** Science Research Project 1  
**300645.1** Science Research Project 2

## Bachelor of Science (Advanced Science)

### 3562.4

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

This degree equips students with both specialised knowledge and understanding in any one of agricultural science, anatomy and physiology, animal science, biochemistry and human biology, biomedical science, biotechnology, chemistry, environmental science, food science, forensic science, general biology, general science, human biology, human bioscience, human molecular biology, mathematics, medicinal chemistry, microbiology, nanotechnology, nutrition and food, operations research, pharmaceutical chemistry, plant biology and statistics AND the skills to apply this in the research context.

Students in the Bachelor of Science (Advanced Science) may follow any of the study programs - including key programs and majors - set out for the following four courses: 3640 Bachelor of Science, 3589 Bachelor of Science (Forensic Science), 3577 Bachelor of Medical Science, and 3632 Bachelor of Biomolecular Science. For details, please refer to:

The degree is specially designed to provide the initial training for a range of scientific careers involving research and to facilitate the transition to an Honours year, on top of the employment areas available to graduates from the standard science programs in these areas.

#### Study Mode

Three years full-time.

#### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Hawkesbury Campus	Full Time	Internal
Parramatta Campus	Full Time	Internal

#### Admission

Assumed knowledge required: Minimum 90 UAI with assumed knowledge of HSC mathematics and at least two of biology, chemistry and/or physics. Students must maintain a Grade Point Average (GPA) of 5.0 or above to continue their enrolment in the course. As part of the admission/enrolment process students will be required to sign a statement acknowledging that they understand that a minimum 5.0 GPA is required to remain in the program and that if this GPA is not maintained that they will be automatically transferred into the standard program. Students in other UWS science courses who achieve a GPA of 5.0 or greater at the end of their first year of study may be admitted into the Advanced Science program if sufficient places are available.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Students enrolled in Bachelor of Science (Advanced Science) must complete the following units in conjunction with the requirements of the key program they are undertaking. These units replace three elective units in the key program:

<b>300591.1</b>	Advanced Science Research Project A
<b>300592.1</b>	Advanced Science Research Project B
<b>300593.1</b>	Advanced Science Research Project C

In addition, students must complete the appropriate timetabled project in their discipline in their final semester.

## Bachelor of Science (Forensic Science)

### 3589.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2006 or later.

This is a three year program that produces scientists who have a good background in the biological and chemical sciences, coupled with specialised expertise in forensic science, including methods of forensic analysis, crime scene investigation, forensic photography, finger printing, forensic materials/drug investigations, crime and criminal justice and complex case studies on terrorism, corporate crime, computer crime, money laundering and people smuggling. Students may specialise in forensic biology, chemistry or microbiology or combine the core units with additional forensic electives or studies in a related or unrelated discipline. Career opportunities include forensic scientists, crime scene investigators, private investigators and consultants, quality controllers, drug analysts, researchers and academics, document and fingerprint investigators. The main employers of forensic scientists are State and Federal police services, State and Commonwealth Government Health Departments and analytical chemical laboratories. Graduates will be versatile with a wide skills base with (depending on their choice of electives) potential for employment in analytical chemistry and microbiology, quality control and assurance, biochemistry and molecular biology, scientific research, education and the chemical industry.

### Study Mode

Three years full-time.

### Location

Campus	Attendance Mode	
Hawkesbury Campus	Full Time	Internal

### Admission

There is no specific prerequisite for entry into the course. Preferably, students should have successfully completed the HSC at the 2U level or better in at least two of the following units: Biology, Chemistry or Mathematics.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 240 credit points as per the recommended sequence below.

Students need to obtain an aggregate of at least 240 credit points, with no more than 100 credit points at Level 1. In addition, 60 credit points must be at Level 3 or above.

### Recommended Sequence

#### Full-time

##### Year 1

##### Autumn session

<b>300221.1</b>	Biology 1
<b>300224.2</b>	Chemistry 1
<b>300375.1</b>	Digital Forensic Photography 1

And one elective

##### Spring session

<b>300222.1</b>	Biology 2
<b>300225.2</b>	Chemistry 2
<b>300654.1</b>	Forensic Science
<b>200263.1</b>	Biometry

##### Year 2

##### Autumn session

<b>300219.2</b>	Biochemistry 1
<b>300493.1</b>	Forensic and Environmental Analysis

Choose one of

<b>400680.1</b>	Crime and Criminal Justice
<b>400681.2</b>	Crime and Criminology

And one elective

### Spring session

- 300374.2** Crime Scene Investigation  
**300377.1** Forensic Analysis of Physical Evidence

Choose one of

- 300376.2** Digital Forensic Photography 2  
**300535.1** Soils

And one elective

### Year 3

#### Autumn session

- 300234.1** Molecular Biology  
**300494.1** Forensic Chemistry

Choose one of

- 300378.1** Forensic Archaeology  
**300334.1** Invertebrate Biology

And one elective

#### Spring session

- 300373.1** Complex Forensic Case Studies

One of:

- EH217A.1** Toxicology  
**300627.1** Toxicology

Note: from 2010, EH217A - Toxicology replaced by 300627 -Toxicology

And two electives

Note: Where an alternate unit option is available in the recommended course sequence, but a unit is not on offer in the same session, please contact the Course Advisor or Head of Program for advice.

## Bachelor of Science (Honours)

### 3611.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2004 or later.

The Honours program encourages independent learning and research, further develops academic ability, provides the opportunity to pursue undergraduate studies to a more advanced level, deepens intellectual understanding in the major field of study and develops research skills. An Honours degree is a recognised point of entry for postgraduate research studies at PhD level and enhances a graduate's ability to perform at a high level in a commercial or public organisation. The Honours program consists of a rigorous program of supervised research on a scientific topic, culminating in the production of a thesis and presentation of a final seminar. Students enrol in a 60 credit point honours project and either a 20 credit point research methodology and experimental design unit, or a 20 credit point advanced topics and research skills unit, allowing

them to explore more advanced topics, including wider areas of research and their applications in science, technology, medicine and the environment. Although the Honours course is available on several different campuses, some or all of the lectures, workshops and seminars may be held centrally at a single campus to ensure that students are exposed to as wide a range of research topics as possible. The course can provide opportunities for direct commercial and industrial involvement with a diverse range of organisations through the provision of, and joint supervision of, research projects.

### Study Mode

One year full-time or two years part-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Campbelltown Campus	Part Time	Internal
Hawkesbury Campus	Full Time	Internal
Hawkesbury Campus	Part Time	Internal
Parramatta Campus	Full Time	Internal
Parramatta Campus	Part Time	Internal
Penrith Campus	Full Time	Internal
Penrith Campus	Part Time	Internal

### Course Structure

Qualification for this award requires the successful completion of 80 credit points as per the recommended sequence below.

Please note: Students must enrol in 300410 Advanced Topics and Research Skills and 300412 Science, Technology and Environment Honours Projects in both 1H and 2H sessions.

### Recommended Sequence

#### Full-time

##### Year 1

##### 1H

- 300412.2** Science, Technology and Environment Honours Project  
**300410.2** Advanced Topics and Research Skills

##### 2H

- 300412.2** Science, Technology and Environment Honours Project  
**300410.2** Advanced Topics and Research Skills

#### Part-time

##### Year 1

##### 1H

- 300410.2** Advanced Topics and Research Skills

2H

**300410.2** Advanced Topics and Research Skills

Year 2

1H

**300412.2** Science, Technology and Environment Honours Project

2H

**300412.2** Science, Technology and Environment Honours Project

## Bachelor of Science (Honours) Mathematics

### 2711.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course was 2004 or later.

The honours program encourages independence in learning and research, further develops academic ability, provides the opportunity to pursue undergraduate studies to a more advanced level, deepen intellectual understanding in the major field of study and develop research skills. An Honours degree is a recognised point of entry into postgraduate research studies at PhD level. If a career in industry is sought, Honours enables study to a more advanced level with a higher qualification. The course has the opportunity for direct commercial and industrial involvement with a diverse range of organisations through the provision of and joint supervision of research projects.

### Study Mode

One year full-time or two years part-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Campbelltown Campus	Part Time	Internal
Parramatta Campus	Full Time	Internal
Parramatta Campus	Part Time	Internal

### Admission

Admission requirements follow the recommendations and guidelines in the UWS Honours Policy. The basic requirement is completion of a bachelors pass degree in which the advanced level units in a relevant field of study were completed at a grade point average of 5.0 or better.

### Course Structure

Qualification for this award requires the successful completion of 80 credit points which includes three core units made up of an advanced topic unit in mathematics, a

research proposal and seminar plus a thesis in mathematics.

### Core Units

**200411.1** Advanced Topics in Mathematics  
**200412.3** Research Proposal and Seminar  
**200413.2** Mathematics Honours Thesis

## Bachelor of Science/Bachelor of Arts

### 3658.1

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

This double degree program is designed for students whose interests span the Arts and Sciences. It will produce versatile graduates who can work across a range of academic and professional disciplines, including the opportunity to develop global perspectives and communication skills in an Asian language. Graduates will have a solid grounding in a core science discipline such as Biological Science, Chemistry or Mathematics; alternatively, students can design their own academic program within the Bachelor of Science course structure, including a science Major. This qualification in science can be combined with a Global Studies key program from the Bachelor of Arts, or a Humanities key program. The Humanities Key Program may have one of the following majors: Asian Studies and International Relations; Religion, Anthropology and Philosophy. Sub-majors are also available in Asian Studies and International Relations; Religion, Anthropology and Philosophy; Japanese; Chinese.

### Study Mode

Four years full-time.

### Location

Campus	Attendance	Mode
Parramatta Campus	Full Time	Internal

### Admission

Bachelor of Science Biological Science

- Recommended studies: Mathematics and Chemistry

Chemistry

- Recommended studies: Chemistry

Mathematical Science

- Recommended studies: Mathematics

Science (No Key Program)

- Assumed knowledge: At least two of Biology, Chemistry, Mathematics, Physics

Bachelor of Arts

- Assumed knowledge: Two units of HSC English at Band 4
- Recommended studies: HSC English Standard, or equivalent



Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

## Course Structure

Qualification for this award requires the successful completion of 320 credit points as prescribed in the structure below. Students who complete this award will graduate with a Bachelor of Science and a Bachelor of Arts, with the key programs from both degree courses noted on their testamur.

Students who wish to exit this double degree after their third year and graduate with a Bachelor of Science must have completed 240 credit points and completed the units as listed below in Years 1, 2 and 3 for the key program chosen or the no key program option.

Students within this course will only be permitted to undertake the following key programs within 3640 Bachelor of Science.

- Biological Science
- Chemistry
- Mathematical Science
- Bachelor of Science (no Key Program)

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

Years 1 to 3

Students will complete 160 credit points of Bachelor of Science units as listed in the course structure below.

In Years 1 to 4 they will complete the four Bachelor of Arts core units and 12 Bachelor of Arts key program units from the following key programs in the Bachelor of Arts as offered on Parramatta campus only.

- Global Studies key program
  - Humanities key program with the following majors only:
    - Asian Studies and International Relations major or
    - Religion, Anthropology and Philosophy major
- Sub-majors are available in these Bachelor of Arts key programs as follows:

- Asian Studies and International Relations
- Religion, Anthropology and Philosophy
- Global Studies
- Japanese
- Chinese

## Arts Units

For details of the relevant Arts units, refer to the current listing of Bachelor of Arts, course code 1604. Continuing students should refer to the earlier versions of 1604.

## Bachelor of Science - Biological Science/ Bachelor of Arts

### Recommended Sequence

#### Full-Time

#### Year 1

##### Autumn session

Core Arts unit

Core Arts unit

**300224.2** Chemistry 1

**300221.1** Biology 1

##### Spring session

Core Arts unit

Core Arts unit

**300225.2** Chemistry 2

**300222.1** Biology 2

#### Year 2

##### Autumn session

One Bachelor of Arts unit

**300300.1** Microbiology 1

**300219.2** Biochemistry 1

And one Level 1 unit from the Bachelor of Science unit pool

##### Spring session

One Bachelor of Arts unit

**300321.1** Microbiology 2

**300220.1** Biochemistry 2

Choose one of

**200263.1** Biometry

**200032.2** Statistics for Business

#### Year 3

##### Autumn session

One Bachelor of Arts unit

One Level 3 Biology unit from the Bachelor of Science unit pool

One Level 3 Biology unit from the Bachelor of Science unit pool

One Level 3 elective

##### Spring session

Bachelor of Arts unit

One Level 3 Biology unit from the Bachelor of Science unit pool

One Level 3 Biology unit from the Bachelor of Science unit pool

One Level 3 elective

**Year 4****Autumn session**

Four Bachelor of Arts units

**Spring session**

Four Bachelor of Arts units

**Bachelor of Science - Chemistry/Bachelor of Arts****Recommended Sequence****Full-Time****Year 1****Autumn session**

Core Arts unit

Core Arts unit

**300224.2** Chemistry 1

Choose one of

**200191.3** Fundamentals of Mathematics**300672.1** Mathematics 1A**Spring session**

Core Arts unit

Core Arts unit

**300225.2** Chemistry 2

Choose one of

**300672.1** Mathematics 1A

Level 1 unit from Bachelor of Science unit pool

**Year 2****Autumn session**

One Bachelor of Arts unit

**300558.1** Physics 1**300297.1** Analytical Chemistry 2**300301.1** Organic Chemistry 2**Spring session**

One Bachelor of Arts unit

**300230.1** Inorganic Chemistry 2**300236.1** Physical Chemistry 2

Level 1 unit from Bachelor of Science unit pool

**Year 3****Autumn session**

One Bachelor of Arts unit

**300298.1** Analytical Chemistry 3**300235.1** Organic Chemistry 3

One Level 3 elective

**Spring session**

One Bachelor of Arts unit

**300231.1** Inorganic Chemistry 3**300303.1** Physical Chemistry 3**300645.1** Science Research Project 2**Year 4****Autumn session**

Four Bachelor of Arts units

**Spring session**

Four Bachelor of Arts units

**Bachelor of Science - Mathematical Science/  
Bachelor of Arts****Recommended Sequence****Full-Time****Year 1****Autumn session**

Core Arts unit

Core Arts unit

Bachelor of Science Maths Science unit (see below for options)

Bachelor of Science Maths Science unit (see below for options)

**Spring session**

Core Arts unit

Core Arts unit

Bachelor of Science Maths Science unit (see below for options)

Bachelor of Science Maths Science unit (see below for options)

**Year 1 Bachelor of Science Mathematical Science units  
(Note: check session of offer)**

Students must complete the following :

**300672.1** Mathematics 1A**300673.1** Mathematics 1B**200025.1** Discrete Mathematics

And choose of

**300700.2** Statistical Decision Making**200263.1** Biometry**Year 2****Autumn session**

Bachelor of Arts unit

Bachelor of Science Maths Science unit (see below for options)

Bachelor of Science Maths Science unit (see below for options)

Bachelor of Science Maths Science unit (see below for options)

**Spring session**

Bachelor of Arts unit

Bachelor of Science Maths Science unit (see below for options)

Bachelor of Science Maths Science unit (see below for options)

Bachelor of Science Maths Science unit (see below for options)

**Year 2 Bachelor of Science Mathematical Science units (Note: check session of offer)**

Students must complete the following:

- 300580.1** Programming Fundamentals  
**200028.2** Advanced Calculus  
**200027.1** Linear Algebra

One Level 1 unit from the Bachelor of Science unit pool

Choose one of

- 200042.2** Introduction to Operations Research  
**300606.1** Foundations of Statistical Modelling and Decision Making

Choose one of

- 200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis

**Year 3****Autumn session**

Bachelor of Arts unit

Bachelor of Science Maths Science unit (see below for options)

Bachelor of Science Maths Science unit (see below for options)

Bachelor of Science Maths Science unit (see below for options)

**Spring session**

Bachelor of Arts unit

Bachelor of Science Maths Science unit (see below for options)

Bachelor of Science Maths Science unit (see below for options)

Bachelor of Science Maths Science unit (see below for options)

**Year 3 Bachelor of Science Mathematical Science units (Note: check session of offer)**

Students must complete:

- 200045.2** Quantitative Project

Choose two of

- 200033.2** Applied Statistics  
**200030.1** Differential Equations

- 300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis

Choose three of

- 200193.1** Abstract Algebra  
**200023.1** Analysis  
**200036.2** Data Mining and Visualisation  
**200024.1** Mathematical Finance  
**200022.1** Mathematical Modelling  
**300670.1** Optimisation Techniques  
**300671.1** Principles and Practice of Decision Making  
**200040.1** Probability & Stochastic Processes  
**200037.1** Regression Analysis & Experimental Design  
**200044.1** Simulation Techniques  
**200039.1** Surveys and Multivariate Analysis  
**200038.1** Time Series and Forecasting

**Year 4****Autumn session**

Four Bachelor of Arts units

**Spring session**

Four Bachelor of Arts units

**Bachelor of Science - No Key Program/ Bachelor of Arts**

Please note: Students must complete one of the majors listed in the UWS handbook entry for 3640 Bachelor of Science (please see below for the current list). The degree must include one Level 1 unit in mathematics, statistics or biometry, plus at least one Level 1 unit from two of the following discipline areas: Biology, Chemistry, Computer Science, Geoscience and Physics.

**Year 1****Autumn session**

Two Core Arts units

Two Level 1 units from the Bachelor of Science unit pool

**Spring session**

Two Core Arts units

Two Level 1 units from the Bachelor of Science unit pool

**Year 2****Autumn session**

One Bachelor of Arts unit

One Level 1 unit from the Bachelor of Science unit pool

Two Level 2 units from the Bachelor of Science unit pool

**Spring session**

One Bachelor of Arts unit

Three Level 2 units from the Bachelor of Science unit pool

**Year 3****Autumn session**

One Bachelor of Arts unit

Three Level 3 units from the Bachelor of Science unit pool

**Spring session**

One Bachelor of Arts unit

Three Level 3 units from the Bachelor of Science unit pool

**Year 4****Autumn session**

Four Bachelor of Arts units

**Spring session**

Four Bachelor of Arts units

List of Majors for 3640 Bachelor of Science that may be completed within this program at the Campbelltown or Parramatta campuses.

<b>M3011.1</b>	Biochemistry and Molecular Biology
<b>M3019.1</b>	Chemistry
<b>M3023.1</b>	Computational Decision Making
<b>M3013.1</b>	General Biology
<b>M3020.1</b>	Geochemistry
<b>M3024.1</b>	Knowledge Discovery and Data Mining
<b>M3021.1</b>	Mathematics
<b>M3014.1</b>	Microbiology
<b>M3022.1</b>	Statistics

**Bachelor of Science Unit Pool****Level 1****Biology Core Units**

Choose one of

<b>300221.1</b>	Biology 1
<b>300543.1</b>	Cell Biology

Choose one of

<b>300539.1</b>	Biodiversity
<b>300222.1</b>	Biology 2

**Chemistry Core Units**

Choose one of

<b>300224.2</b>	Chemistry 1
<b>300554.1</b>	Principles of Chemistry
<b>300469.1</b>	Introductory Chemistry

Choose one of

<b>300550.1</b>	Medicinal Chemistry
<b>300225.2</b>	Chemistry 2

**Computing and Information Technology Core Units**

<b>300134.1</b>	Introduction to Information Technology
<b>300580.1</b>	Programming Fundamentals

**Geoscience Core Units**

<b>300613.1</b>	Introductory Geochemistry: Earth, Resources and Environments
<b>300232.1</b>	Introduction to Earth Sciences

**Mathematics and Statistics Core Units**

<b>200191.3</b>	Fundamentals of Mathematics
<b>200025.1</b>	Discrete Mathematics
<b>300672.1</b>	Mathematics 1A
<b>300673.1</b>	Mathematics 1B

Choose one of

<b>200263.1</b>	Biometry
<b>300700.2</b>	Statistical Decision Making
<b>200032.2</b>	Statistics for Business

**Physics Core Units**

<b>300558.1</b>	Physics 1
<b>300559.1</b>	Physics 2

**Professional Skills Core Unit****Professional Skills Alternate Unit**

<b>300497.1</b>	Professional Skills for Science
<b>300661.1</b>	Integrated Science 1

**Level 2****Biology Core Units**

Choose one of

<b>300321.1</b>	Microbiology 2
<b>300219.2</b>	Biochemistry 1
<b>300555.1</b>	Proteins and Genes

Choose one of

<b>300220.1</b>	Biochemistry 2
<b>300548.1</b>	Human Metabolism and Disease

Choose one of

<b>300300.1</b>	Microbiology 1
<b>300331.2</b>	General Microbiology

**Biology Alternate Units**

<b>300608.1</b>	Animal Physiology
<b>300328.1</b>	Botany
<b>300634.1</b>	Ecology
<b>300658.1</b>	Endocrinology and Metabolism
<b>300333.1</b>	Introductory Plant Physiology
<b>300323.1</b>	Pathological Basis of Disease
<b>300609.1</b>	Plant Physiology
<b>300646.1</b>	Principles of Biotechnology

Choose one of

<b>300623.1</b>	Genetics
<b>300547.1</b>	Human Genetics

**Chemistry Core Units**

<b>300297.1</b>	Analytical Chemistry 2
<b>300230.1</b>	Inorganic Chemistry 2

Choose one of

<b>300545.1</b>	Coordination Chemistry
<b>300301.1</b>	Organic Chemistry 2

Choose one of

- 300553.1** Molecules of Life: Synthesis and Reactivity  
**300236.1** Physical Chemistry 2  
**300540.1** Biomolecular Dynamics

#### Chemistry Alternate Units

- 300493.1** Forensic and Environmental Analysis  
**300611.1** Chemical Mineralogy

#### Geoscience Alternate Units

- 300612.1** Geochemical Systems  
**200028.2** Advanced Calculus

#### Mathematics and Statistics Core Units

- 200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis  
**200027.1** Linear Algebra

#### Level 3

#### Biology Alternate Units

- 300556.1** Analytical Protein Science  
**300307.1** Analytical Microbiology  
**300327.1** Australian Plants  
**300427.1** Animal Production  
**300465.1** Aquatic Ecology  
**300610.1** Biotechnology  
**300542.1** Biomolecular Science Project  
**300644.1** Biophysics  
**300617.1** Conservation Biology  
**300544.1** Cell Signalling  
**300607.1** Environmental Biology  
**300647.1** Environmental Biotechnology  
**300504.1** Fermentation Science  
**300648.1** Food and Pharmaceutical Biotechnology  
**300656.1** Laboratory Quality Management  
**300757.1** Molecular Biology of the Immune System  
**300408.1** Mammalian Cell Biology and Biotechnology  
**300229.1** Immunology  
**300407.1** Mammalian Molecular Medicine  
**300749.1** Medical Microbiology  
**300621.1** Plant Biotechnology  
**300615.1** Science Research Project 1  
**300645.1** Science Research Project 2  
**300470.1** Vertebrate Biodiversity

Choose one of

- 300234.1** Molecular Biology  
**300549.1** Human Molecular Biology

#### Chemistry Alternate Units

- 300542.1** Biomolecular Science Project  
**300218.1** Applied Aspects of Inorganic Chemistry  
**300557.1** Molecular Spectroscopy  
**300645.1** Science Research Project 2  
**300615.1** Science Research Project 1

Choose one of

- 300537.1** Advanced Chemical Analysis  
**300298.1** Analytical Chemistry 3

Choose one of

- 300538.1** Advanced Inorganic Chemistry  
**300231.1** Inorganic Chemistry 3  
**300235.1** Organic Chemistry 3

Choose one of

- 300546.1** Drug Design and Synthesis  
**300303.1** Physical Chemistry 3

Choose one of

- 300475.1** Molecular Pharmacokinetics  
**300614.1** Environmental Geochemistry

#### Geoscience Alternate Units

#### Mathematics and Statistics Alternate Units

- 200193.1** Abstract Algebra  
**200023.1** Analysis  
**200036.2** Data Mining and Visualisation  
**200022.1** Mathematical Modelling  
**200024.1** Mathematical Finance  
**300670.1** Optimisation Techniques  
**300671.1** Principles and Practice of Decision Making  
**200040.1** Probability & Stochastic Processes  
**200045.2** Quantitative Project  
**200044.1** Simulation Techniques  
**200037.1** Regression Analysis & Experimental Design  
**200039.1** Surveys and Multivariate Analysis  
**200038.1** Time Series and Forecasting

#### Bachelor of Science Capstone Units

- 300530.1** Advances in Agronomy  
**300542.1** Biomolecular Science Project  
**300427.1** Animal Production  
**300610.1** Biotechnology  
**300648.1** Food and Pharmaceutical Biotechnology  
**300617.1** Conservation Biology  
**300656.1** Laboratory Quality Management  
**300637.1** Food Product Development Practicum  
**300643.1** Plant Protection  
**300615.1** Science Research Project 1  
**200045.2** Quantitative Project  
**300645.1** Science Research Project 2

#### Bachelor of Science/Bachelor of Business and Commerce

#### 3659.1

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students who commenced study in this course in 2010 or later.

This double degree program equips its graduates with a qualification in science, combined with a good understanding of basic business issues, complemented by

a high level of knowledge relevant to a specific business discipline as applied in a global environment. Graduates will have a solid grounding in a core science discipline such as Biological Science, Chemistry or Mathematics; alternatively, students can design their own academic program within the Bachelor of Science course structure, including a science Major. This qualification in science is combined with one of the following key programs from the Bachelor of Business and Commerce: Applied Economics; Applied Finance; Global Operations and Supply Chain Management; Hospitality Management; Human Resource Development and Organisational Development; Human Resource Management and Industrial Relations; International Business; Management; Marketing; Sport Management. Graduates will be equipped to work as scientists, with a good understanding of business principles and practices. Alternatively, as Business and Commerce graduates they will be well-prepared to work in science-based industries and institutions.

### Study Mode

Four years full-time.

### Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal
Parramatta Campus	Full Time	Internal

### Admission

Eligibility for admission to the Bachelor Science/Bachelor of Business and Commerce is based on the following requirements:

The following sets of Assumed Knowledge and Recommended Studies apply:

Bachelor of Science

- Biological Science - Recommended studies: Mathematics and Chemistry,
- Chemistry - Recommended studies: Chemistry,
- Mathematical Science - Recommended studies: Mathematics,
- Science (No Key Program) - Assumed knowledge: At least two of Biology, Chemistry, Mathematics, Physics.

Bachelor of Business and Commerce

- HSC Mathematics and any two units of HSC English.

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 320 credit points as prescribed in the structure below.

Students who complete this award will graduate with a Bachelor of Science and a Bachelor of Business and Commerce, with the key programs from both degree courses noted on their testamur. Students within this course will only be permitted to undertake the following key programs within 3640 Bachelor of Science

- Biological Science
- Chemistry
- Mathematical Science
- No key program

Students may complete a Bachelor of Science without a key program, following the schedule of units that is listed below, and completing one of the Majors listed in the UWS Handbook entry for 3640 Bachelor of Science, provided this can be completed within the 16 Bachelor of Science units.

Students who wish to exit this double degree after their third year and graduate with a Bachelor of Science must have completed 240 credit points and completed the units as listed below in Years 1, 2 and 3.

The conceptual design of this Bachelor of Science/Bachelor of Business and Commerce double degree is as follows:

- 1) Years 1 to 3 students complete their Bachelor of Science (16 units). This includes 15 specific units and one elective unit, in most key programs;
- 2) also, in Years 1 to 3 they complete the Bachelor of Business and Commerce seven common core units and also one Bachelor of Business and Commerce key program unit. In Year 4 they complete eight Bachelor of Business and Commerce key program units.
- 3) students within this course will only be permitted to undertake the following key programs within 2739 Bachelor Business and Commerce

**Please note that not all key programs are offered on both Parramatta and Campbelltown campus.**

- Applied Economics
- Applied Finance
- Global Operations and Supply Chain Management
- Hospitality Management
- Human Resource Development and Organisational Development
- Human Resource Management and Industrial Relations
- International Business
- Management
- Marketing

- Sport Management

Note: It is expected that professional accreditation will be forthcoming from the Australian Human Resources Institute as regards the Human Resources Development and Organisation Development, and Human Resource Management and Industrial Relations key programs.

<b>KP3001.1</b>	Bachelor of Science (Biological Science)/Bachelor of Business and Commerce
<b>KP3002.1</b>	Bachelor of Science (Chemistry)/Bachelor of Business and Commerce
<b>KP3003.1</b>	Bachelor of Science (Mathematical Science)/Bachelor of Business and Commerce
<b>KP3004.1</b>	Bachelor of Science (No Key Program)/Bachelor of Business and Commerce

## Bachelor of Science/Bachelor of International Studies

### 3660.1

Students should follow the course structure for the course version relevant to the year they commenced. This course version applies to students who commenced study in this course in 2010 or later.

This double degree program is designed for students who want to combine their interest and expertise in science with a sophisticated understanding of international issues and systems. This will equip them to work in globalised science-based professions and industries. Graduates will have a solid grounding in a core science discipline such as Biological Science, Chemistry or Mathematics; alternatively, students can design their own academic program within the Bachelor of Science course structure, including a science Major. This will be combined with a degree in International Studies that examines the relationships of societies, cultures, languages and systems of government within the international system. It develops students' capacity to analyse the historical development of relations among nation states and contemporary political, social and cultural issues, such as globalisation, transnationalism and migration. Students complete a major in Asian Studies and International Relations, and sub-majors are available in Japanese or Chinese.

### Study Mode

Four years full-time

### Location

Campus	Attendance	Mode
Parramatta Campus	Full Time	Internal

### Admission

Assumed knowledge required:

BSc Biological Science

- Recommended studies: Mathematics and Chemistry

Chemistry

- Recommended studies: Chemistry

Mathematical Science

- Recommended studies: Mathematics

Science (No Key Program)

- Assumed knowledge: At least two of Biology, Chemistry, Mathematics, Physics

Bachelor of International Studies

- Assumed knowledge: two units of Band 4 HSC English
- Recommended studies: HSC English Standard, or equivalent

Applications from Australian and New Zealand citizens and holders of permanent resident visas must be made via the Universities Admissions Centre (UAC).

International applicants must apply directly to the University of Western Sydney via UWS International.

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Details of minimum English proficiency requirements and acceptable proof can be found on the Universities Admissions Centre website (UAC).

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and UWS.

### Course Structure

Qualification for this award requires the successful completion of 320 credit points as prescribed in the structure below. Students who complete this award will graduate with a Bachelor of Science and a Bachelor of International Studies, with the key programs from both degree courses noted on their testamur.

Students are eligible to graduate with a Bachelor of Science with a relevant key program on completion of all 24 units listed in the first three years of the relevant sequence below.

Students within this course will only be permitted to undertake the following key programs within 3640 Bachelor of Science.

Biological Science

Chemistry

Mathematical Science

Science (No Key Program)

The conceptual design of this BSc/BIS double degree is as follows:

Years 1 to 3

Students will complete 160 credit points of BSc units as listed in the course structure below.

In Years 1 to 4 they will complete the four BSc/BIS core units and 12 BIS units as offered on Parramatta campus only:

- Asian Studies and International Relations major and Sub-majors are available in the BIS course as follows:
- Japanese
- Chinese

**Bachelor of International Studies Units**

For details of the relevant International Studies units, refer to the current listing of Bachelor of International Studies, course code 1658. Continuing students should refer to the earlier versions of 1658.

**Bachelor of Science - Biological Science/  
Bachelor of International Studies****Recommended Sequence****Full-Time****Year 1****Autumn session**

Core Arts unit

Core Arts unit

**300224.2** Chemistry 1  
**300221.1** Biology 1

**Spring session**

Core Arts unit

Core Arts unit

**300225.2** Chemistry 2  
**300222.1** Biology 2

**Year 2****Autumn session**

BIS unit

**300300.1** Microbiology 1  
**300219.2** Biochemistry 1

And one Level 1 unit from the BSc unit pool

**Spring session**

BIS unit

**300321.1** Microbiology 2  
**300220.1** Biochemistry 2

Choose one unit from:

**200263.1** Biometry  
**200032.2** Statistics for Business

**Year 3****Autumn session**

One BIS unit

One Level 3 Biology units from the BSc unit pool

One Level 3 Biology units from the BSc unit pool

One Level 3 elective

**Spring session**

One BIS unit

One Level 3 Biology unit from the BSc unit pool

One Level 3 Biology unit from the BSc unit pool

One Level 3 elective

**Year 4****Autumn session**

Four BIS units

**Spring session**

Four BIS units

**Bachelor of Science - Chemistry/Bachelor of  
International Studies****Recommended Sequence****Full-Time****Year 1****Autumn session**

Two Core Arts units

**300224.2** Chemistry 1

Choose one of

**200191.3** Fundamentals of Mathematics  
**300672.1** Mathematics 1A

**Spring session**

Two Core Arts units

**300225.2** Chemistry 2

Choose one of

**300672.1** Mathematics 1A

Level 1 unit from BSc unit pool

**Year 2****Autumn session**

One BIS unit

**300558.1** Physics 1  
**300297.1** Analytical Chemistry 2  
**300301.1** Organic Chemistry 2

**Spring session**

One BIS unit

**300230.1** Inorganic Chemistry 2  
**300236.1** Physical Chemistry 2

Level 1 unit from BSc unit pool

**Year 3****Autumn session**

One BIS unit

**300298.1** Analytical Chemistry 3  
**300235.1** Organic Chemistry 3

One Level 3 elective

**Spring session**

One BIS unit



300231.1 Inorganic Chemistry 3  
 300303.1 Physical Chemistry 3  
 300645.1 Science Research Project 2

## Year 4

### Autumn session

Four BIS units

### Spring session

Four BIS units

## Bachelor of Science - Mathematical Science/ Bachelor of International Studies

### Recommended Sequence

#### Full-Time

### Year 1

#### Autumn session

Two Core Arts units

Two BSc Maths Science units (see below for options)

#### Spring session

Two Core Arts units

Two BSc Maths Science units (see below for options)

#### Year 1 BSc Mathematical Science units (Note: check session of offer)

Students must complete the following

300672.1 Mathematics 1A  
 300673.1 Mathematics 1B  
 200025.1 Discrete Mathematics

And choose one of

300700.2 Statistical Decision Making  
 200263.1 Biometry

### Year 2

#### Autumn session

BIS unit

Three BSc Maths Science units (see below for options)

#### Spring session

BIS unit

Three BSc Maths Science units (see below for options)

#### Year 2 BSc Mathematical Science units (Note: check session of offer)

Students must complete the following:

300580.1 Programming Fundamentals  
 200028.2 Advanced Calculus  
 200027.1 Linear Algebra

One Level 1 unit from the BSc unit pool

Choose one of

200042.2 Introduction to Operations Research

300606.1 Foundations of Statistical Modelling and Decision Making

Choose one unit of

200033.2 Applied Statistics  
 200030.1 Differential Equations  
 300606.1 Foundations of Statistical Modelling and Decision Making  
 200042.2 Introduction to Operations Research  
 200029.1 Numerical Analysis

### Year 3

#### Autumn session

One BIS unit

Three BSc Maths Science units (see below for options)

#### Spring session

One BIS unit

Three BSc Maths Science units (see below for options)

#### Year 3 BSc Mathematical Science units (Note: check session of offer)

Students must complete:

200045.2 Quantitative Project

Choose two of

200033.2 Applied Statistics  
 200030.1 Differential Equations  
 300606.1 Foundations of Statistical Modelling and Decision Making  
 200042.2 Introduction to Operations Research  
 200029.1 Numerical Analysis

Choose three of

200193.1 Abstract Algebra  
 200023.1 Analysis  
 200336.2 Business Academic Skills  
 200024.1 Mathematical Finance  
 200022.1 Mathematical Modelling  
 300670.1 Optimisation Techniques  
 300671.1 Principles and Practice of Decision Making  
 200040.1 Probability & Stochastic Processes  
 200037.1 Regression Analysis & Experimental Design  
 200044.1 Simulation Techniques  
 200039.1 Surveys and Multivariate Analysis  
 200038.1 Time Series and Forecasting

### Year 4

#### Autumn session

Four BIS units

#### Spring session

Four BIS units

## Bachelor of Science - No Key Program/ Bachelor of International Studies

Please note: Students MUST complete one of the majors listed in the UWS handbook entry for 3640 Bachelor of Science (please see below for the current list). The degree must include one Level 1 unit in mathematics, statistics or

biometry, plus at least one Level 1 unit from two of the following discipline areas: Biology, Chemistry, Computer Science, Geoscience and Physics.

## Year 1

### Autumn session

Two Core Arts units

Two Level 1 units from the BSc unit pool

### Spring session

Two Core Arts units

Two Level 1 units from the BSc unit pool

## Year 2

### Autumn session

One BIS unit

One Level 1 unit from the BSc unit pool

Two Level 2 units from the BSc unit pool

### Spring session

One BIS unit

Three Level 2 units from the BSc unit pool

## Year 3

### Autumn session

One BIS unit

Three Level 3 units from the BSc unit pool

### Spring session

One BIS unit

Three Level 3 units from the BSc unit pool

## Year 4

### Autumn session

Four BIS units

### Spring session

Four BIS units

List of Majors for 3640 Bachelor of Science that may be completed within this program at the Campbelltown or Parramatta campuses.

<b>M3011.1</b>	Biochemistry and Molecular Biology
<b>M3019.1</b>	Chemistry
<b>M3023.1</b>	Computational Decision Making
<b>M3013.1</b>	General Biology
<b>M3020.1</b>	Geochemistry
<b>M3024.1</b>	Knowledge Discovery and Data Mining
<b>M3021.1</b>	Mathematics
<b>M3014.1</b>	Microbiology
<b>M3022.1</b>	Statistics

## Bachelor of Science Unit Pool

### Level 1

#### Biology Core Units

Choose one of

**300221.1** Biology 1  
**300543.1** Cell Biology

Choose one of

**300539.1** Biodiversity  
**300222.1** Biology 2

#### Chemistry Core Units

Choose one of

**300224.2** Chemistry 1  
**300554.1** Principles of Chemistry  
**300469.1** Introductory Chemistry

Choose one of

**300550.1** Medicinal Chemistry  
**300225.2** Chemistry 2

#### Computing and Information Technology Core Units

**300134.1** Introduction to Information Technology  
**300580.1** Programming Fundamentals

#### Geoscience Core Units

**300613.1** Introductory Geochemistry: Earth, Resources and Environments  
**300232.1** Introduction to Earth Sciences

#### Mathematics and Statistics Core Units

**200191.3** Fundamentals of Mathematics  
**200025.1** Discrete Mathematics  
**300672.1** Mathematics 1A  
**300673.1** Mathematics 1B

Choose one of

**200263.1** Biometry  
**300700.2** Statistical Decision Making  
**200032.2** Statistics for Business

#### Physics Core Units

**300558.1** Physics 1  
**300559.1** Physics 2

#### Professional Skills Core Unit

#### Professional Skills Alternate Unit

**300497.1** Professional Skills for Science  
**300661.1** Integrated Science 1

### Level 2

#### Biology Core Units

Choose one of

**300321.1** Microbiology 2  
**300219.2** Biochemistry 1  
**300555.1** Proteins and Genes

Choose one of

**300220.1** Biochemistry 2

**300548.1** Human Metabolism and Disease

Choose one of

- 300300.1** Microbiology 1  
**300331.2** General Microbiology

**Biology Alternate Units**

- 300608.1** Animal Physiology  
**300328.1** Botany  
**300634.1** Ecology  
**300658.1** Endocrinology and Metabolism  
**300333.1** Introductory Plant Physiology  
**300323.1** Pathological Basis of Disease  
**300609.1** Plant Physiology  
**300646.1** Principles of Biotechnology

Choose one of

- 300623.1** Genetics  
**300547.1** Human Genetics

**Chemistry Core Units**

- 300297.1** Analytical Chemistry 2  
**300230.1** Inorganic Chemistry 2

Choose one of

- 300545.1** Coordination Chemistry  
**300301.1** Organic Chemistry 2

Choose one of

- 300553.1** Molecules of Life: Synthesis and Reactivity  
**300236.1** Physical Chemistry 2  
**300540.1** Biomolecular Dynamics

**Chemistry Alternate Units**

- 300493.1** Forensic and Environmental Analysis  
**300611.1** Chemical Mineralogy

**Geoscience Alternate Units**

- 300612.1** Geochemical Systems  
**200028.2** Advanced Calculus

**Mathematics and Statistics Core Units**

- 200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis  
**200027.1** Linear Algebra

**Level 3****Biology Alternate Units**

- 300556.1** Analytical Protein Science  
**300307.1** Analytical Microbiology  
**300327.1** Australian Plants  
**300427.1** Animal Production  
**300465.1** Aquatic Ecology  
**300610.1** Biotechnology

- 300542.1** Biomolecular Science Project  
**300644.1** Biophysics  
**300617.1** Conservation Biology  
**300544.1** Cell Signalling  
**300607.1** Environmental Biology  
**300647.1** Environmental Biotechnology  
**300504.1** Fermentation Science  
**300648.1** Food and Pharmaceutical Biotechnology  
**300656.1** Laboratory Quality Management  
**300757.1** Molecular Biology of the Immune System  
**300408.1** Mammalian Cell Biology and Biotechnology  
**300229.1** Immunology  
**300407.1** Mammalian Molecular Medicine  
**300749.1** Medical Microbiology  
**300621.1** Plant Biotechnology  
**300615.1** Science Research Project 1  
**300645.1** Science Research Project 2  
**300470.1** Vertebrate Biodiversity

Choose one of

- 300234.1** Molecular Biology  
**300549.1** Human Molecular Biology

**Chemistry Alternate Units**

- 300542.1** Biomolecular Science Project  
**300218.1** Applied Aspects of Inorganic Chemistry  
**300557.1** Molecular Spectroscopy  
**300645.1** Science Research Project 2  
**300615.1** Science Research Project 1

Choose one of

- 300537.1** Advanced Chemical Analysis  
**300298.1** Analytical Chemistry 3

Choose one of

- 300538.1** Advanced Inorganic Chemistry  
**300231.1** Inorganic Chemistry 3  
**300235.1** Organic Chemistry 3

Choose one of

- 300546.1** Drug Design and Synthesis  
**300303.1** Physical Chemistry 3

Choose one of

- 300475.1** Molecular Pharmacokinetics  
**300614.1** Environmental Geochemistry

**Geoscience Alternate Units****Mathematics and Statistics Alternate Units**

- 200193.1** Abstract Algebra  
**200023.1** Analysis  
**200036.2** Data Mining and Visualisation  
**200022.1** Mathematical Modelling  
**200024.1** Mathematical Finance  
**300670.1** Optimisation Techniques  
**300671.1** Principles and Practice of Decision Making  
**200040.1** Probability & Stochastic Processes  
**200045.2** Quantitative Project  
**200044.1** Simulation Techniques  
**200037.1** Regression Analysis & Experimental Design  
**200039.1** Surveys and Multivariate Analysis  
**200038.1** Time Series and Forecasting

**Bachelor of Science Capstone Units**

<b>300530.1</b>	Advances in Agronomy
<b>300542.1</b>	Biomolecular Science Project
<b>300427.1</b>	Animal Production
<b>300610.1</b>	Biotechnology
<b>300648.1</b>	Food and Pharmaceutical Biotechnology
<b>300617.1</b>	Conservation Biology
<b>300656.1</b>	Laboratory Quality Management
<b>300637.1</b>	Food Product Development Practicum
<b>300643.1</b>	Plant Protection
<b>300615.1</b>	Science Research Project 1
<b>200045.2</b>	Quantitative Project
<b>300645.1</b>	Science Research Project 2

**Diploma in Engineering****7006.1**

This course is delivered by UWSCollege as an agent of the University of Western Sydney.

The Diploma in Engineering is designed to provide prepare students for tertiary study in Engineering and in doing so address any perceived deficiencies in the students' mathematical and physics knowledge and skills. The Diploma presents students with subjects from the first year of subjects in the Bachelor of Engineering Degree. The Diploma aims to produce students who are fully prepared for study beyond the first year of the Bachelor of Engineering degree. The Diploma in Engineering, completed in a smaller, more supportive learning environment than usually found in first year undergraduate programs, is designed to develop students to have greater ability in self-directed study and have the self esteem that comes from prior achievement in a tertiary environment.

For more information on UWSCollege, please refer to the UWSCollege web site.

**Location**

<b>Campus</b>	<b>Attendance</b>	<b>Mode</b>
UWSC - Nirimba Education Precinct	Full Time	Internal

**Admission**

The aim of the Diploma is to prepare students for tertiary study in Engineering. The Diploma is accredited by the University, as principal, to enable its agent, UWSCollege, to offer to its students who are fully prepared for study beyond the first year of a tertiary award.

1. English Entry Requirements International students must satisfy one of the following language requirements:

- IELTS 6.0 with a minimum of 5.0 in all areas OR
- Completion of UWS College EAPIII course with a 50% pass OR
- A pass in the Foundation Academic English course OR
- A pass in the UWS College English Entrance test at IELTS 6.0 equivalent

2. Academic Entry Requirements vary according to country of origin. However, in general, completion of Year 12 or its equivalent is the minimum entry requirement OR to have

passed the UWS College Foundation Certificate, offered by UWS College, with a Grade Point Average of 5.5 or higher.

Local students entering this Diploma are:

1. Required to have completed an English course in the NSW Higher School Certificate, or to have competency in English at IELTS 6.0 with a minimum of 5.0 in all areas (unless a native speaker) or have completed the UWS College English test at IELTS 6.0 equivalent with a minimum of 5.0 in all areas; or to have passed the UWSCollege Foundation English Course.
2. Required to have met other entry requirements such as an ATAR identified prior to the offer of a place, or to have completed the UWS College Foundation Studies course, offered by UWS College, with a GPA of 5.5 or better and a pass in Foundation level Mathematics Extension.
3. Assumed to have background in mathematics at Senior High School level and assumed background Science knowledge preferably in Physics.

**Special Requirements**

All students must complete Tertiary Study Skills with UWSCollege prior to completion of the diploma.

**Course Structure**

Qualification for this award requires the successful completion of the units listed in the recommended sequence below.

Students who have completed an HSC equivalent qualification with study in the relevant areas will be eligible for advanced standing for Mathematics C and Physics and therefore need to complete the remaining 8 units.

<b>700025.1</b>	Mathematics C (UWSCFS)
<b>700026.1</b>	Physics (UWSCFS)
<b>700038.1</b>	Engineering Design and Construction Practice (UWSC)
<b>700019.1</b>	Mathematics for Engineers 1 (UWSC)
<b>700020.1</b>	Physics and Materials (UWSC)
<b>700018.1</b>	Engineering Computing (UWSC)
<b>700022.1</b>	Mathematics for Engineers 2 (UWSC)
<b>700023.1</b>	Fundamentals of Mechanics (UWSC)
<b>700024.1</b>	Electrical Fundamentals (UWSC)
<b>700021.1</b>	Engineering and Design Concepts (UWSC)

Students also complete a mandatory special requirement unit, Tertiary Study Skills, although this does not count for credit towards the Diploma.

**Diploma in Engineering Fast Track****7010.1**

This new course is delivered by UWSCollege as an agent of the University of Western Sydney.

The Diploma in Engineering is designed to provide prepare students for tertiary study in Engineering. The Diploma presents students with subjects from the first year of subjects in the Bachelor of Engineering Degree. The Diploma aims to produce students who are fully prepared for study beyond the first year of the Bachelor of Engineering degree. The Diploma in Engineering, completed in a smaller, more supportive learning environment than usually found in first year undergraduate programs, is designed to develop students to have greater

ability in self-directed study and have the self esteem that comes from prior achievement in a tertiary environment.

For more information on UWSCollege, please refer to the UWSCollege web site.

## Location

Campus	Attendance	Mode
UWSC - Nirimba Education Precinct	Full Time	Internal

## Admission

1. English Entry Requirements International students must satisfy one of the following language requirements:

- IELTS 6.0 with a minimum of 5.0 in all areas OR
- Completion of UWS College EAPIII course with a 50% pass OR
- A pass in the Foundation Academic English course OR
- A pass in the UWSCollege English Entrance test at IELTS 6.0 equivalent.

2. Academic Entry Requirements vary according to country of origin. However, in general, completion of Year 12 or its equivalent is the minimum entry requirement OR to have passed the UWS College Foundation Certificate, offered by UWS College, with a Grade Point Average of 6.0 or higher. Students are also assumed to have completed study in mathematics at Senior High School Level or to have passed Foundation Level Mathematics at UWSCollege.

Local students entering this Diploma are:

1. Required to have completed an English course in the NSW Higher School Certificate; or to have competency in English at IELTS 6.0 with a minimum of 5.0 in all areas (unless a native speaker); or have completed the UWS College English test at IELTS 6.0 equivalent with a minimum of 5.0 in all areas; or to have passed the UWSCollege Foundation English Course.

2. Required to have met other entry requirements such as an ATAR identified prior to the offer of a place, or to have completed the UWS College Foundation Studies course, offered by UWS College, with a GPA of 6.0 or better and a pass in Foundation Mathematics.

3. Assumed to have background in Mathematics Physics at Senior High School level or to have passed Foundation level Mathematics Extension at Physics at UWSCollege.

The aim of the course is to prepare students for tertiary study in Engineering. The Diploma is accredited by the University, as principal, to enable its agent, UWSCollege, to prepare students for study beyond the first year of a tertiary award.

## Special Requirements

All students must complete Tertiary Study Skills with UWSCollege prior to completion of the diploma.

## Course Structure

Qualification for this award requires the successful completion of the units listed below.

<b>700018.1</b>	Engineering Computing (UWSC)
<b>700019.1</b>	Mathematics for Engineers 1 (UWSC)
<b>700020.1</b>	Physics and Materials (UWSC)
<b>700021.1</b>	Engineering and Design Concepts (UWSC)
<b>700022.1</b>	Mathematics for Engineers 2 (UWSC)
<b>700023.1</b>	Fundamentals of Mechanics (UWSC)

<b>700024.1</b>	Electrical Fundamentals (UWSC)
<b>700038.1</b>	Engineering Design and Construction Practice (UWSC)

Students also complete a mandatory special requirement unit, Tertiary Study Skills, although this does not count for credit towards the Diploma.

## Diploma in Information and Communications Technology

### 7005.1

This course is delivered by UWSCollege as an agent of the University of Western Sydney.

The Diploma in Information and Communications Technology is designed to provide a generalist tertiary level foundation for further study in undergraduate Information and Communications Technology program. It has been constructed to provide students with a sample of ICT units and university experiences to allow for well informed choices to be made in selecting their professional focus.

The Diploma aims to produce students who are fully prepared for study beyond the first year of an undergraduate degree. The Diploma in Information and Communications Technology, completed in a smaller, more supportive learning environment than usually found in first year undergraduate programs, is designed to develop students who are more aware of their roles and responsibilities within a university, have greater ability in self-directed study and have the self esteem that comes from prior achievement in a tertiary environment.

For more information on UWSCollege, please refer to the UWSCollege web site.

## Location

Campus	Attendance	Mode
UWSC - Nirimba Education Precinct	Full Time	Internal

## Accreditation

It is intended that accreditation will be sought from the Australian Computer Society.

## Admission

The aim of the Diploma is to prepare students for tertiary study in Information and Communications Technology. The Diploma is accredited by the University, as principal, to enable its agent, UWSCollege, to offer to its students who are fully prepared for study beyond the first year of a tertiary award.

1. English Entry Requirements

Students who come from overseas must satisfy one of the following language requirements:

- IELTS 6.0 with a minimum of 5.0 in all areas
- Completion of UWSCollege EAPIII course with a 50% pass level.
- Pass in the Foundation Studies English course.

2. Academic Entry Requirements

Vary according to country of origin. However, in general, completion of Year 12 or its equivalent is the minimum entry requirement OR to have passed the Foundation

Certificate, offered by UWSCollege, with a Grade Point Average of 5.5 or higher.

Students are also assumed to have completed a Mathematics course, equivalent to the Mathematics course in the NSW Higher School Certificate or to have passed Foundation Level Mathematics.

Local students entering this Diploma are required to have:

1. Required to have completed an English course in the NSW Higher School Certificate; or to have competency in English at IELTS 6.0 with a minimum of 5.0 in all areas (unless a native speaker); or have completed the UWS College English test at IELTS 6.0 equivalent with a minimum of 5.0 in all areas; or to have passed the UWSCollege Foundation English Course.
- 2 Met other entry requirements such as an ATAR identified prior to the offer of a place, or to have completed the UWSCollege Foundation Studies course, offered by UWSCollege, with a GPA of 5.5 or better and with a pass in Foundation Mathematics .
3. Assumed knowledge of Mathematics at the NSW Higher School Certificate or a pass in Foundation Mathematics.

### Special Requirements

Students must complete Tertiary Study Skills with UWSCollege prior to completion of the diploma.

### Course Structure

To be awarded a Diploma in Information and Communications Technology students will successfully complete with at least a pass (50% or more) the eight units listed below.

Students who wish to enter the Bachelor of Computing on completion of this Diploma course will, subject to student numbers, study 700007 Statistics for Business (UWSC). Students intending to enter the Bachelor of Information and Communications Technology will study 700041 Statistical Decision Making (UWSC).

All other units are compulsory core units of the course.

Choose one of

- 700007.2** Statistics for Business (UWSC)
- 700041.1** Statistical Decision Making (UWSC)

Students must complete the following units

- 700040.1** Principles of Professional Communication 1 (UWSC)
- 700008.1** Programming Fundamentals (UWSC)
- 700000.1** Information Systems in Context (UWSC)
- 700011.1** Database Design and Development (UWSC)
- 700012.1** Computer Networking (UWSC)
- 700013.1** System Analysis and Design (UWSC)
- 700039.1** Object Oriented Analysis (UWSC)

Students will also complete the following two units for which no advanced standing will be granted in the degree program

- 700045.1** Statistics for Academic Purposes (UWSCFS)
- 700047.1** Programming Design (UWSCFS)

Students also complete a mandatory unit Tertiary Study Skills, although this does not count for credit towards the Diploma.

## Diploma in Information and Communications Technology Fast Track

### 7004.1

This course is delivered by UWSCollege as an agent of the University of Western Sydney.

The Diploma in Information and Communications Technology is designed to provide a generalist tertiary level foundation for further study in undergraduate Information and Communications Technology and Computing programs. It has been constructed to provide students with a sample of computing units and university experiences to allow for well informed choices to be made in selecting their professional focus.

The Diploma aims to produce students who are fully prepared for study beyond the first year of an undergraduate degree. The Diploma in Information and Communications Technology, completed in a smaller, more supportive learning environment than usually found in first year undergraduate programs, is designed to develop students who are more aware of their roles and responsibilities within a university, have greater ability in self-directed study and have the self esteem that comes from prior achievement in a tertiary environment.

For more information on UWSCollege, please refer to the UWSCollege web site.

### Location

Campus	Attendance	Mode
UWSC - Nirimba Education Precinct	Full Time	Internal

### Accreditation

It is intended that accreditation will be sought from the Australian Computer Society.

### Admission

The aim of the Diploma is to prepare students for tertiary study in Information and Communications Technology or Computing. The Diploma is accredited by the University, as principal, to enable its agent, UWSCollege, to offer to its students who are fully prepared for study beyond the first year of a tertiary award.

#### 1. English Entry Requirements

Students who come from overseas must satisfy one of the following language requirements:

- IELTS 6.0 with a minimum of 5.0 in all areas OR
- Completion of UWSCollege EAPIII course with a 50% pass level OR
- Pass in the Foundation Studies English course.

#### 2. Academic Entry Requirements

Vary according to country of origin. However, in general, completion of Year 12 or its equivalent is the minimum entry requirement OR to have passed the Foundation Certificate, offered by UWSCollege, with a Grade Point Average of 5.5 or higher.

Students are also assumed to have completed a Mathematics course, equivalent to the Mathematics course

in the NSW Higher School Certificate or to have passed Foundation Level Mathematics.

Local students entering this Diploma are required to have:

1. Required to have completed an English course in the NSW Higher School Certificate; or to have competency in English at IELTS 6.0 with a minimum of 5.0 in all areas (unless a native speaker); or have completed the UWS College English test at IELTS 6.0 equivalent with a minimum of 5.0 in all areas; or to have passed the UWSCollege Foundation English Course.
2. Met other entry requirements such as an ATAR identified prior to the offer of a place, or to have completed the UWSCollege Foundation Studies course, offered by UWSCollege, with a GPA of 5.5 or better and with a pass in Foundation Mathematics .
3. Assumed knowledge of Mathematics at the NSW Higher School Certificate or a pass in Foundation Mathematics.

### Special Requirements

Students must complete Tertiary Study Skills with UWSCollege prior to completion of the diploma.

### Course Structure

To be awarded a Diploma in Information and Communications Technology Fast Track, students will successfully complete with at least a pass (50% or more) eight units as listed below.

Students who wish to enter the B Computing on completion of this Diploma course will, subject to student numbers, study 700007 Statistics for Business (UWSC). Students intending to enter the Bachelor of Information and Communications Technology will, subject to student numbers, study 700041 Statistical Decision Making (UWSC).

All other units are compulsory core units of the course. Choose one of

- 700007.2** Statistics for Business (UWSC)
- 700041.1** Statistical Decision Making (UWSC)

Students must also complete the following seven units:

- 700040.1** Principles of Professional Communication 1 (UWSC)
- 700008.1** Programming Fundamentals (UWSC)
- 700000.1** Information Systems in Context (UWSC)
- 700011.1** Database Design and Development (UWSC)
- 700012.1** Computer Networking (UWSC)
- 700013.1** System Analysis and Design (UWSC)
- 700039.1** Object Oriented Analysis (UWSC)

Students also complete a mandatory unit Tertiary Study Skills, although this does not count for credit towards the Diploma.

## Diploma in Science

### 7003.2

Students should follow the course structure for the course version relevant to the year they commenced. This version applies to students whose commencement year in this course is 2010 or later.

This new course is delivered by UWSCollege as an agent of the University of Western Sydney.

The Diploma in Science is designed to provide prepare students for tertiary study in Science and in doing so address any perceived deficiencies in the students' mathematical and chemistry knowledge and skills. It presents students with first year level Bachelor of Science subjects. The Diploma aims to produce students who are fully prepared for study beyond the first year of the Bachelor of Science degree. The Diploma in Science, completed in a smaller, more supportive learning environment than usually found in first year undergraduate programs, is designed to develop students to have greater ability in self-directed study and have the self esteem that comes from prior achievement in a tertiary environment.

For more information on UWSCollege, please refer to the UWSCollege web site.

### Location

Campus	Attendance	Mode
UWSC - Nirimba Education Precinct	Full Time	Internal

### Admission

The aim of the course is to prepare students for tertiary study in Science. The Diploma will be accredited by the University, as principal, to enable its agent, UWSCollege, to produce students who should be fully prepared for study beyond the first year of a tertiary award.

International Students entering this Diploma are required to meet the following requirements.

1. English Entry Requirements - International students must satisfy the following language requirements:

- IELTS 6.0 with a minimum of 5.0 in all areas OR
- Completion of UWSCollege EAPIII course with a 50% pass OR
- A pass in the Foundation Academic English course OR
- A pass in the UWSCollege English Entrance test at IELTS 6.0 equivalent.

2. Academic Entry Requirements

Vary according to country of origin. However, in general, completion of Year 12 or its equivalent is the minimum entry requirement OR to have passed the UWSCollege Foundation Certificate, offered by UWSCollege, with a Grade Point Average of 5.5 or higher.

Students are also assumed to have completed some study in Mathematics and Science at Senior High School Level or its equivalent.

Local students entering this Diploma are:

1. Required to have completed an English course in the NSW Higher School Certificate; or to have competency in English at IELTS 6.0 with a minimum of 5.0 in all areas (unless a native speaker); or have completed the UWS College English test at IELTS 6.0 equivalent with a minimum of 5.0 in all areas; or to have passed the UWSCollege Foundation English Course.

2. Required to have met other entry requirements such as an ATAR identified prior to the offer of a place, or to have completed the UWSCollege Foundation Studies course, offered by UWSCollege, with a GPA of 5.5 or better.

3. Assumed to have completed some study in Mathematics and Science at Senior High School Level or its equivalent.

### Special Requirements

All students must complete Tertiary Study Skills with UWSCollege prior to completion of the diploma.

### Course Structure

Students must complete the following units:

<b>700043.1</b>	Chemistry (UWSCFS)
<b>700044.1</b>	Mathematics (UWSCFS)
<b>700000.1</b>	Information Systems in Context (UWSC)
<b>700032.1</b>	Biodiversity (UWSC)
<b>700033.1</b>	Biometry (UWSC)
<b>700034.1</b>	Cell Biology (UWSC)
<b>700035.1</b>	Physics 1 (UWSC)
<b>700036.1</b>	Chemistry 1 (UWSC)
<b>700037.1</b>	Chemistry 2 (UWSC)
<b>700042.1</b>	Professional Skills for Science (UWSC)

## Diploma in Science Fast Track

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### 7009.1

This course is delivered by UWSCollege as an agent of the University of Western Sydney.

The Diploma in Science is designed to provide prepare students for tertiary study in Science. It presents students with first year level Bachelor of Science subjects. The Diploma aims to produce students who are fully prepared for study beyond the first year of the Bachelor of Science degree. The Diploma in Science, completed in a smaller, more supportive learning environment than usually found in first year undergraduate programs, is designed to develop students to have greater ability in self-directed study and have the self esteem that comes from prior achievement in a tertiary environment.

For more information on UWSCollege, please refer to the UWSCollege web site.

### Location

Campus	Attendance	Mode
UWSC - Nirimba Education Precinct	Full Time	Internal

### Admission

The aim of the course is to prepare students for tertiary study in Science. The Diploma will be accredited by the University, as principal, to enable its agent, UWSCollege, to produce students who should be fully prepared for study beyond the first year of a tertiary award.

International Students entering this Diploma are required to meet the following requirements.

- English Entry Requirements - International students must satisfy the following language requirements:
  - IELTS 6.0 with a minimum of 5.0 in all areas OR
  - Completion of UWSCollege EAPIII course with a 50% pass OR
  - A pass in the Foundation Academic English course OR

- A pass in the UWSCollege English Entrance test at IELTS 6.0 equivalent.

### 2. Academic Entry Requirements

Vary according to country of origin. However, in general, completion of Year 12 or its equivalent is the minimum entry requirement OR to have passed the UWSCollege Foundation Certificate, offered by UWSCollege, with a Grade Point Average of 6.0 or higher.

Students are also assumed to have completed some study in Mathematics and Science at Senior High School Level or its equivalent.

Local students entering this Diploma are:

1. Required to have completed an English course in the NSW Higher School Certificate; or to have competency in English at IELTS 6.0 with a minimum of 5.0 in all areas (unless a native speaker); or have completed the UWS College English test at IELTS 6.0 equivalent with a minimum of 5.0 in all areas; or to have passed the UWSCollege Foundation English Course.
2. Required to have met other entry requirements such as an ATAR identified prior to the offer of a place, or to have completed the UWSCollege Foundation Studies course, offered by UWSCollege, with a GPA of 6.0 or better.
3. Assumed to have completed some study in Mathematics and Science at Senior High School Level or its equivalent.

### Special Requirements

All students must complete Tertiary Study Skills with UWSCollege prior to completion of the diploma.

### Course Structure

This course consists of eight units of 10 credit points each (equivalent to the first year of study in the Bachelor of Science). The unit Tertiary Study Skills must be completed prior to completion of the diploma.

Students must complete the following units.

<b>700000.1</b>	Information Systems in Context (UWSC)
<b>700032.1</b>	Biodiversity (UWSC)
<b>700033.1</b>	Biometry (UWSC)
<b>700034.1</b>	Cell Biology (UWSC)
<b>700035.1</b>	Physics 1 (UWSC)
<b>700036.1</b>	Chemistry 1 (UWSC)
<b>700037.1</b>	Chemistry 2 (UWSC)
<b>700042.1</b>	Professional Skills for Science (UWSC)

## Diploma in Health Science

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### 7013.1

This course is delivered by UWSCollege as an agent of the University of Western Sydney.

The Diploma in Health Science is designed to provide students with the first year units included in the Bachelor of Health Science course. The Diploma presents students with subjects covering introductory Science, Communication and Health aspects of the Bachelor of Health Science course. Transition to tertiary study is assisted by the inclusion of Foundation level Academic English and Science. The Diploma aims to produce students who are fully prepared for study beyond the first year of the Bachelor of Health Science degree. The Diploma in Health Science,



completed in a smaller, more supportive learning environment than usually found in first year undergraduate programs, is designed to develop students to have greater ability in self-directed study and have the self esteem that comes from prior achievement in a tertiary environment.

For more information on UWSCollege, please refer to the UWSCollege web site.

### Study Mode

One year full-time (three semesters)

### Location

Campus	Attendance	Mode
UWSC - Nirimba Education Precinct	Full Time	Internal

### Admission

The aim of the course is to prepare students for tertiary study in Health Science areas of Health Promotion, Therapeutic Recreation, Health Services Management or PDHPE. The Diploma will be accredited by the University, as principal, to enable its agent, UWS College, to produce students who are fully prepared for study beyond the first year of a tertiary award.

1. English Entry Requirements International students must satisfy one of the following language requirements:

- IELTS 6.0 with a minimum of 5.0 in all areas OR
- Completion of UWS College EAPIII course with a 50% pass OR
- A "B" grade in the Foundation Academic English course OR
- A pass in the UWSCollege English Entrance test at IELTS 6.0 equivalent.

2. Academic Entry Requirements vary according to country of origin. However, in general, completion of Year 12 or its equivalent is the minimum entry requirement OR to have passed the UWS College Foundation Certificate, offered by UWS College, with a Grade Point Average of 5.5 or higher.

Local students entering this Diploma are:

1. Required to have completed an English course in the NSW Higher School Certificate; or to have competency in English at IELTS 6.0 with a minimum of 5.0 in all areas (unless a native speaker); or have completed the UWS College English test at IELTS 6.0 equivalent with a minimum of 5.0 in all areas; or to have gained a "B" grade in the UWSCollege Foundation English Course.

2. Required to have met other entry requirements such as an ATAR identified prior to the offer of a place, or to have completed the UWS College Foundation Studies course, offered by UWS College, with a GPA of 5.5 or better.

### Course Structure

#### PDHPE Stream

Successful completion of the PDHPE Stream will allow students to enter the second year of the Bachelor of Health Science (PDHPE) course at UWS with 80cp advanced standing.

Qualification for this award requires the successful completion of the units listed below.

<b>700056.1</b>	Academic English (UWSCFS)
<b>700059.1</b>	Science for Health Science (UWSCFS)
<b>700060.1</b>	Psychology and Health (UWSC)

<b>700061.1</b>	Introduction to Human Biology (UWSC)
<b>700062.1</b>	Communication in Health (UWSC)
<b>700064.1</b>	Foundations of Research and Evidence-Based Practice (UWSC)
<b>700066.1</b>	Population Health and Society (UWSC)
<b>700067.1</b>	Professional Health Competencies (UWSC)
<b>700072.1</b>	Culture, Diversity and Health (UWSC)
<b>700073.1</b>	Fundamentals of Exercise Science (UWSC)

Students also complete a special requirement unit, Tertiary Study Skills, although this does not count for credit towards the Diploma.

### Health Promotion, Therapeutic Recreation, Health Services Management Stream

Successful completion of the Health Promotion, Therapeutic Recreation, Health Services Management Stream will allow students to enter the second year of one of the following courses at UWS with 80cp advanced standing:

- Bachelor of Health Science (Health Promotion), OR
- Bachelor of Health Science (Health Services Management), OR
- Bachelor of Health Sciences (Therapeutic Recreation)

Qualification for this award requires the successful completion of the units listed below.

<b>700056.1</b>	Academic English (UWSCFS)
<b>700059.1</b>	Science for Health Science (UWSCFS)
<b>700060.1</b>	Psychology and Health (UWSC)
<b>700061.1</b>	Introduction to Human Biology (UWSC)
<b>700062.1</b>	Communication in Health (UWSC)
<b>700064.1</b>	Foundations of Research and Evidence-Based Practice (UWSC)
<b>700065.1</b>	Approaches to Health Promotion (UWSC)
<b>700066.1</b>	Population Health and Society (UWSC)
<b>700067.1</b>	Professional Health Competencies (UWSC)
<b>700072.1</b>	Culture, Diversity and Health (UWSC)

Students also complete a special requirement unit, Tertiary Study Skills, although this does not count for credit towards the Diploma.

### Diploma in Health Science Fast Track

#### 7014.1

This course is delivered by UWSCollege as an agent of the University of Western Sydney.

The Diploma in Health Science (Fast Track) is designed to provide students with the first year units included in the Bachelor of Health Science course. The Diploma presents students with a range of subjects covering introductory Science, Communication and Health aspects of the Bachelor of Health Science course. The Diploma aims to produce students who are fully prepared for study beyond the first year of the Bachelor of Health Science degree. The Diploma in Health Science, completed in a smaller, more supportive learning environment than usually found in first year undergraduate programs, is designed to develop students to have greater ability in self-directed study and

have the self esteem that comes from prior achievement in a tertiary environment.

For more information on UWSCollege, please refer to the UWSCollege web site.

### Study Mode

Eight months (two semesters)

### Location

Campus	Attendance	Mode
UWSC - Nirimba Education Precinct	Full Time	Internal

### Admission

The aim of the course is to prepare students for tertiary study in the Health Science areas of Health Promotion, Therapeutic Recreation, Health Services Management or PDHPE. The Diploma will be accredited by the University, as principal, to enable its agent, UWS College, to produce students who are fully prepared for study beyond the first year of a tertiary award.

1. English Entry Requirements International students must satisfy one of the following language requirements:

- IELTS 6.0 with a minimum of 5.0 in all areas OR
- Completion of UWS College EAPIII course with a 50% pass OR
- A "B" grade in the Foundation Academic English course OR
- A pass in the UWSCollege English Entrance test at IELTS 6.0 equivalent.

2. Academic Entry Requirements vary according to country of origin. However, in general, completion of Year 12 or its equivalent is the minimum entry requirement OR to have passed the UWS College Foundation Certificate, offered by UWS College, with a Grade Point Average of 6.0 or higher.

Local students entering this Diploma are:

1. Required to have completed an English course in the NSW Higher School Certificate; or to have competency in English at IELTS 6.0 with a minimum of 5.0 in all areas (unless a native speaker); or have completed the UWS College English test at IELTS 6.0 equivalent with a minimum of 5.0 in all areas; or to have passed the UWSCollege Foundation English Course.

2. Required to have met other entry requirements such as an ATAR identified prior to the offer of a place, or to have completed the UWS College Foundation Studies course, offered by UWS College, with a GPA of 6.0 or better.

### Course Structure

#### PDHPE Stream

Successful completion of the PDHPE Stream will allow students to enter the second year of the Bachelor of Health Science (PDHPE) course at UWS with 80cp advanced standing.

Qualification for this award requires the successful completion of the units listed below.

<b>700060.1</b>	Psychology and Health (UWSC)
<b>700061.1</b>	Introduction to Human Biology (UWSC)
<b>700062.1</b>	Communication in Health (UWSC)
<b>700064.1</b>	Foundations of Research and Evidence-Based Practice (UWSC)
<b>700066.1</b>	Population Health and Society (UWSC)

<b>700067.1</b>	Professional Health Competencies (UWSC)
<b>700072.1</b>	Culture, Diversity and Health (UWSC)
<b>700073.1</b>	Fundamentals of Exercise Science (UWSC)

Students also complete a special requirement unit, Tertiary Study Skills, although this does not count for credit towards the Diploma.

### Health Promotion, Therapeutic Recreation, Health Services Management Stream

Successful completion of the Health Promotion, Therapeutic Recreation, Health Services Management Stream will allow students to enter the second year of one of the following courses at UWS with 80cp advanced standing.

- Bachelor of Health Science (Health Promotion), OR
- Bachelor of Health Science (Health Services Management), OR
- Bachelor of Health Sciences (Therapeutic Recreation)

Qualification for this award requires the successful completion of the units listed below.

<b>700060.1</b>	Psychology and Health (UWSC)
<b>700061.1</b>	Introduction to Human Biology (UWSC)
<b>700062.1</b>	Communication in Health (UWSC)
<b>700064.1</b>	Foundations of Research and Evidence-Based Practice (UWSC)
<b>700065.1</b>	Approaches to Health Promotion (UWSC)
<b>700066.1</b>	Population Health and Society (UWSC)
<b>700067.1</b>	Professional Health Competencies (UWSC)
<b>700072.1</b>	Culture, Diversity and Health (UWSC)

Students also complete a special requirement unit, Tertiary Study Skills, although this does not count for credit towards the Diploma.

### Diploma in Construction Management

#### 7015.1

This course is delivered by UWSCollege as an agent of the University of Western Sydney.

The Diploma in Construction Management is designed to provide students with the first year units included in the Bachelor of Construction Management course. The Diploma presents students with a range of subjects covering the science, building and management aspects of construction management. Transition to Tertiary study is assisted by the inclusion of Foundation level Mathematics and Physics. The Diploma aims to produce students who are fully prepared for study beyond the first year of the Bachelor of Construction Management degree. The Diploma in Construction Management, completed in a smaller, more supportive learning environment than usually found in first year undergraduate programs, is designed to develop students to have greater ability in self-directed study and have the self esteem that comes from prior achievement in a tertiary environment.

For more information on UWSCollege, please refer to the UWSCollege web site.

**Study Mode**

One year full-time (three semesters)

**Location**

Campus	Attendance	Mode
UWSC - Nirimba Education Precinct	Full Time	Internal

**Admission**

The aim of the course is to prepare students for tertiary study in Construction Management. The Diploma will be accredited by the University, as principal, to enable its agent, UWS College, to produce students who are fully prepared for study beyond the first year of a tertiary award.

1. English Entry Requirements International students must satisfy one of the following language requirements:

- IELTS 6.0 with a minimum of 5.0 in all areas OR
- Completion of UWS College EAPIII course with a 50% pass OR
- A pass in the Foundation Academic English course OR
- A pass in the UWSCollege English Entrance test at IELTS 6.0 equivalent.

2. Academic Entry Requirements vary according to country of origin. However, in general, completion of Year 12 or its equivalent is the minimum entry requirement OR to have passed the UWS College Foundation Certificate, offered by UWS College, with a Grade Point Average of 5.5 or higher.

3. Assumed to have background in Mathematics at Senior High School level and assumed background Science knowledge preferably in Physics.

Local students entering this Diploma are:

1. Required to have completed an English course in the NSW Higher School Certificate; or to have competency in English at IELTS 6.0 with a minimum of 5.0 in all areas (unless a native speaker); or have completed the UWS College English test at IELTS 6.0 equivalent with a minimum of 5.0 in all areas; or to have passed the UWSCollege Foundation English Course.

2. Required to have met other entry requirements such as an ATAR identified prior to the offer of a place, or to have completed the UWS College Foundation Studies course, offered by UWS College, with a GPA of 5.5 or better.

**Special Requirements**

All students must complete Tertiary Study Skills with UWSCollege prior to completion of the Diploma.

**Course Structure**

To be awarded the Diploma in Construction Management, student must pass the following units:

<b>700069.1</b>	Mathematics B (UWSCFS)
<b>700026.1</b>	Physics (UWSCFS)
<b>700020.1</b>	Physics and Materials (UWSC)
<b>700021.1</b>	Engineering and Design Concepts (UWSC)
<b>700038.1</b>	Engineering Design and Construction Practice (UWSC)
<b>700070.1</b>	Building 1 (UWSC)
<b>700071.1</b>	Building 2 (UWSC)
<b>700003.2</b>	Management Dynamics (UWSC)
<b>700004.1</b>	Introduction to Business Law (UWSC)

**700005.1** Accounting Information for Managers (UWSC)

Students also complete a special requirement unit, Tertiary Study Skills, although this does not count for credit towards the Diploma.

**Diploma in Construction Management Fast Track****7016.1**

This course is delivered by UWSCollege as an agent of the University of Western Sydney.

The Diploma in Construction Management (Fast Track) is designed to provide students with the first year units included in the Bachelor of Construction Management course. The Diploma presents students with a range of subjects covering the science, building and management aspects of construction management. The Diploma aims to produce students who are fully prepared for study beyond the first year of the Bachelor of Construction Management degree. The Diploma in Construction Management, completed in a smaller, more supportive learning environment than usually found in first year undergraduate programs, is designed to develop students to have greater ability in self-directed study and have the self esteem that comes from prior achievement in a tertiary environment.

For more information on UWSCollege, please refer to the UWSCollege web site.

**Study Mode**

Eight months (two semesters)

**Location**

Campus	Attendance	Mode
UWSC - Nirimba Education Precinct	Full Time	Internal

**Admission**

The aim of the course is to prepare students for tertiary study in Construction Management. The Diploma will be accredited by the University, as principal, to enable its agent, UWS College, to produce students who are fully prepared for study beyond the first year of a tertiary award.

1. English Entry Requirements International students must satisfy one of the following language requirements:

- IELTS 6.0 with a minimum of 5.0 in all areas OR
- Completion of UWS College EAPIII course with a 50% pass OR
- A pass in the Foundation Academic English course OR
- A pass in the UWSCollege English Entrance test at IELTS 6.0 equivalent.

2. Academic Entry Requirements vary according to country of origin. However, in general, completion of Year 12 or its equivalent is the minimum entry requirement OR to have passed the UWS College Foundation Certificate, offered by UWS College, with a Grade Point Average of 6.0 or higher.

Local students entering this Diploma are:

1. Required to have completed an English course in the NSW Higher School Certificate; or to have competency in

English at IELTS 6.0 with a minimum of 5.0 in all areas (unless a native speaker); or have completed the UWS College English test at IELTS 6.0 equivalent with a minimum of 5.0 in all areas; or to have passed the UWS College Foundation English Course.

2. Required to have met other entry requirements such as an ATAR identified prior to the offer of a place, or to have completed the UWS College Foundation Studies course, offered by UWS College, with a GPA of 6.0 or better.

3. Assumed to have background in Mathematics at Senior High School level or a pass grade in Foundation level Mathematics at UWS College and assumed background Science knowledge preferably in Physics.

### Special Requirements

All students must complete Tertiary Study Skills with UWS College prior to completion of the Diploma.

### Course Structure

To be awarded the Diploma in Construction Management, student must pass the following units:

<b>700020.1</b>	Physics and Materials (UWSC)
<b>700021.1</b>	Engineering and Design Concepts (UWSC)
<b>700038.1</b>	Engineering Design and Construction Practice (UWSC)
<b>700070.1</b>	Building 1 (UWSC)
<b>700071.1</b>	Building 2 (UWSC)
<b>700003.2</b>	Management Dynamics (UWSC)
<b>700004.1</b>	Introduction to Business Law (UWSC)
<b>700005.1</b>	Accounting Information for Managers (UWSC)

Students also complete a special requirement unit, Tertiary Study Skills, although this does not count for credit towards the Diploma.

## Unit Sets

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### Key Program - Science (No Key Program)

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#### KP3000.1

Intended for students who do not wish to specialise in a single key area of study, but who want a versatile and flexible course of study in science, this program includes a core of basic science units including biology, chemistry, mathematics and physics. You can then add units from a range of scientific and other disciplines to suit your interests and career aspirations.

#### Offer

Campus	Mode
Campbelltown Campus	Internal
Hawkesbury Campus	Internal
Parramatta Campus	Internal

#### Unit Set Structure

##### Bachelor of Science (without a Key Program)

Students who do not wish to enrol in a Bachelor of Science Key Program must complete at least 160 credit points from the Bachelor of Science Unit Pool, and complete one of the Majors listed in the UWS Handbook entry for the Bachelor of Science.

##### Full-time - Start Year Intake

###### Year 1

###### Autumn session

Three Level 1 units from the Bachelor of Science Unit Pool  
And one elective

###### Spring session

Three Level 1 units from the Bachelor of Science Unit Pool  
And one elective

###### Year 2

###### Autumn session

Three Level 2 units from the Bachelor of Science Unit Pool  
And one elective

###### Spring session

Three Level 2 units from the Bachelor of Science Unit Pool  
And one elective

###### Year 3

###### Autumn session

Two Level 3 units from the Bachelor of Science Unit Pool  
And one Level 3 elective

And one elective

###### Spring session

Two Level 3 units from the Bachelor of Science Unit Pool  
And one Level 3 elective  
And one elective

##### Full-time - Mid Year Intake

Students who do not wish to enrol in a Bachelor of Science Key Program must complete at least 160 credit points from the Bachelor of Science Unit Pool, and complete one of the Majors listed in the UWS Handbook entry for the Bachelor of Science.

###### Year 1

###### Spring session

Three Level 1 units from the Bachelor of Science Unit Pool  
And one elective

###### Autumn session

Three Level 1 units from the Bachelor of Science Unit Pool  
And one elective

###### Year 2

###### Spring session

Three Level 2 units from the Bachelor of Science Unit Pool  
And one elective

###### Autumn session

Three Level 2 units from the Bachelor of Science Unit Pool  
And one elective

###### Year 3

###### Spring session

Two Level 3 units from the Bachelor of Science Unit Pool  
And one Level 3 elective  
And one elective

###### Autumn session

Two Level 3 units from the Bachelor of Science Unit Pool  
And one Level 3 elective  
And one elective

##### Key Program - Bachelor of Science (Biological Science)/Bachelor of Business and Commerce

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#### KP3001.1

This double degree program equips its graduates with a qualification in science, combined with a good understanding of basic business issues, complemented by a high level of knowledge relevant to a specific business discipline as applied in a global environment. Graduates will have a solid grounding in a core science discipline such as Biological Science, Chemistry or Mathematics; alternatively, students can design their own academic program within the

Bachelor of Science course structure, including a science Major. This qualification in science is combined with one of the following key programs from the Bachelor of Business and Commerce: Applied Economics; Applied Finance; Global Operations and Supply Chain Management; Hospitality Management; Human Resource Development and Organisational Development; Human Resource Management and Industrial Relations; International Business; Management; Marketing; Sport Management. Graduates will be equipped to work as scientists, with a good understanding of business principles and practices. Alternatively, as Business and Commerce graduates they will be well-prepared to work in science-based industries and institutions.

## Offer

Campus	Mode
Campbelltown Campus	Internal
Parramatta Campus	Internal

## Unit Set Structure

For a list of Level 1 and Level 3 Bachelor of Science Unit Pool units, refer to 3640 Bachelor of Science

## Bachelor of Science (Biological Science)/ Bachelor of Business and Commerce (Applied Economics)

Parramatta campus only

### Year 1

#### Autumn session

200336.2	Business Academic Skills
200525.1	Principles of Economics
300224.2	Chemistry 1
300221.1	Biology 1

#### Spring session

200083.1	Marketing Principles
200101.2	Accounting Information for Managers
300225.2	Chemistry 2
300222.1	Biology 2

### Year 2

#### Autumn session

200571.1	Management Dynamics
300300.1	Microbiology 1
300219.2	Biochemistry 1

One Level 1 unit from the Bachelor of Science Unit Pool

#### Spring session

200184.2	Introduction to Business Law
300321.1	Microbiology 2
300220.1	Biochemistry 2

Choose one of

200032.2	Statistics for Business
300700.2	Statistical Decision Making
200263.1	Biometry

### Year 3

#### Autumn session

Two Level 3 Biology units from the Bachelor of Science Unit Pool  
One Level 3 elective  
And one elective

#### Spring session

200549.1	The Australian Macroeconomy
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Two Level 3 Biology units from the Bachelor of Science Unit Pool  
One Level 3 elective

### Year 4

#### Autumn session

200547.1	Macroeconomic Theory
200048.1	Financial Institutions and Markets
200537.2	Economics and Finance Engagement Project

Choose one of

200533.1	Globalisation and Asia
200541.1	Globalisation and Trade
200532.1	Government and the Economy

#### Spring session

200053.2	Economic Modelling
200531.1	Industry Economics and Markets
200546.1	Macroeconomic Issues

Choose one of

200065.1	Political Economy
200075.1	Urban and Regional Economics
200081.2	Managerial Economics

## Bachelor of Science (Biological Science)/ Bachelor of Business and Commerce (Applied Finance)

Parramatta and Campbelltown campus

### Year 1

#### Autumn session

200336.2	Business Academic Skills
200525.1	Principles of Economics

#### Biological Science Units - Parramatta Campus

300224.2	Chemistry 1
300221.1	Biology 1

#### Biological Science Units - Campbelltown Campus

300554.1	Principles of Chemistry
300539.1	Biodiversity

**Spring session**

- 200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers

**Biological Science Units - Parramatta Campus**

- 300225.2** Chemistry 2  
**300222.1** Biology 2

**Biological Science Units - Campbelltown Campus**

- 300550.1** Medicinal Chemistry  
**300543.1** Cell Biology

**Year 2****Autumn session**

- 200571.1** Management Dynamics

One Level 1 unit from the Bachelor of Science Unit Pool

**Biological Science Units - Parramatta Campus**

- 300300.1** Microbiology 1  
**300219.2** Biochemistry 1

**Biological Science Units - Campbelltown Campus**

- 300300.1** Microbiology 1  
**300555.1** Proteins and Genes

**Spring session**

- 200184.2** Introduction to Business Law

**Biological Science Units - Parramatta Campus**

- 300321.1** Microbiology 2  
**300220.1** Biochemistry 2

Choose one of

- 200032.2** Statistics for Business  
**300700.2** Statistical Decision Making  
**200263.1** Biometry

**Biological Science Units - Campbelltown Campus**

- 300321.1** Microbiology 2  
**300548.1** Human Metabolism and Disease

Choose one of

- 200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

**Year 3****Autumn session**

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

**Spring session**

- 200488.2** Corporate Financial Management

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

**Year 4****Autumn session**

- 200549.1** The Australian Macroeconomy  
**200048.1** Financial Institutions and Markets  
**200537.2** Economics and Finance Engagement Project

And one alternate unit

**Spring session**

- 200053.2** Economic Modelling  
**200057.2** Investment Management

And two alternate units

**Alternate units**

- 200078.1** Portfolio Management  
**200055.3** International Finance  
**200077.1** The Superannuation Industry  
**200079.1** Derivatives  
**200518.1** Behavioural Finance  
**200059.1** Financial Economics

**Bachelor of Science (Biological Science)/  
Bachelor of Business and Commerce (Global  
Operations and Supply Chain Management)****Parramatta campus only****Year 1****Autumn session**

- 200336.2** Business Academic Skills  
**200525.1** Principles of Economics  
**300224.2** Chemistry 1  
**300221.1** Biology 1

**Spring session**

- 200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers  
**300225.2** Chemistry 2  
**300222.1** Biology 2

**Year 2****Autumn session**

- 200571.1** Management Dynamics  
**300300.1** Microbiology 1  
**300219.2** Biochemistry 1

One Level 1 unit from the Bachelor of Science Unit Pool

**Spring session**

- 200184.2** Introduction to Business Law

**300321.1** Microbiology 2  
**300220.1** Biochemistry 2

Choose one of

**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making  
**200263.1** Biometry

### Year 3

#### Autumn session

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

#### Spring session

**200677.2** Global Supply Chain Management

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

### Year 4

#### Autumn session

**200528.1** Management of Projects  
**200588.1** Global Operations and Logistics Management  
**200667.1** Global Enterprise Resource Planning  
**200668.1** Technology Management for Competitiveness

#### Spring session

**200167.1** Quality Management  
**200585.1** Organisational Behaviour  
**200565.1** Operations and Logistics in Practice  
**200162.1** Business Report

## Bachelor of Science (Biological Science)/ Bachelor of Business and Commerce (Hospitality Management)

Parramatta campus only

### Year 1

#### Autumn session

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics  
**300224.2** Chemistry 1  
**300221.1** Biology 1

#### Spring session

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers  
**300225.2** Chemistry 2  
**300222.1** Biology 2

### Year 2

#### Autumn session

**200571.1** Management Dynamics  
**300300.1** Microbiology 1  
**300219.2** Biochemistry 1

One Level 1 unit from the Bachelor of Science Unit Pool

#### Spring session

**200184.2** Introduction to Business Law  
**300321.1** Microbiology 2  
**300220.1** Biochemistry 2

Choose one of

**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making  
**200263.1** Biometry

### Year 3

#### Autumn session

**200273.3** Managing Service and Experience

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

#### Spring session

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

### Year 4

#### Autumn session

**200709.1** Managing the Accommodation Experience  
**200710.1** Managing the Food and Beverage Experience  
**200708.1** Hospitality Industry  
**200707.1** Service Industry Studies

#### Spring session

**200584.2** Hospitality Management Operations  
**200742.1** Sport and Hospitality Event Management  
**200148.1** Planning and Design of Hospitality Facilities  
**200561.2** Hospitality Management Applied Project

## Bachelor of Science (Biological Science)/ Bachelor of Business and Commerce (Human Resource Development and Organisational Development)

Parramatta campus only

### Year 1

#### Autumn session

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics



**300224.2** Chemistry 1  
**300221.1** Biology 1

#### Spring session

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers  
**300225.2** Chemistry 2  
**300222.1** Biology 2

#### Year 2

##### Autumn session

**200571.1** Management Dynamics  
**300300.1** Microbiology 1  
**300219.2** Biochemistry 1

One Level 1 unit from the Bachelor of Science Unit Pool

##### Spring session

**200184.2** Introduction to Business Law  
**300321.1** Microbiology 2  
**300220.1** Biochemistry 2

Choose one of

**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making  
**200263.1** Biometry

#### Year 3

##### Autumn session

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

##### Spring session

**200300.1** Managing People at Work

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

#### Year 4

##### Autumn session

**200610.1** Employee Training and Development  
**200243.2** Work Employment and the Labour Market  
**200570.2** Management of Change  
**200175.4** Managing Human Resources and Industrial Relations

##### Spring session

**200376.1** Managing and Developing Careers  
**200157.2** Organisational Learning and Development  
**200159.2** Organisation Analysis and Design  
**200381.3** Human Resources Development Seminar

## Bachelor of Science (Biological Science)/ Bachelor of Business and Commerce (Human Resource Management and Industrial Relations)

**Parramatta and Campbelltown campus**

#### Year 1

##### Autumn session

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics

##### Biological Science Units - Parramatta Campus

**300224.2** Chemistry 1  
**300221.1** Biology 1

##### Biological Science Units - Campbelltown Campus

**300554.1** Principles of Chemistry  
**300539.1** Biodiversity

##### Spring session

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers

##### Biological Science Units - Parramatta Campus

**300225.2** Chemistry 2  
**300222.1** Biology 2

##### Biological Science Units - Campbelltown Campus

**300550.1** Medicinal Chemistry  
**300543.1** Cell Biology

#### Year 2

##### Autumn session

**200571.1** Management Dynamics

One Level 1 unit from the Bachelor of Science Unit Pool

##### Biological Science Units - Parramatta Campus

**300300.1** Microbiology 1  
**300219.2** Biochemistry 1

##### Biological Science Units - Campbelltown Campus

**300300.1** Microbiology 1  
**300555.1** Proteins and Genes

##### Spring session

**200184.2** Introduction to Business Law

##### Biological Science Units - Parramatta Campus

**300321.1** Microbiology 2  
**300220.1** Biochemistry 2

Choose one of:

<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making
<b>200263.1</b>	Biometry

**Biological Science Units - Campbelltown Campus**

<b>300321.1</b>	Microbiology 2
<b>300548.1</b>	Human Metabolism and Disease

Choose one of:

<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

**Year 3****Autumn session**

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

**Spring session**

<b>200300.1</b>	Managing People at Work
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Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

**Year 4****Autumn session**

<b>200614.1</b>	Enterprise Industrial Relations
<b>200621.2</b>	International Human Resource Management
<b>200616.2</b>	Workplace Behaviour
<b>200613.1</b>	Negotiation, Bargaining and Advocacy

**Spring session**

<b>200739.1</b>	Reward and Performance Management
<b>200740.1</b>	Human Resource and Industrial Relations Strategy
<b>200575.2</b>	Processes and Evaluation in Employment Relations

Choose one of

<b>200610.1</b>	Employee Training and Development
<b>200150.1</b>	Managing Diversity
<b>200753.1</b>	Occupational Health and Safety

**Bachelor of Science (Biological Science)/  
Bachelor of Business and Commerce  
(International Business)****Parramatta campus only****Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics
<b>300224.2</b>	Chemistry 1
<b>300221.1</b>	Biology 1

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers
<b>300225.2</b>	Chemistry 2
<b>300222.1</b>	Biology 2

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
<b>300300.1</b>	Microbiology 1
<b>300219.2</b>	Biochemistry 1

One Level 1 unit from the Bachelor of Science Unit Pool

**Spring session**

<b>200184.2</b>	Introduction to Business Law
<b>300321.1</b>	Microbiology 2
<b>300220.1</b>	Biochemistry 2

Choose one of

<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making
<b>200263.1</b>	Biometry

**Year 3****Autumn session**

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

**Spring session**

<b>200591.1</b>	Introduction to International Business
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Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

**Year 4****Autumn session**

<b>200541.1</b>	Globalisation and Trade
<b>200094.1</b>	International Marketing
<b>200626.1</b>	International Business Strategy
<b>200595.2</b>	International Business Finance

**Spring session**

<b>200590.1</b>	International Business Project
<b>200374.2</b>	International Marketing Research
<b>200589.1</b>	Export Strategy and Applications

Choose one of

<b>200098.1</b>	The Markets of Asia
<b>200099.2</b>	The Markets of Europe

## Bachelor of Science (Biological Science)/ Bachelor of Business and Commerce (Management)

Parramatta and Campbelltown campus

### Year 1

#### Autumn session

- 200336.2** Business Academic Skills  
**200525.1** Principles of Economics

#### Biological Science Units - Parramatta Campus

- 300224.2** Chemistry 1  
**300221.1** Biology 1

#### Biological Science Units - Campbelltown Campus

- 300554.1** Principles of Chemistry  
**300539.1** Biodiversity

#### Spring session

- 200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers

#### Biological Science Units - Parramatta Campus

- 300225.2** Chemistry 2  
**300222.1** Biology 2

#### Biological Science Units - Campbelltown Campus

- 300550.1** Medicinal Chemistry  
**300543.1** Cell Biology

### Year 2

#### Autumn session

- 200571.1** Management Dynamics

One Level 1 unit from the Bachelor of Science Unit Pool

#### Biological Science Units - Parramatta Campus

- 300300.1** Microbiology 1  
**300219.2** Biochemistry 1

#### Biological Science Units - Campbelltown Campus

- 300300.1** Microbiology 1  
**300555.1** Proteins and Genes

#### Spring session

- 200184.2** Introduction to Business Law

#### Biological Science Units - Parramatta Campus

- 300321.1** Microbiology 2  
**300220.1** Biochemistry 2

Choose one of

- 200032.2** Statistics for Business

- 300700.2** Statistical Decision Making  
**200263.1** Biometry

#### Biological Science Units - Campbelltown Campus

- 300321.1** Microbiology 2  
**300548.1** Human Metabolism and Disease

Choose one of

- 200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

### Year 3

#### Autumn session

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

#### Spring session

- 200585.1** Organisational Behaviour

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

### Year 4

#### Autumn session

- 200158.2** Business, Society and Policy  
**200586.1** Cross Cultural Management  
**200570.2** Management of Change  
**200752.1** Power, Politics and Knowledge

#### Spring session

- 200588.1** Global Operations and Logistics Management  
**200159.2** Organisation Analysis and Design  
**200568.1** Contemporary Management Issues  
**200587.1** Strategic Management

## Bachelor of Science (Biological Science)/ Bachelor of Business and Commerce (Marketing)

Parramatta and Campbelltown campus

### Year 1

#### Autumn session

- 200336.2** Business Academic Skills  
**200525.1** Principles of Economics

#### Biological Science Units - Parramatta Campus

- 300224.2** Chemistry 1  
**300221.1** Biology 1

#### Biological Science Units - Campbelltown Campus

- 300554.1** Principles of Chemistry

**300539.1** Biodiversity

**Spring session**

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers

**Biological Science Units - Parramatta Campus**

**300225.2** Chemistry 2  
**300222.1** Biology 2

**Biological Science Units - Campbelltown Campus**

**300550.1** Medicinal Chemistry  
**300543.1** Cell Biology

**Year 2**

**Autumn session**

**200571.1** Management Dynamics

One Level 1 unit from the Bachelor of Science Unit Pool

**Biological Science Units - Parramatta Campus**

**300300.1** Microbiology 1  
**300219.2** Biochemistry 1

**Biological Science Units - Campbelltown Campus**

**300300.1** Microbiology 1  
**300555.1** Proteins and Genes

**Spring session**

**200184.2** Introduction to Business Law

**Biological Science Units - Parramatta Campus**

**300321.1** Microbiology 2  
**300220.1** Biochemistry 2

Choose one of

**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making  
**200263.1** Biometry

**Biological Science Units - Campbelltown Campus**

**300321.1** Microbiology 2  
**300548.1** Human Metabolism and Disease

Choose one of

**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

**Year 3**

**Autumn session**

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

**Spring session**

**200084.1** Consumer Behaviour

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

**Year 4**

**Autumn session**

**200086.2** Marketing Communications  
**200592.1** Marketing Research  
**200087.1** Strategic Marketing Management  
**200094.1** International Marketing

**Spring session**

**200090.2** Marketing of Services  
**200088.1** Brand and Product Management  
**200091.2** Business to Business Marketing  
**200096.2** Marketing Planning Project

**Bachelor of Science (Biological Science)/  
 Bachelor of Business and Commerce (Sport  
 Management)**

**Campbelltown campus only**

**Year 1**

**Autumn session**

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics  
**300554.1** Principles of Chemistry  
**300539.1** Biodiversity

**Spring session**

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers  
**300550.1** Medicinal Chemistry  
**300543.1** Cell Biology

**Year 2**

**Autumn session**

**200571.1** Management Dynamics  
**300300.1** Microbiology 1  
**300555.1** Proteins and Genes

One Level 1 unit from the Bachelor of Science Unit Pool

**Spring session**

**200184.2** Introduction to Business Law  
**300321.1** Microbiology 2  
**300548.1** Human Metabolism and Disease

Choose one of:

**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

**Year 3****Autumn session****200705.1** The World of Sport Management

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

**Spring session**

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

**Year 4****Autumn session****200665.1** Strategic Communication in Sport**200273.3** Managing Service and Experience**200754.1** Sports Management - Planning and Development**200707.1** Service Industry Studies**Spring session****200664.1** Sport Management Internship**200742.1** Sport and Hospitality Event Management**200751.1** Sport Management Applied Project**400335.2** Contemporary Issues in Sport Management**Key Program - Bachelor of Science (Chemistry)/Bachelor of Business and Commerce****KP3002.1**

This double degree program equips its graduates with a qualification in science, combined with a good understanding of basic business issues, complemented by a high level of knowledge relevant to a specific business discipline as applied in a global environment. Graduates will have a solid grounding in a core science discipline such as Biological Science, Chemistry or Mathematics; alternatively, students can design their own academic program within the Bachelor of Science course structure, including a science Major. This qualification in science is combined with one of the following key programs from the Bachelor of Business and Commerce: Applied Economics; Applied Finance; Global Operations and Supply Chain Management; Hospitality Management; Human Resource Development and Organisational Development; Human Resource Management and Industrial Relations; International Business; Management; Marketing; Sport Management. Graduates will be equipped to work as scientists, with a good understanding of business principles and practices. Alternatively, as Business and Commerce graduates they will be well-prepared to work in science-based industries and institutions.

**Offer**

Campus	Mode
Campbelltown Campus	Internal
Parramatta Campus	Internal

**Unit Set Structure**

For a list of Level 1 Bachelor of Science Unit Pool units, refer to:

**3640 Bachelor of Science****Bachelor of Science (Chemistry)/ Bachelor of Business and Commerce (Applied Economics)****Parramatta campus only****Year 1****Autumn session****200336.2** Business Academic Skills**200525.1** Principles of Economics**300224.2** Chemistry 1

Choose one of

**200191.3** Fundamentals of Mathematics**300672.1** Mathematics 1A**Spring session****200083.1** Marketing Principles**200101.2** Accounting Information for Managers**300225.2** Chemistry 2

Choose one of

**200263.1** Biometry**200032.2** Statistics for Business**300700.2** Statistical Decision Making**Year 2****Autumn session****200571.1** Management Dynamics**300558.1** Physics 1**300297.1** Analytical Chemistry 2**300301.1** Organic Chemistry 2**Spring session****200184.2** Introduction to Business Law**300230.1** Inorganic Chemistry 2**300236.1** Physical Chemistry 2

One Level 1 unit from the Bachelor of Science Unit Pool

**Year 3****Autumn session****300298.1** Analytical Chemistry 3**300235.1** Organic Chemistry 3

One Level 3 elective

And one elective

#### Spring session

<b>200549.1</b>	The Australian Macroeconomy
<b>300231.1</b>	Inorganic Chemistry 3
<b>300303.1</b>	Physical Chemistry 3
<b>300645.1</b>	Science Research Project 2

#### Year 4

##### Autumn session

<b>200547.1</b>	Macroeconomic Theory
<b>200048.1</b>	Financial Institutions and Markets
<b>200537.2</b>	Economics and Finance Engagement Project

Choose one of

<b>200533.1</b>	Globalisation and Asia
<b>200541.1</b>	Globalisation and Trade
<b>200532.1</b>	Government and the Economy

##### Spring session

<b>200053.2</b>	Economic Modelling
<b>200531.1</b>	Industry Economics and Markets
<b>200546.1</b>	Macroeconomic Issues

Choose one of

<b>200065.1</b>	Political Economy
<b>200075.1</b>	Urban and Regional Economics
<b>200081.2</b>	Managerial Economics

### Bachelor of Science (Chemistry)/ Bachelor of Business and Commerce (Applied Finance)

#### Parramatta and Campbelltown campus

##### Year 1

##### Autumn session

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics

Choose one of

<b>200191.3</b>	Fundamentals of Mathematics
<b>300672.1</b>	Mathematics 1A

##### Chemistry unit - Parramatta campus

<b>300224.2</b>	Chemistry 1
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##### Chemistry unit - Campbelltown campus

<b>300554.1</b>	Principles of Chemistry
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##### Spring session

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers

##### Chemistry units - Parramatta campus

<b>300225.2</b>	Chemistry 2
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Choose one of

<b>200263.1</b>	Biometry
<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

##### Chemistry units - Campbelltown campus

<b>300550.1</b>	Medicinal Chemistry
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Choose one of

<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

##### Year 2

##### Autumn session

<b>200571.1</b>	Management Dynamics
<b>300558.1</b>	Physics 1

##### Chemistry units - Parramatta campus

<b>300297.1</b>	Analytical Chemistry 2
<b>300301.1</b>	Organic Chemistry 2

##### Chemistry units - Campbelltown campus

<b>300540.1</b>	Biomolecular Dynamics
<b>300545.1</b>	Coordination Chemistry

##### Spring session

<b>200184.2</b>	Introduction to Business Law
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One Level 1 unit from the Bachelor of Science Unit Pool

##### Chemistry units - Parramatta campus

<b>300230.1</b>	Inorganic Chemistry 2
<b>300236.1</b>	Physical Chemistry 2

##### Chemistry units - Campbelltown campus

<b>300297.1</b>	Analytical Chemistry 2
<b>300553.1</b>	Molecules of Life: Synthesis and Reactivity

##### Year 3

##### Autumn session

One Level 3 elective

And one elective

##### Chemistry units - Parramatta campus

<b>300298.1</b>	Analytical Chemistry 3
<b>300235.1</b>	Organic Chemistry 3

##### Chemistry units - Campbelltown campus

<b>300537.1</b>	Advanced Chemical Analysis
<b>300546.1</b>	Drug Design and Synthesis

##### Spring session

<b>200488.2</b>	Corporate Financial Management
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**Chemistry units - Parramatta campus**

<b>300231.1</b>	Inorganic Chemistry 3
<b>300303.1</b>	Physical Chemistry 3
<b>300645.1</b>	Science Research Project 2

**Chemistry units - Campbelltown campus**

<b>300538.1</b>	Advanced Inorganic Chemistry
<b>300475.1</b>	Molecular Pharmacokinetics
<b>300542.1</b>	Biomolecular Science Project

**Year 4****Autumn session**

<b>200549.1</b>	The Australian Macroeconomy
<b>200048.1</b>	Financial Institutions and Markets
<b>200537.2</b>	Economics and Finance Engagement Project

And one alternate unit

**Spring session**

<b>200053.2</b>	Economic Modelling
<b>200057.2</b>	Investment Management

And two alternate units

**Alternate units:**

<b>200078.1</b>	Portfolio Management
<b>200055.3</b>	International Finance
<b>200077.1</b>	The Superannuation Industry
<b>200079.1</b>	Derivatives
<b>200518.1</b>	Behavioural Finance
<b>200059.1</b>	Financial Economics

**Bachelor of Science (Chemistry)/ Bachelor of Business and Commerce (Global Operations and Supply Chain Management)****Parramatta campus only****Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics
<b>300224.2</b>	Chemistry 1

Choose one of

<b>200191.3</b>	Fundamentals of Mathematics
<b>300672.1</b>	Mathematics 1A

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers
<b>300225.2</b>	Chemistry 2

Choose one of

<b>200263.1</b>	Biometry
<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
<b>300558.1</b>	Physics 1
<b>300297.1</b>	Analytical Chemistry 2
<b>300301.1</b>	Organic Chemistry 2

**Spring session**

<b>200184.2</b>	Introduction to Business Law
<b>300230.1</b>	Inorganic Chemistry 2
<b>300236.1</b>	Physical Chemistry 2

One Level 1 unit from the Bachelor of Science Unit Pool

**Year 3****Autumn session**

<b>300298.1</b>	Analytical Chemistry 3
<b>300235.1</b>	Organic Chemistry 3

One Level 3 elective

And one elective

**Spring session**

<b>200677.2</b>	Global Supply Chain Management
<b>300231.1</b>	Inorganic Chemistry 3
<b>300303.1</b>	Physical Chemistry 3
<b>300645.1</b>	Science Research Project 2

**Year 4****Autumn session**

<b>200528.1</b>	Management of Projects
<b>200588.1</b>	Global Operations and Logistics Management
<b>200667.1</b>	Global Enterprise Resource Planning
<b>200668.1</b>	Technology Management for Competitiveness

**Spring session**

<b>200167.1</b>	Quality Management
<b>200585.1</b>	Organisational Behaviour
<b>200565.1</b>	Operations and Logistics in Practice
<b>200162.1</b>	Business Report

**Bachelor of Science (Chemistry)/ Bachelor of Business and Commerce (Hospitality Management)****Parramatta campus only****Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics
<b>300224.2</b>	Chemistry 1

Choose one of

**200191.3** Fundamentals of Mathematics  
**300672.1** Mathematics 1A

**Spring session**

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers  
**300225.2** Chemistry 2

Choose one of

**200263.1** Biometry  
**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

**Year 2****Autumn session**

**200571.1** Management Dynamics  
**300558.1** Physics 1  
**300297.1** Analytical Chemistry 2  
**300301.1** Organic Chemistry 2

**Spring session**

**200184.2** Introduction to Business Law  
**300230.1** Inorganic Chemistry 2  
**300236.1** Physical Chemistry 2

One Level 1 unit from the Bachelor of Science Unit Pool

**Year 3****Autumn session**

**300298.1** Analytical Chemistry 3  
**300235.1** Organic Chemistry 3  
**200273.3** Managing Service and Experience

One Level 3 elective

**Spring session**

**300231.1** Inorganic Chemistry 3  
**300303.1** Physical Chemistry 3  
**300645.1** Science Research Project 2

And one elective

**Year 4****Autumn session**

**200709.1** Managing the Accommodation Experience  
**200710.1** Managing the Food and Beverage Experience  
**200708.1** Hospitality Industry  
**200707.1** Service Industry Studies

**Spring session**

**200584.2** Hospitality Management Operations  
**200742.1** Sport and Hospitality Event Management  
**200148.1** Planning and Design of Hospitality Facilities  
**200561.2** Hospitality Management Applied Project

## **Bachelor of Science (Chemistry)/ Bachelor of Business and Commerce (Human Resource Development and Organisational Development)**

**Parramatta campus only**

**Year 1****Autumn session**

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics  
**300224.2** Chemistry 1

Choose one of

**200191.3** Fundamentals of Mathematics  
**300672.1** Mathematics 1A

**Spring session**

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers  
**300225.2** Chemistry 2

Choose one of

**200263.1** Biometry  
**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

**Year 2****Autumn session**

**200571.1** Management Dynamics  
**300558.1** Physics 1  
**300297.1** Analytical Chemistry 2  
**300301.1** Organic Chemistry 2

**Spring session**

**200184.2** Introduction to Business Law  
**300230.1** Inorganic Chemistry 2  
**300236.1** Physical Chemistry 2

One Level 1 unit from the Bachelor of Science Unit Pool

**Year 3****Autumn session**

**300298.1** Analytical Chemistry 3  
**300235.1** Organic Chemistry 3

One Level 3 elective

And one elective

**Spring session**

**200300.1** Managing People at Work  
**300231.1** Inorganic Chemistry 3  
**300303.1** Physical Chemistry 3  
**300645.1** Science Research Project 2



**Year 4****Autumn session**

<b>200610.1</b>	Employee Training and Development
<b>200243.2</b>	Work Employment and the Labour Market
<b>200570.2</b>	Management of Change
<b>200175.4</b>	Managing Human Resources and Industrial Relations

**Spring session**

<b>200376.1</b>	Managing and Developing Careers
<b>200157.2</b>	Organisational Learning and Development
<b>200159.2</b>	Organisation Analysis and Design
<b>200381.3</b>	Human Resources Development Seminar

**Bachelor of Science (Chemistry)/ Bachelor of Business and Commerce (Human Resource Management and Industrial Relations)****Parramatta and Campbelltown campus****Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics

Choose one of

<b>200191.3</b>	Fundamentals of Mathematics
<b>300672.1</b>	Mathematics 1A

**Chemistry unit - Parramatta campus**

<b>300224.2</b>	Chemistry 1
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**Chemistry unit - Campbelltown campus**

<b>300554.1</b>	Principles of Chemistry
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**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers

**Chemistry units - Parramatta campus**

<b>300225.2</b>	Chemistry 2
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Choose one of

<b>200263.1</b>	Biometry
<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

**Chemistry units - Campbelltown campus**

<b>300550.1</b>	Medicinal Chemistry
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Choose one of

<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
<b>300558.1</b>	Physics 1

**Chemistry unit - Parramatta campus**

<b>300297.1</b>	Analytical Chemistry 2
<b>300301.1</b>	Organic Chemistry 2

**Chemistry unit - Campbelltown campus**

<b>300545.1</b>	Coordination Chemistry
<b>300540.1</b>	Biomolecular Dynamics

**Spring session**

<b>200184.2</b>	Introduction to Business Law
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One Level 1 unit from the Bachelor of Science Unit Pool

**Chemistry units - Parramatta campus**

<b>300230.1</b>	Inorganic Chemistry 2
<b>300236.1</b>	Physical Chemistry 2

**Chemistry units - Campbelltown campus**

<b>300297.1</b>	Analytical Chemistry 2
<b>300553.1</b>	Molecules of Life: Synthesis and Reactivity

**Year 3****Autumn session**

One Level 3 elective  
And one elective

**Chemistry units - Parramatta campus**

<b>300298.1</b>	Analytical Chemistry 3
<b>300235.1</b>	Organic Chemistry 3

**Chemistry units - Campbelltown campus**

<b>300537.1</b>	Advanced Chemical Analysis
<b>300546.1</b>	Drug Design and Synthesis

**Spring session**

<b>200300.1</b>	Managing People at Work
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**Chemistry units - Parramatta campus**

<b>300231.1</b>	Inorganic Chemistry 3
<b>300303.1</b>	Physical Chemistry 3
<b>300645.1</b>	Science Research Project 2

**Chemistry units - Campbelltown campus**

<b>300538.1</b>	Advanced Inorganic Chemistry
<b>300475.1</b>	Molecular Pharmacokinetics
<b>300542.1</b>	Biomolecular Science Project

**Year 4****Autumn session**

<b>200614.1</b>	Enterprise Industrial Relations
<b>200621.2</b>	International Human Resource Management
<b>200616.2</b>	Workplace Behaviour
<b>200613.1</b>	Negotiation, Bargaining and Advocacy

**Spring session**

<b>200739.1</b>	Reward and Performance Management
<b>200740.1</b>	Human Resource and Industrial Relations Strategy
<b>200575.2</b>	Processes and Evaluation in Employment Relations

Choose one of

<b>200610.1</b>	Employee Training and Development
<b>200150.1</b>	Managing Diversity
<b>200753.1</b>	Occupational Health and Safety

**Bachelor of Science (Chemistry)/ Bachelor of Business and Commerce (International Business)****Parramatta campus only****Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics
<b>300224.2</b>	Chemistry 1

Choose one of

<b>200191.3</b>	Fundamentals of Mathematics
<b>300672.1</b>	Mathematics 1A

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers
<b>300225.2</b>	Chemistry 2

Choose one of

<b>200263.1</b>	Biometry
<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
<b>300558.1</b>	Physics 1
<b>300297.1</b>	Analytical Chemistry 2
<b>300301.1</b>	Organic Chemistry 2

**Spring session**

<b>200184.2</b>	Introduction to Business Law
<b>300230.1</b>	Inorganic Chemistry 2
<b>300236.1</b>	Physical Chemistry 2

One Level 1 unit from the Bachelor of Science Unit Pool

**Year 3****Autumn session**

<b>300298.1</b>	Analytical Chemistry 3
<b>300235.1</b>	Organic Chemistry 3

One Level 3 elective

And one elective

**Spring session**

<b>200591.1</b>	Introduction to International Business
<b>300231.1</b>	Inorganic Chemistry 3
<b>300303.1</b>	Physical Chemistry 3
<b>300645.1</b>	Science Research Project 2

**Year 4****Autumn session**

<b>200541.1</b>	Globalisation and Trade
<b>200094.1</b>	International Marketing
<b>200626.1</b>	International Business Strategy
<b>200595.2</b>	International Business Finance

**Spring session**

<b>200590.1</b>	International Business Project
<b>200374.2</b>	International Marketing Research
<b>200589.1</b>	Export Strategy and Applications

Choose one of

<b>200098.1</b>	The Markets of Asia
<b>200099.2</b>	The Markets of Europe

**Bachelor of Science (Chemistry)/ Bachelor of Business and Commerce (Management)****Parramatta and Campbelltown campus****Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics

Choose one of

<b>200191.3</b>	Fundamentals of Mathematics
<b>300672.1</b>	Mathematics 1A

**Chemistry unit - Parramatta campus**

<b>300224.2</b>	Chemistry 1
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**Chemistry unit - Campbelltown campus**

<b>300554.1</b>	Principles of Chemistry
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**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers

**Chemistry units - Parramatta campus****300225.2** Chemistry 2

Choose one of

**200263.1** Biometry  
**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

**Chemistry units - Campbelltown campus****300550.1** Medicinal Chemistry

Choose one of

**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

**Year 2****Autumn session**

**200571.1** Management Dynamics  
**300558.1** Physics 1

**Chemistry unit - Parramatta campus**

**300297.1** Analytical Chemistry 2  
**300301.1** Organic Chemistry 2

**Chemistry unit - Campbelltown campus**

**300540.1** Biomolecular Dynamics  
**300545.1** Coordination Chemistry

**Spring session****200184.2** Introduction to Business Law

One Level 1 unit from the Bachelor of Science Unit Pool

**Chemistry units - Parramatta campus**

**300230.1** Inorganic Chemistry 2  
**300236.1** Physical Chemistry 2

**Chemistry units - Campbelltown campus**

**300297.1** Analytical Chemistry 2  
**300553.1** Molecules of Life: Synthesis and Reactivity

**Year 3****Autumn session**

One Level 3 elective  
 And one elective

**Chemistry units - Parramatta campus**

**300298.1** Analytical Chemistry 3  
**300235.1** Organic Chemistry 3

**Chemistry units - Campbelltown campus**

**300537.1** Advanced Chemical Analysis  
**300546.1** Drug Design and Synthesis

**Spring session****200585.1** Organisational Behaviour**Chemistry units - Parramatta campus**

**300231.1** Inorganic Chemistry 3  
**300303.1** Physical Chemistry 3  
**300645.1** Science Research Project 2

**Chemistry units - Campbelltown campus**

**300538.1** Advanced Inorganic Chemistry  
**300475.1** Molecular Pharmacokinetics  
**300542.1** Biomolecular Science Project

**Year 4****Autumn session**

**200158.2** Business, Society and Policy  
**200586.1** Cross Cultural Management  
**200570.2** Management of Change  
**200752.1** Power, Politics and Knowledge

**Spring session**

**200588.1** Global Operations and Logistics Management  
**200159.2** Organisation Analysis and Design  
**200568.1** Contemporary Management Issues  
**200587.1** Strategic Management

**Bachelor of Science (Chemistry)/ Bachelor of Business and Commerce (Marketing)****Parramatta and Campbelltown campus****Year 1****Autumn session**

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics

Choose one of

**200191.3** Fundamentals of Mathematics  
**300672.1** Mathematics 1A

**Chemistry unit - Parramatta campus****300224.2** Chemistry 1**Chemistry unit - Campbelltown campus****300554.1** Principles of Chemistry**Spring session**

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers

**Chemistry units - Parramatta campus****300225.2** Chemistry 2

Choose one of

- 200263.1** Biometry  
**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

#### Chemistry units - Campbelltown campus

- 300550.1** Medicinal Chemistry

Choose one of:

- 200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

#### Year 2

##### Autumn session

- 200571.1** Management Dynamics  
**300558.1** Physics 1

#### Chemistry unit - Parramatta campus

- 300297.1** Analytical Chemistry 2  
**300301.1** Organic Chemistry 2

#### Chemistry unit - Campbelltown campus

- 300540.1** Biomolecular Dynamics  
**300545.1** Coordination Chemistry

#### Spring session

- 200184.2** Introduction to Business Law

One Level 1 unit from the Bachelor of Science Unit Pool

#### Chemistry units - Parramatta campus

- 300230.1** Inorganic Chemistry 2  
**300236.1** Physical Chemistry 2

#### Chemistry units - Campbelltown campus

- 300297.1** Analytical Chemistry 2  
**300553.1** Molecules of Life: Synthesis and Reactivity

#### Year 3

##### Autumn session

One Level 3 elective  
 And one elective

#### Chemistry units - Parramatta campus

- 300298.1** Analytical Chemistry 3  
**300235.1** Organic Chemistry 3

#### Chemistry units - Campbelltown campus

- 300537.1** Advanced Chemical Analysis  
**300546.1** Drug Design and Synthesis

#### Spring session

- 200084.1** Consumer Behaviour

#### Chemistry units - Parramatta campus

- 300231.1** Inorganic Chemistry 3  
**300303.1** Physical Chemistry 3  
**300645.1** Science Research Project 2

#### Chemistry units - Campbelltown campus

- 300538.1** Advanced Inorganic Chemistry  
**300475.1** Molecular Pharmacokinetics  
**300542.1** Biomolecular Science Project

#### Year 4

##### Autumn session

- 200086.2** Marketing Communications  
**200592.1** Marketing Research  
**200087.1** Strategic Marketing Management  
**200094.1** International Marketing

##### Spring session

- 200090.2** Marketing of Services  
**200088.1** Brand and Product Management  
**200091.2** Business to Business Marketing  
**200096.2** Marketing Planning Project

### Bachelor of Science (Chemistry)/ Bachelor of Business and Commerce (Sport Management)

#### Campelltown campus only

#### Year 1

##### Autumn session

- 200336.2** Business Academic Skills  
**200525.1** Principles of Economics  
**300554.1** Principles of Chemistry

Choose one of:

- 200191.3** Fundamentals of Mathematics  
**300672.1** Mathematics 1A

##### Spring session

- 200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers  
**300550.1** Medicinal Chemistry

Choose one of:

- 200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

#### Year 2

##### Autumn session

- 200571.1** Management Dynamics  
**300558.1** Physics 1  
**300540.1** Biomolecular Dynamics  
**300545.1** Coordination Chemistry

##### Spring session

- 200184.2 Introduction to Business Law  
 300297.1 Analytical Chemistry 2  
 300553.1 Molecules of Life: Synthesis and Reactivity

One Level 1 unit from the Bachelor of Science Unit Pool

### Year 3

#### Autumn session

- 200705.1 The World of Sport Management  
 300537.1 Advanced Chemical Analysis  
 300546.1 Drug Design and Synthesis

One Level 3 elective

#### Spring session

- 300538.1 Advanced Inorganic Chemistry  
 300475.1 Molecular Pharmacokinetics  
 300542.1 Biomolecular Science Project

And one elective

### Year 4

#### Autumn session

- 200665.1 Strategic Communication in Sport  
 200273.3 Managing Service and Experience  
 200754.1 Sports Management - Planning and Development  
 200707.1 Service Industry Studies

#### Spring session

- 200664.1 Sport Management Internship  
 200742.1 Sport and Hospitality Event Management  
 200751.1 Sport Management Applied Project  
 400335.2 Contemporary Issues in Sport Management

## Key Program - Bachelor of Science (Mathematical Science)/Bachelor of Business and Commerce

### KP3003.1

This double degree program equips its graduates with a qualification in science, combined with a good understanding of basic business issues, complemented by a high level of knowledge relevant to a specific business discipline as applied in a global environment. Graduates will have a solid grounding in a core science discipline such as Biological Science, Chemistry or Mathematics; alternatively, students can design their own academic program within the Bachelor of Science course structure, including a science Major. This qualification in science is combined with one of the following key programs from the Bachelor of Business and Commerce: Applied Economics; Applied Finance; Global Operations and Supply Chain Management; Hospitality Management; Human Resource Development and Organisational Development; Human Resource Management and Industrial Relations; International Business; Management; Marketing; Sport Management. Graduates will be equipped to work as scientists, with a good understanding of business principles and practices.

Alternatively, as Business and Commerce graduates they will be well-prepared to work in science-based industries and institutions.

### Offer

Campus	Mode
Campbelltown Campus	Internal
Parramatta Campus	Internal

### Unit Set Structure

For a list of Level 1 Bachelor of Science Unit Pool units, refer to

#### 3640 Bachelor of Science

### Bachelor of Science (Mathematical Science)/Bachelor of Business and Commerce (Applied Economics)

#### Parramatta campus only

Units may be offered in different semesters at different campuses.

#### Year 1

- 200336.2 Business Academic Skills  
 200525.1 Principles of Economics  
 200083.1 Marketing Principles  
 200101.2 Accounting Information for Managers  
 300672.1 Mathematics 1A  
 300673.1 Mathematics 1B  
 200025.1 Discrete Mathematics

Choose one of:

- 300700.2 Statistical Decision Making  
 200263.1 Biometry

#### Year 2

- 200571.1 Management Dynamics  
 200184.2 Introduction to Business Law  
 300580.1 Programming Fundamentals  
 200028.2 Advanced Calculus  
 200027.1 Linear Algebra

And one Level 1 unit from the Bachelor of Science Unit Pool

Choose one of

- 200042.2 Introduction to Operations Research  
 300606.1 Foundations of Statistical Modelling and Decision Making

Choose one of

- 200033.2 Applied Statistics  
 200030.1 Differential Equations  
 300606.1 Foundations of Statistical Modelling and Decision Making  
 200042.2 Introduction to Operations Research  
 200029.1 Numerical Analysis

#### Year 3

- 200549.1 The Australian Macroeconomy  
 200045.2 Quantitative Project

Choose two of

- 200033.2 Applied Statistics
- 200030.1 Differential Equations
- 300606.1 Foundations of Statistical Modelling and Decision Making
- 200042.2 Introduction to Operations Research
- 200029.1 Numerical Analysis

Choose four of

- 200193.1 Abstract Algebra
- 200023.1 Analysis
- 200036.2 Data Mining and Visualisation
- 200024.1 Mathematical Finance
- 200022.1 Mathematical Modelling
- 300670.1 Optimisation Techniques
- 300671.1 Principles and Practice of Decision Making
- 200040.1 Probability & Stochastic Processes
- 200037.1 Regression Analysis & Experimental Design
- 200044.1 Simulation Techniques
- 200039.1 Surveys and Multivariate Analysis
- 200038.1 Time Series and Forecasting

#### Year 4

##### Autumn session

- 200547.1 Macroeconomic Theory
- 200048.1 Financial Institutions and Markets
- 200537.2 Economics and Finance Engagement Project

Choose one of

- 200533.1 Globalisation and Asia
- 200541.1 Globalisation and Trade
- 200532.1 Government and the Economy

##### Spring session

- 200053.2 Economic Modelling
- 200531.1 Industry Economics and Markets
- 200546.1 Macroeconomic Issues

Choose one of

- 200065.1 Political Economy
- 200075.1 Urban and Regional Economics
- 200081.2 Managerial Economics

### Bachelor of Science (Mathematical Science)/ Bachelor of Business and Commerce (Applied Finance)

#### Parramatta and Campbelltown campus

Units may be offered in different semesters at different campuses.

#### Year 1

- 200336.2 Business Academic Skills
- 200525.1 Principles of Economics
- 200083.1 Marketing Principles
- 200101.2 Accounting Information for Managers
- 300672.1 Mathematics 1A
- 300673.1 Mathematics 1B
- 200025.1 Discrete Mathematics

Choose one of

- 300700.2 Statistical Decision Making
- 200263.1 Biometry

#### Year 2

- 200571.1 Management Dynamics
- 200184.2 Introduction to Business Law
- 300580.1 Programming Fundamentals
- 200028.2 Advanced Calculus
- 200027.1 Linear Algebra

And one Level 1 unit from the Bachelor of Science Unit Pool

Choose one of

- 200042.2 Introduction to Operations Research
- 300606.1 Foundations of Statistical Modelling and Decision Making

Choose one of

- 200033.2 Applied Statistics
- 200030.1 Differential Equations
- 300606.1 Foundations of Statistical Modelling and Decision Making
- 200042.2 Introduction to Operations Research
- 200029.1 Numerical Analysis

#### Year 3

- 200488.2 Corporate Financial Management
- 200045.2 Quantitative Project

Choose two of

- 200033.2 Applied Statistics
- 200030.1 Differential Equations
- 300606.1 Foundations of Statistical Modelling and Decision Making
- 200042.2 Introduction to Operations Research
- 200029.1 Numerical Analysis

Choose four of

- 200193.1 Abstract Algebra
- 200023.1 Analysis
- 200036.2 Data Mining and Visualisation
- 200024.1 Mathematical Finance
- 200022.1 Mathematical Modelling
- 300670.1 Optimisation Techniques
- 300671.1 Principles and Practice of Decision Making
- 200040.1 Probability & Stochastic Processes
- 200037.1 Regression Analysis & Experimental Design
- 200044.1 Simulation Techniques
- 200039.1 Surveys and Multivariate Analysis
- 200038.1 Time Series and Forecasting

#### Year 4

##### Autumn session

- 200549.1 The Australian Macroeconomy
- 200048.1 Financial Institutions and Markets
- 200537.2 Economics and Finance Engagement Project

And one alternate unit

##### Spring session

**200053.2** Economic Modelling  
**200057.2** Investment Management

And two alternate units

#### Alternate units

**200078.1** Portfolio Management  
**200055.3** International Finance  
**200077.1** The Superannuation Industry  
**200079.1** Derivatives  
**200518.1** Behavioural Finance  
**200059.1** Financial Economics

### Bachelor of Science (Mathematical Science)/ Bachelor of Business and Commerce (Global Operations and Supply Chain Management)

#### Parramatta campus only

Units may be offered in different semesters at different campuses.

#### Year 1

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics  
**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers  
**300672.1** Mathematics 1A  
**300673.1** Mathematics 1B  
**200025.1** Discrete Mathematics

Choose one of

**300700.2** Statistical Decision Making  
**200263.1** Biometry

#### Year 2

**200571.1** Management Dynamics  
**200184.2** Introduction to Business Law  
**300580.1** Programming Fundamentals  
**200028.2** Advanced Calculus  
**200027.1** Linear Algebra

And one Level 1 unit from the Bachelor of Science Unit Pool

Choose one of

**200042.2** Introduction to Operations Research  
**300606.1** Foundations of Statistical Modelling and Decision Making

Choose one of

**200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis

#### Year 3

**200677.2** Global Supply Chain Management  
**200045.2** Quantitative Project

Choose two of

**200033.2** Applied Statistics

**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis

Choose four of

**200193.1** Abstract Algebra  
**200023.1** Analysis  
**200036.2** Data Mining and Visualisation  
**200024.1** Mathematical Finance  
**200022.1** Mathematical Modelling  
**300670.1** Optimisation Techniques  
**300671.1** Principles and Practice of Decision Making  
**200040.1** Probability & Stochastic Processes  
**200037.1** Regression Analysis & Experimental Design  
**200044.1** Simulation Techniques  
**200039.1** Surveys and Multivariate Analysis  
**200038.1** Time Series and Forecasting

#### Year 4

##### Autumn session

**200528.1** Management of Projects  
**200588.1** Global Operations and Logistics Management  
**200667.1** Global Enterprise Resource Planning  
**200668.1** Technology Management for Competitiveness

##### Spring session

**200167.1** Quality Management  
**200585.1** Organisational Behaviour  
**200565.1** Operations and Logistics in Practice  
**200162.1** Business Report

### Bachelor of Science (Mathematical Science)/ Bachelor of Business and Commerce (Hospitality Management)

#### Parramatta campus only

Units may be offered in different semesters at different campuses.

#### Year 1

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics  
**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers  
**300672.1** Mathematics 1A  
**300673.1** Mathematics 1B  
**200025.1** Discrete Mathematics

Choose one of

**300700.2** Statistical Decision Making  
**200263.1** Biometry

#### Year 2

**200571.1** Management Dynamics  
**200184.2** Introduction to Business Law  
**300580.1** Programming Fundamentals  
**200028.2** Advanced Calculus

**200027.1** Linear Algebra

And one Level 1 unit from the Bachelor of Science Unit Pool  
Choose one of

- 200042.2** Introduction to Operations Research  
**300606.1** Foundations of Statistical Modelling and Decision Making

Choose one of

- 200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis

**Year 3**

- 200273.3** Managing Service and Experience  
**200045.2** Quantitative Project

Choose two of

- 200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis

Choose four of

- 200193.1** Abstract Algebra  
**200023.1** Analysis  
**200036.2** Data Mining and Visualisation  
**200024.1** Mathematical Finance  
**200022.1** Mathematical Modelling  
**300670.1** Optimisation Techniques  
**300671.1** Principles and Practice of Decision Making  
**200040.1** Probability & Stochastic Processes  
**200037.1** Regression Analysis & Experimental Design  
**200044.1** Simulation Techniques  
**200039.1** Surveys and Multivariate Analysis  
**200038.1** Time Series and Forecasting

**Year 4****Autumn session**

- 200709.1** Managing the Accommodation Experience  
**200710.1** Managing the Food and Beverage Experience  
**200708.1** Hospitality Industry  
**200707.1** Service Industry Studies

**Spring session**

- 200584.2** Hospitality Management Operations  
**200742.1** Sport and Hospitality Event Management  
**200148.1** Planning and Design of Hospitality Facilities  
**200561.2** Hospitality Management Applied Project

## **Bachelor of Science (Mathematical Science)/ Bachelor of Business and Commerce (Human Resource Development and Organisational Development)**

**Parramatta campus only**

Units may be offered in different semesters at different campuses.

**Year 1**

- 200336.2** Business Academic Skills  
**200525.1** Principles of Economics  
**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers  
**300672.1** Mathematics 1A  
**300673.1** Mathematics 1B  
**200025.1** Discrete Mathematics

Choose one of

- 300700.2** Statistical Decision Making  
**200263.1** Biometry

**Year 2**

- 200571.1** Management Dynamics  
**200184.2** Introduction to Business Law  
**300580.1** Programming Fundamentals  
**200028.2** Advanced Calculus  
**200027.1** Linear Algebra

And one Level 1 unit from the Bachelor of Science Unit Pool

Choose one of

- 200042.2** Introduction to Operations Research  
**300606.1** Foundations of Statistical Modelling and Decision Making

Choose one of

- 200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis

**Year 3**

- 200300.1** Managing People at Work  
**200045.2** Quantitative Project

Choose two of

- 200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis

Choose four of

- 200193.1** Abstract Algebra  
**200023.1** Analysis  
**200036.2** Data Mining and Visualisation  
**200024.1** Mathematical Finance



200022.1	Mathematical Modelling
300670.1	Optimisation Techniques
300671.1	Principles and Practice of Decision Making
200040.1	Probability & Stochastic Processes
200037.1	Regression Analysis & Experimental Design
200044.1	Simulation Techniques
200039.1	Surveys and Multivariate Analysis
200038.1	Time Series and Forecasting

**Year 4****Autumn session**

200610.1	Employee Training and Development
200243.2	Work Employment and the Labour Market
200570.2	Management of Change
200175.4	Managing Human Resources and Industrial Relations

**Spring session**

200376.1	Managing and Developing Careers
200157.2	Organisational Learning and Development
200159.2	Organisation Analysis and Design
200381.3	Human Resources Development Seminar

**Bachelor of Science (Mathematical Science)/  
Bachelor of Business and Commerce  
(Human Resource Management and  
Industrial Relations)**

**Parramatta and Campbelltown campus**

Units may be offered in different semesters at different campuses.

**Year 1**

200336.2	Business Academic Skills
200525.1	Principles of Economics
200083.1	Marketing Principles
200101.2	Accounting Information for Managers
300672.1	Mathematics 1A
300673.1	Mathematics 1B
200025.1	Discrete Mathematics

Choose one of

300700.2	Statistical Decision Making
200263.1	Biometry

**Year 2**

200571.1	Management Dynamics
200184.2	Introduction to Business Law
300580.1	Programming Fundamentals
200028.2	Advanced Calculus
200027.1	Linear Algebra

And one Level 1 unit from the Bachelor of Science Unit Pool

Choose one of

200042.2	Introduction to Operations Research
300606.1	Foundations of Statistical Modelling and Decision Making

Choose one of

200033.2	Applied Statistics
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200030.1	Differential Equations
300606.1	Foundations of Statistical Modelling and Decision Making
200042.2	Introduction to Operations Research
200029.1	Numerical Analysis

**Year 3**

200300.1	Managing People at Work
200045.2	Quantitative Project

Choose two of

200033.2	Applied Statistics
200030.1	Differential Equations
300606.1	Foundations of Statistical Modelling and Decision Making
200042.2	Introduction to Operations Research
200029.1	Numerical Analysis

Choose four of

200193.1	Abstract Algebra
200023.1	Analysis
200036.2	Data Mining and Visualisation
200024.1	Mathematical Finance
200022.1	Mathematical Modelling
300670.1	Optimisation Techniques
300671.1	Principles and Practice of Decision Making
200040.1	Probability & Stochastic Processes
200037.1	Regression Analysis & Experimental Design
200044.1	Simulation Techniques
200039.1	Surveys and Multivariate Analysis
200038.1	Time Series and Forecasting

**Year 4****Autumn session**

200614.1	Enterprise Industrial Relations
200621.2	International Human Resource Management
200616.2	Workplace Behaviour
200613.1	Negotiation, Bargaining and Advocacy

**Spring session**

200739.1	Reward and Performance Management
200740.1	Human Resource and Industrial Relations Strategy
200575.2	Processes and Evaluation in Employment Relations

Choose one of

200610.1	Employee Training and Development
200150.1	Managing Diversity
200753.1	Occupational Health and Safety

**Bachelor of Science (Mathematical Science)/  
Bachelor of Business and Commerce  
(International Business)**

**Parramatta campus only**

Units may be offered in different semesters at different campuses.

**Year 1**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics
<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers
<b>300672.1</b>	Mathematics 1A
<b>300673.1</b>	Mathematics 1B
<b>200025.1</b>	Discrete Mathematics

Choose one of

<b>300700.2</b>	Statistical Decision Making
<b>200263.1</b>	Biometry

#### Year 2

<b>200571.1</b>	Management Dynamics
<b>200184.2</b>	Introduction to Business Law
<b>300580.1</b>	Programming Fundamentals
<b>200028.2</b>	Advanced Calculus
<b>200027.1</b>	Linear Algebra

And one Level 1 unit from the Bachelor of Science Unit Pool

Choose one of

<b>200042.2</b>	Introduction to Operations Research
<b>300606.1</b>	Foundations of Statistical Modelling and Decision Making

Choose one of

<b>200033.2</b>	Applied Statistics
<b>200030.1</b>	Differential Equations
<b>300606.1</b>	Foundations of Statistical Modelling and Decision Making
<b>200042.2</b>	Introduction to Operations Research
<b>200029.1</b>	Numerical Analysis

#### Year 3

<b>200591.1</b>	Introduction to International Business
<b>200045.2</b>	Quantitative Project

Choose two of

<b>200033.2</b>	Applied Statistics
<b>200030.1</b>	Differential Equations
<b>300606.1</b>	Foundations of Statistical Modelling and Decision Making
<b>200042.2</b>	Introduction to Operations Research
<b>200029.1</b>	Numerical Analysis

Choose four of

<b>200193.1</b>	Abstract Algebra
<b>200023.1</b>	Analysis
<b>200036.2</b>	Data Mining and Visualisation
<b>200024.1</b>	Mathematical Finance
<b>200022.1</b>	Mathematical Modelling
<b>300670.1</b>	Optimisation Techniques
<b>300671.1</b>	Principles and Practice of Decision Making
<b>200040.1</b>	Probability & Stochastic Processes
<b>200037.1</b>	Regression Analysis & Experimental Design
<b>200044.1</b>	Simulation Techniques
<b>200039.1</b>	Surveys and Multivariate Analysis
<b>200038.1</b>	Time Series and Forecasting

#### Year 4

#### Autumn session

<b>200541.1</b>	Globalisation and Trade
<b>200094.1</b>	International Marketing
<b>200626.1</b>	International Business Strategy
<b>200595.2</b>	International Business Finance

#### Spring session

<b>200590.1</b>	International Business Project
<b>200374.2</b>	International Marketing Research
<b>200589.1</b>	Export Strategy and Applications

Choose one of

<b>200098.1</b>	The Markets of Asia
<b>200099.2</b>	The Markets of Europe

### Bachelor of Science (Mathematical Science)/ Bachelor of Business and Commerce (Management)

#### Parramatta and Campbelltown campus

Units may be offered in different semesters at different campuses.

#### Year 1

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics
<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers
<b>300672.1</b>	Mathematics 1A
<b>300673.1</b>	Mathematics 1B
<b>200025.1</b>	Discrete Mathematics

Choose one of

<b>300700.2</b>	Statistical Decision Making
<b>200263.1</b>	Biometry

#### Year 2

<b>200571.1</b>	Management Dynamics
<b>200184.2</b>	Introduction to Business Law
<b>300580.1</b>	Programming Fundamentals
<b>200028.2</b>	Advanced Calculus
<b>200027.1</b>	Linear Algebra

And one Level 1 unit from the Bachelor of Science Unit Pool

Choose one of

<b>200042.2</b>	Introduction to Operations Research
<b>300606.1</b>	Foundations of Statistical Modelling and Decision Making

Choose one of

<b>200033.2</b>	Applied Statistics
<b>200030.1</b>	Differential Equations
<b>300606.1</b>	Foundations of Statistical Modelling and Decision Making
<b>200042.2</b>	Introduction to Operations Research
<b>200029.1</b>	Numerical Analysis

#### Year 3

<b>200585.1</b>	Organisational Behaviour
<b>200045.2</b>	Quantitative Project

Choose two of

- 200033.2** Applied Statistics
- 200030.1** Differential Equations
- 300606.1** Foundations of Statistical Modelling and Decision Making
- 200042.2** Introduction to Operations Research
- 200029.1** Numerical Analysis

Choose four of

- 200193.1** Abstract Algebra
- 200023.1** Analysis
- 200036.2** Data Mining and Visualisation
- 200024.1** Mathematical Finance
- 200022.1** Mathematical Modelling
- 300670.1** Optimisation Techniques
- 300671.1** Principles and Practice of Decision Making
- 200040.1** Probability & Stochastic Processes
- 200037.1** Regression Analysis & Experimental Design
- 200044.1** Simulation Techniques
- 200039.1** Surveys and Multivariate Analysis
- 200038.1** Time Series and Forecasting

#### Year 4

##### Autumn session

- 200158.2** Business, Society and Policy
- 200586.1** Cross Cultural Management
- 200570.2** Management of Change
- 200752.1** Power, Politics and Knowledge

##### Spring session

- 200588.1** Global Operations and Logistics Management
- 200159.2** Organisation Analysis and Design
- 200568.1** Contemporary Management Issues
- 200587.1** Strategic Management

### Bachelor of Science (Mathematical Science)/ Bachelor of Business and Commerce (Marketing)

#### Parramatta and Campbelltown campus

Units may be offered in different semesters at different campuses.

#### Year 1

- 200336.2** Business Academic Skills
- 200525.1** Principles of Economics
- 200083.1** Marketing Principles
- 200101.2** Accounting Information for Managers
- 300672.1** Mathematics 1A
- 300673.1** Mathematics 1B
- 200025.1** Discrete Mathematics

Choose one of

- 300700.2** Statistical Decision Making
- 200263.1** Biometry

#### Year 2

- 200571.1** Management Dynamics
- 200184.2** Introduction to Business Law

- 300580.1** Programming Fundamentals
- 200028.2** Advanced Calculus
- 200027.1** Linear Algebra

And one Level 1 unit from the Bachelor of Science Unit Pool

Choose one of

- 200042.2** Introduction to Operations Research
- 300606.1** Foundations of Statistical Modelling and Decision Making

Choose one of

- 200033.2** Applied Statistics
- 200030.1** Differential Equations
- 300606.1** Foundations of Statistical Modelling and Decision Making
- 200042.2** Introduction to Operations Research
- 200029.1** Numerical Analysis

#### Year 3

- 200084.1** Consumer Behaviour
- 200045.2** Quantitative Project
- 200045.2** Quantitative Project
- 200045.2** Quantitative Project

Choose two of

- 200033.2** Applied Statistics
- 200030.1** Differential Equations
- 300606.1** Foundations of Statistical Modelling and Decision Making
- 200042.2** Introduction to Operations Research
- 200029.1** Numerical Analysis

Choose four of

- 200193.1** Abstract Algebra
- 200023.1** Analysis
- 200036.2** Data Mining and Visualisation
- 200024.1** Mathematical Finance
- 200022.1** Mathematical Modelling
- 300670.1** Optimisation Techniques
- 300671.1** Principles and Practice of Decision Making
- 200040.1** Probability & Stochastic Processes
- 200037.1** Regression Analysis & Experimental Design
- 200044.1** Simulation Techniques
- 200039.1** Surveys and Multivariate Analysis
- 200038.1** Time Series and Forecasting

#### Year 4

##### Autumn session

- 200086.2** Marketing Communications
- 200592.1** Marketing Research
- 200087.1** Strategic Marketing Management
- 200094.1** International Marketing

##### Spring session

- 200090.2** Marketing of Services
- 200088.1** Brand and Product Management
- 200091.2** Business to Business Marketing
- 200096.2** Marketing Planning Project

## Bachelor of Science (Mathematical Science)/ Bachelor of Business and Commerce (Sport Management)

### Campbelltown campus only

Units may be offered in different semesters at different campuses.

#### Year 1

200336.2	Business Academic Skills
200525.1	Principles of Economics
200083.1	Marketing Principles
200101.2	Accounting Information for Managers
300672.1	Mathematics 1A
300673.1	Mathematics 1B
200025.1	Discrete Mathematics

Choose one of

300700.2	Statistical Decision Making
200263.1	Biometry

#### Year 2

200571.1	Management Dynamics
200184.2	Introduction to Business Law
300580.1	Programming Fundamentals
200028.2	Advanced Calculus
200027.1	Linear Algebra

And one Level 1 unit from the Bachelor of Science Unit Pool

Choose one of

200042.2	Introduction to Operations Research
300606.1	Foundations of Statistical Modelling and Decision Making

Choose one of

200033.2	Applied Statistics
200030.1	Differential Equations
300606.1	Foundations of Statistical Modelling and Decision Making
200042.2	Introduction to Operations Research
200029.1	Numerical Analysis

#### Year 3

200705.1	The World of Sport Management
200045.2	Quantitative Project

Choose two of

200033.2	Applied Statistics
200030.1	Differential Equations
300606.1	Foundations of Statistical Modelling and Decision Making
200042.2	Introduction to Operations Research
200029.1	Numerical Analysis

Choose four of

200193.1	Abstract Algebra
200023.1	Analysis
200036.2	Data Mining and Visualisation
200024.1	Mathematical Finance
200022.1	Mathematical Modelling

300670.1	Optimisation Techniques
300671.1	Principles and Practice of Decision Making
200040.1	Probability & Stochastic Processes
200037.1	Regression Analysis & Experimental Design
200044.1	Simulation Techniques
200039.1	Surveys and Multivariate Analysis
200038.1	Time Series and Forecasting

#### Year 4

##### Autumn session

200665.1	Strategic Communication in Sport
200273.3	Managing Service and Experience
200754.1	Sports Management - Planning and Development
200707.1	Service Industry Studies

##### Spring session

200664.1	Sport Management Internship
200742.1	Sport and Hospitality Event Management
200751.1	Sport Management Applied Project
400335.2	Contemporary Issues in Sport Management

## Key Program - Bachelor of Science (No Key Program)/Bachelor of Business and Commerce

### KP3004.1

This double degree program equips its graduates with a qualification in science, combined with a good understanding of basic business issues, complemented by a high level of knowledge relevant to a specific business discipline as applied in a global environment. Graduates will have a solid grounding in a core science discipline such as Biological Science, Chemistry or Mathematics; alternatively, students can design their own academic program within the Bachelor of Science course structure, including a science Major. This qualification in science is combined with one of the following key programs from the Bachelor of Business and Commerce: Applied Economics; Applied Finance; Global Operations and Supply Chain Management; Hospitality Management; Human Resource Development and Organisational Development; Human Resource Management and Industrial Relations; International Business; Management; Marketing; Sport Management. Graduates will be equipped to work as scientists, with a good understanding of business principles and practices. Alternatively, as Business and Commerce graduates they will be well-prepared to work in science-based industries and institutions.

### Offer

Campus	Mode
Campbelltown Campus	Internal
Parramatta Campus	Internal

## Unit Set Structure

For a list of Level 1, Level 2 and Level 3 Bachelor of Science Unit Pool units, refer to 3640 Bachelor of Science

### Bachelor of Science (No Key Program)/ Bachelor of Business and Commerce (Applied Economics)

Parramatta campus only

#### Year 1

##### Autumn session

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics

Two Level 1 units from the Bachelor of Science Unit Pool

##### Spring session

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers

Choose one of

**200032.2** Statistics for Business  
**200263.1** Biometry

One Level 1 unit from the Bachelor of Science Unit Pool

#### Year 2

##### Autumn session

**200571.1** Management Dynamics

One Level 1 unit from the Bachelor of Science Unit Pool  
Two Level 2 units from the Bachelor of Science Unit Pool

##### Spring session

**200184.2** Introduction to Business Law

Three Level 2 units from the Bachelor of Science Unit Pool

#### Year 3

##### Autumn session

Three Level 3 units from the Bachelor of Science Unit Pool  
One Level 3 elective

##### Spring session

**200549.1** The Australian Macroeconomy

Three Level 3 units from the Bachelor of Science Unit Pool

#### Year 4

##### Autumn session

**200547.1** Macroeconomic Theory  
**200048.1** Financial Institutions and Markets  
**200537.2** Economics and Finance Engagement Project

Choose one of

**200533.1** Globalisation and Asia

**200541.1** Globalisation and Trade  
**200532.1** Government and the Economy

##### Spring session

**200053.2** Economic Modelling  
**200531.1** Industry Economics and Markets  
**200546.1** Macroeconomic Issues

Choose one of

**200065.1** Political Economy  
**200075.1** Urban and Regional Economics  
**200081.2** Managerial Economics

### Bachelor of Science (No Key Program)/ Bachelor of Business and Commerce (Applied Finance)

Parramatta and Campbelltown campus

#### Year 1

##### Autumn session

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics

Two Level 1 units from the Bachelor of Science Unit Pool

##### Spring session

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers

Two Level 1 units from the Bachelor of Science Unit Pool

#### Year 2

##### Autumn session

**200571.1** Management Dynamics

One Level 1 unit from the Bachelor of Science Unit Pool  
Two Level 2 units from the Bachelor of Science Unit Pool

##### Spring session

**200184.2** Introduction to Business Law

Three Level 2 units from the Bachelor of Science Unit Pool

#### Year 3

##### Autumn session

Three Level 3 units from the Bachelor of Science Unit Pool  
One Level 3 elective

##### Spring session

**200488.2** Corporate Financial Management

Three Level 3 units from the Bachelor of Science Unit Pool

#### Year 4

##### Autumn session

**200549.1** The Australian Macroeconomy  
**200048.1** Financial Institutions and Markets  
**200537.2** Economics and Finance Engagement Project

And one alternate unit

**Spring session**

**200053.2** Economic Modelling  
**200057.2** Investment Management

And two alternate units

**Alternate units**

**200078.1** Portfolio Management  
**200055.3** International Finance  
**200077.1** The Superannuation Industry  
**200079.1** Derivatives  
**200518.1** Behavioural Finance  
**200059.1** Financial Economics

**Bachelor of Science (No Key Program)/  
Bachelor of Business and Commerce (Global  
Operations and Supply Chain Management)**

Parramatta campus only

**Year 1**

**Autumn session**

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics

Two Level 1 units from the Bachelor of Science Unit Pool

**Spring session**

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers

Two Level 1 units from the Bachelor of Science Unit Pool

**Year 2**

**Autumn session**

**200571.1** Management Dynamics

One Level 1 unit from the Bachelor of Science Unit Pool  
Two Level 2 units from the Bachelor of Science Unit Pool

**Spring session**

**200184.2** Introduction to Business Law

Three Level 2 units from the Bachelor of Science Unit Pool

**Year 3**

**Autumn session**

Three Level 3 units from the Bachelor of Science Unit Pool  
One Level 3 elective

**Spring session**

Three Level 3 units from the Bachelor of Science Unit Pool  
**200677.2** Global Supply Chain Management

**Year 4**

**Autumn session**

**200528.1** Management of Projects  
**200588.1** Global Operations and Logistics  
Management  
**200677.2** Global Supply Chain Management  
**200668.1** Technology Management for  
Competitiveness

**Spring session**

**200167.1** Quality Management  
**200585.1** Organisational Behaviour  
**200565.1** Operations and Logistics in Practice  
**200162.1** Business Report

**Bachelor of Science (No Key Program)/  
Bachelor of Business and Commerce  
(Hospitality Management)**

Parramatta campus only

**Year 1**

**Autumn session**

**200336.2** Business Academic Skills  
**200525.1** Principles of Economics

Two Level 1 units from the Bachelor of Science Unit Pool

**Spring session**

**200083.1** Marketing Principles  
**200101.2** Accounting Information for Managers

Two Level 1 units from the Bachelor of Science Unit Pool

**Year 2**

**Autumn session**

**200571.1** Management Dynamics

One Level 1 unit from the Bachelor of Science Unit Pool  
Two Level 2 units from the Bachelor of Science Unit Pool

**Spring session**

**200184.2** Introduction to Business Law

Three Level 2 units from the Bachelor of Science Unit Pool

**Year 3**

**Autumn session**

**200273.3** Managing Service and Experience

Three Level 3 units from the Bachelor of Science Unit Pool

**Spring session**

Three Level 3 units from the Bachelor of Science Unit Pool  
One Level 3 elective

**Year 4****Autumn session**

<b>200709.1</b>	Managing the Accommodation Experience
<b>200710.1</b>	Managing the Food and Beverage Experience
<b>200708.1</b>	Hospitality Industry
<b>200707.1</b>	Service Industry Studies

**Spring session**

<b>200584.2</b>	Hospitality Management Operations
<b>200742.1</b>	Sport and Hospitality Event Management
<b>200148.1</b>	Planning and Design of Hospitality Facilities
<b>200561.2</b>	Hospitality Management Applied Project

**Bachelor of Science (No Key Program)/  
Bachelor of Business and Commerce  
(Human Resource Development and  
Organisational Development)**

**Parramatta campus only****Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics

Two Level 1 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers

Two Level 1 units from the Bachelor of Science Unit Pool

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
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One Level 1 unit from the Bachelor of Science Unit Pool  
Two Level 2 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200184.2</b>	Introduction to Business Law
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Three Level 2 units from the Bachelor of Science Unit Pool

**Year 3****Autumn session**

Three Level 3 units from the Bachelor of Science Unit Pool  
One Level 3 elective

**Spring session**

<b>200300.1</b>	Managing People at Work
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Three Level 3 units from the Bachelor of Science Unit Pool

**Year 4****Autumn session**

<b>200610.1</b>	Employee Training and Development
<b>200243.2</b>	Work Employment and the Labour Market
<b>200570.2</b>	Management of Change
<b>200175.4</b>	Managing Human Resources and Industrial Relations

**Spring session**

<b>200376.1</b>	Managing and Developing Careers
<b>200157.2</b>	Organisational Learning and Development
<b>200159.2</b>	Organisation Analysis and Design
<b>200381.3</b>	Human Resources Development Seminar

**Bachelor of Science (No Key Program)/  
Bachelor of Business and Commerce  
(Human Resource Management and  
Industrial Relations)**

**Parramatta and Campelltown campus****Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics

Two Level 1 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers

Two Level 1 units from the Bachelor of Science Unit Pool

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
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One Level 1 unit from the Bachelor of Science Unit Pool  
Two Level 2 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200184.2</b>	Introduction to Business Law
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Three Level 2 units from the Bachelor of Science Unit Pool

**Year 3****Autumn session**

Three Level 3 units from the Bachelor of Science Unit Pool  
One Level 3 elective

**Spring session**

<b>200300.1</b>	Managing People at Work
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Three Level 3 units from the Bachelor of Science Unit Pool

**Year 4****Autumn session**

<b>200614.1</b>	Enterprise Industrial Relations
<b>200621.2</b>	International Human Resource Management
<b>200616.2</b>	Workplace Behaviour
<b>200613.1</b>	Negotiation, Bargaining and Advocacy

**Spring session**

<b>200739.1</b>	Reward and Performance Management
<b>200740.1</b>	Human Resource and Industrial Relations Strategy
<b>200575.2</b>	Processes and Evaluation in Employment Relations

Choose one of

<b>200610.1</b>	Employee Training and Development
<b>200150.1</b>	Managing Diversity
<b>200753.1</b>	Occupational Health and Safety

**Bachelor of Science (No Key Program)/  
Bachelor of Business and Commerce  
(International Business)**

Parramatta campus only

**Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics

Two Level 1 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers

Two Level 1 units from the Bachelor of Science Unit Pool

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
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One Level 1 unit from the Bachelor of Science Unit Pool

Two Level 2 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200184.2</b>	Introduction to Business Law
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Three Level 2 units from the Bachelor of Science Unit Pool

**Year 3****Autumn session**

Three Level 3 units from the Bachelor of Science Unit Pool  
One Level 3 elective

**Spring session**

<b>200591.1</b>	Introduction to International Business
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Three Level 3 units from the Bachelor of Science Unit Pool

**Year 4****Autumn session**

<b>200541.1</b>	Globalisation and Trade
<b>200094.1</b>	International Marketing
<b>200626.1</b>	International Business Strategy
<b>200595.2</b>	International Business Finance

**Spring session**

<b>200590.1</b>	International Business Project
<b>200374.2</b>	International Marketing Research
<b>200589.1</b>	Export Strategy and Applications

Choose one of

<b>200098.1</b>	The Markets of Asia
<b>200099.2</b>	The Markets of Europe

**Bachelor of Science (No Key Program)/  
Bachelor of Business and Commerce  
(Management)**

Parramatta and Campbelltown campus

**Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics

Two Level 1 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers

Two Level 1 units from the Bachelor of Science Unit Pool

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
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One Level 1 unit from the Bachelor of Science Unit Pool

Two Level 2 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200184.2</b>	Introduction to Business Law
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Three Level 2 units from the Bachelor of Science Unit Pool

**Year 3****Autumn session**

Three Level 3 units from the Bachelor of Science Unit Pool  
One Level 3 elective

**Spring session**

<b>200585.1</b>	Organisational Behaviour
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Three Level 3 units from the Bachelor of Science Unit Pool



**Year 4****Autumn session**

<b>200158.2</b>	Business, Society and Policy
<b>200586.1</b>	Cross Cultural Management
<b>200570.2</b>	Management of Change
<b>200752.1</b>	Power, Politics and Knowledge

**Spring session**

<b>200588.1</b>	Global Operations and Logistics Management
<b>200159.2</b>	Organisation Analysis and Design
<b>200568.1</b>	Contemporary Management Issues
<b>200587.1</b>	Strategic Management

### **Bachelor of Science (No Key Program)/ Bachelor of Business and Commerce (Marketing)**

**Parramatta and Campelltown campus****Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics

Two Level 1 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers

Two Level 1 units from the Bachelor of Science Unit Pool

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
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One Level 1 unit from the Bachelor of Science Unit Pool  
Two Level 2 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200184.2</b>	Introduction to Business Law
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Three Level 2 units from the Bachelor of Science Unit Pool

**Year 3****Autumn session**

Three Level 3 units from the Bachelor of Science Unit Pool  
One Level 3 elective

**Spring session**

<b>200084.1</b>	Consumer Behaviour
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Three Level 3 units from the Bachelor of Science Unit Pool

**Year 4****Autumn session**

<b>200086.2</b>	Marketing Communications
<b>200592.1</b>	Marketing Research
<b>200087.1</b>	Strategic Marketing Management
<b>200094.1</b>	International Marketing

**Spring session**

<b>200090.2</b>	Marketing of Services
<b>200088.1</b>	Brand and Product Management
<b>200091.2</b>	Business to Business Marketing
<b>200096.2</b>	Marketing Planning Project

### **Bachelor of Science (No Key Program)/ Bachelor of Business and Commerce (Sport Management)**

**Campelltown campus only****Year 1****Autumn session**

<b>200336.2</b>	Business Academic Skills
<b>200525.1</b>	Principles of Economics

Two Level 1 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200083.1</b>	Marketing Principles
<b>200101.2</b>	Accounting Information for Managers

Two Level 1 units from the Bachelor of Science Unit Pool

**Year 2****Autumn session**

<b>200571.1</b>	Management Dynamics
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One Level 1 unit from the Bachelor of Science Unit Pool  
Two Level 2 units from the Bachelor of Science Unit Pool

**Spring session**

<b>200184.2</b>	Introduction to Business Law
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Three Level 2 units from the Bachelor of Science Unit Pool

**Year 3****Autumn session**

<b>200705.1</b>	The World of Sport Management
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Three Level 3 units from the Bachelor of Science Unit Pool

**Spring session**

Three Level 3 units from the Bachelor of Science Unit Pool  
One Level 3 elective

**Year 4****Autumn session**

<b>200665.1</b>	Strategic Communication in Sport
<b>200273.3</b>	Managing Service and Experience
<b>200754.1</b>	Sports Management - Planning and Development
<b>200707.1</b>	Service Industry Studies

**Spring session**

<b>200664.1</b>	Sport Management Internship
<b>200742.1</b>	Sport and Hospitality Event Management
<b>200751.1</b>	Sport Management Applied Project
<b>400335.2</b>	Contemporary Issues in Sport Management

**Key Program - Human Molecular Biology****KP3632HMB.1**

Human Molecular Biology emphasises recent discoveries in molecular and cell biology relevant to human health and disease - molecular biology and functional genomics, protein science, proteomics, human metabolism, genetics, cell signalling and molecular immunology.

**Offer**

<b>Campus</b>	<b>Mode</b>
Campbelltown Campus	Internal

**Unit Set Structure**

Qualification for the Bachelor of Biomolecular Science with a Key Program in Human Molecular Biology requires the successful completion of 240 credit points including the units listed in the recommended sequence below.

**Full Time****Year 1****Autumn session**

<b>300539.1</b>	Biodiversity
<b>300554.1</b>	Principles of Chemistry
<b>300558.1</b>	Physics 1

Choose one of

<b>200191.3</b>	Fundamentals of Mathematics
<b>200189.1</b>	Concepts of Mathematics

**Spring session**

<b>300543.1</b>	Cell Biology
<b>300550.1</b>	Medicinal Chemistry
<b>300541.1</b>	Biomolecular Frontiers

And one elective

**Year 2****Autumn session**

<b>300555.1</b>	Proteins and Genes
<b>300300.1</b>	Microbiology 1
<b>300547.1</b>	Human Genetics

And one elective

**Spring session**

<b>300548.1</b>	Human Metabolism and Disease
<b>300321.1</b>	Microbiology 2

One Level 2 Chemistry unit

And one elective

Please note: some Chemistry Level 2 units are on offer in Autumn only. Students may choose to study a Chemistry Level 2 unit in Autumn in place of an elective, and then choose two electives in the Spring session.

**Year 3****Autumn session**

<b>300549.1</b>	Human Molecular Biology
<b>300544.1</b>	Cell Signalling
<b>300556.1</b>	Analytical Protein Science

And one elective

**Spring session**

<b>300551.1</b>	Molecular Basis of Disease
<b>300757.1</b>	Molecular Biology of the Immune System

One Level 3 alternate unit

And one elective

Please note: some Level 3 Alternate Units are on offer in Autumn only. Students may choose to study an Alternate Unit in Autumn in place of an elective, and then choose two electives in the Spring session.

**Level 2 Chemistry Units**

<b>300297.1</b>	Analytical Chemistry 2
<b>300540.1</b>	Biomolecular Dynamics
<b>300545.1</b>	Coordination Chemistry
<b>300553.1</b>	Molecules of Life: Synthesis and Reactivity

**Level 3 Alternate Units**

<b>300749.1</b>	Medical Microbiology
<b>300324.1</b>	Pharmacological Chemistry
<b>300756.1</b>	Topics in Physiology
<b>300537.1</b>	Advanced Chemical Analysis
<b>300538.1</b>	Advanced Inorganic Chemistry
<b>300542.1</b>	Biomolecular Science Project
<b>300546.1</b>	Drug Design and Synthesis

**Key Program - Pharmaceutical Chemistry****KP3632PC.1**

Pharmaceutical Chemistry emphasises the applications of chemistry for human health – biomolecular dynamics and pharmacokinetics, coordination chemistry, drug design, development, and analysis.

**Offer**

<b>Campus</b>	<b>Mode</b>
Campbelltown Campus	External

**Unit Set Structure**

Qualification for the Bachelor of Biomolecular Science with a Key Program in Pharmaceutical Chemistry requires the

successful completion of 240 credit points including the units listed in the recommended sequence below.

### Professional Accreditation

It is anticipated that the Bachelor of Biomolecular Science with Key Program in Pharmaceutical Chemistry will receive accreditation from the Royal Australian Chemical Institute

### Recommended Sequence

#### Full Time

##### Year 1

##### Autumn session

<b>300539.1</b>	Biodiversity
<b>300554.1</b>	Principles of Chemistry
<b>300558.1</b>	Physics 1

Choose one of

<b>200191.3</b>	Fundamentals of Mathematics
<b>200189.1</b>	Concepts of Mathematics

##### Spring session

<b>300543.1</b>	Cell Biology
<b>300550.1</b>	Medicinal Chemistry
<b>300541.1</b>	Biomolecular Frontiers

And one elective

##### Year 2

##### Autumn session

<b>300545.1</b>	Coordination Chemistry
<b>300540.1</b>	Biomolecular Dynamics
<b>300555.1</b>	Proteins and Genes

And one elective

##### Spring session

<b>300297.1</b>	Analytical Chemistry 2
<b>300553.1</b>	Molecules of Life: Synthesis and Reactivity
<b>300505.1</b>	Pharmacology

And one elective

##### Year 3

##### Autumn session

<b>300537.1</b>	Advanced Chemical Analysis
<b>300546.1</b>	Drug Design and Synthesis

One Level 3 Alternate unit

And one elective

##### Spring session

<b>300538.1</b>	Advanced Inorganic Chemistry
<b>300324.1</b>	Pharmacological Chemistry
<b>300475.1</b>	Molecular Pharmacokinetics

And one elective

Please note: some Level 3 Alternate units are on offer in Spring only. Students may choose to study two elective units in the Autumn session and an Alternate unit in Spring.

### Level 3 Alternate Units

<b>300542.1</b>	Biomolecular Science Project
<b>300544.1</b>	Cell Signalling
<b>300549.1</b>	Human Molecular Biology
<b>300757.1</b>	Molecular Biology of the Immune System
<b>300556.1</b>	Analytical Protein Science
<b>300557.1</b>	Molecular Spectroscopy

### Key Program - Information Systems

#### KT3000.1

The Key Program in Information Systems focuses on computing and information technology in the context of business.

#### Offer

Campus	Mode
Parramatta Campus	Internal

#### Unit Set Structure

##### Start of Year Intake

##### Year 1

##### Autumn session

<b>300580.1</b>	Programming Fundamentals
<b>100483.1</b>	Principles of Professional Communication 1
<b>300585.1</b>	Systems Analysis and Design
<b>300573.1</b>	Information Systems in Context

##### Spring session

<b>300565.1</b>	Computer Networking
<b>300104.2</b>	Database Design and Development
<b>300144.2</b>	Object Oriented Analysis

And one elective

##### Year 2

##### Autumn session

<b>300582.1</b>	Technologies for Web Applications
<b>300570.2</b>	Human-Computer Interaction
<b>300581.1</b>	Programming Techniques
<b>200032.2</b>	Statistics for Business

##### Spring session

<b>300583.1</b>	Web Systems Development
<b>300569.1</b>	Computer Security
<b>300572.1</b>	Information Systems Deployment and Management
<b>300089.3</b>	Commercial Applications Development

**Year 3****Autumn session**

- 300578.2** Professional Development  
**300584.1** Emerging Trends in Information Systems

And two electives

**Spring session**

- 300097.2** Computing Project 1

And three electives

**Mid Year Intake****Year 1****Spring session**

- 300565.1** Computer Networking  
**300104.2** Database Design and Development  
**300144.2** Object Oriented Analysis

And one elective

**Year 2****Autumn session**

- 300580.1** Programming Fundamentals  
**100483.1** Principles of Professional Communication 1  
**300585.1** Systems Analysis and Design  
**300573.1** Information Systems in Context

**Spring session**

- 300569.1** Computer Security  
**300572.1** Information Systems Deployment and Management  
**300089.3** Commercial Applications Development

And one elective

**Year 3****Autumn session**

- 300582.1** Technologies for Web Applications  
**300570.2** Human-Computer Interaction  
**300581.1** Programming Techniques  
**200032.2** Statistics for Business

**Spring session**

- 300097.2** Computing Project 1  
**300583.1** Web Systems Development

And two electives

**Year 4****Autumn session**

- 300578.2** Professional Development  
**300584.1** Emerging Trends in Information Systems

And two electives

**Key Program - Environmental Management****KT3007.1**

Environmental managers are concerned with ensuring the ecological sustainability of human development. History has shown that if we don't effectively manage our environment, we will degrade it – possibly to the point where it can no longer sustain us. The UWS Environmental Management program equips graduates with the problem solving skills to work with community members and professional practitioners to develop innovative policy and strategies that address the increasingly complex causes of today's environmental problems, including urban development, global climate change, persistent organic pollutants, decreasing biodiversity and deteriorating air and water quality.

**Offer**

Campus	Mode
Hawkesbury Campus	External
Hawkesbury Campus	Internal

**Unit Set Structure**

Qualification for this award requires the successful completion of 240 credit points as per the recommended sequence below.

**Recommended Sequence****Full-time****Year 1****Autumn session**

- 300497.1** Professional Skills for Science  
**300221.1** Biology 1  
**300633.1** Management of Aquatic Environments  
**300642.1** Understanding Landscape

**Spring session**

- 200263.1** Biometry  
**300663.1** Resource Sustainability  
**300425.1** Introduction to Wildlife Studies

And one elective

**Year 2****Autumn session**

- 300664.1** Science in Society  
**300629.1** Environmental Planning

And two electives

**Spring session**

- 300662.1** Research Methods  
**300624.1** Landuse and the Environment  
**300630.1** Environmental Regulations

Choose one of:

**300635.2** Water Quality Assessment and Management  
**300707.1** Building 2

### Year 3

#### Autumn session

**300659.1** Field Project 1  
**300284.2** Environmental Risk Management

And two electives

#### Spring session

**300660.1** Field Project 2  
**300471.1** Urban Development Systems  
**300289.1** Regional Environmental Management

And one elective

## Key Program - Environment and Health

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### KT3008.1

The air we breathe, the water we drink, the food we eat, and the places we live, work and play all have major impacts on our health and well being. Health scares such as bird flu, obesity, cancers and asthma have all been connected to our environmental conditions. The UWS Environment and Health program focuses on the application of science to the mitigation of human health impacts of global climate change through to the more localised issues of air and water quality, waste management, food security, environmental noise and healthy communities.

### Offer

Campus	Mode
Hawkesbury Campus	External

### Unit Set Structure

Students must satisfactorily complete the unit 300655-Approved Industrial Experience (10 weeks), comprising a minimum of ten weeks Approved Industrial Experience.

### Professional Accreditation

The Bachelor of Natural Science (Environment and Health) key program includes a major in Environmental Health Management which if completed in addition to the key program is accredited by Environmental Health Australia (EHA), formerly the Australian Institute of Environmental Health (AIEH).

### Year 1

#### Autumn

**300497.1** Professional Skills for Science  
**300221.1** Biology 1  
**300469.1** Introductory Chemistry  
**300633.1** Management of Aquatic Environments

### Spring

**200263.1** Biometry  
**300663.1** Resource Sustainability  
**300362.1** Environment and Health  
**300704.1** Healthy Built Environments

### Year 2

#### Autumn session

**300664.1** Science in Society  
**300331.2** General Microbiology  
**300626.1** Epidemiology

And one elective

#### Spring session

**300662.1** Research Methods  
**300635.2** Water Quality Assessment and Management

And two electives

### Year 3

#### Autumn session

**300659.1** Field Project 1  
**300625.1** Noise Assessment

Choose one from the following two units:

**300639.1** Food Safety  
**300500.1** Quality Assurance and Food Safety

And one elective

#### Spring session

**300660.1** Field Project 2  
**300471.1** Urban Development Systems

And two electives

## Key Program - Horticulture

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### KT3009.1

Horticulture is an exciting and diverse field encompassing science, technology, business, tourism and sociology. It impacts our lives through parks and gardens, organic farming, recreational landscape development, rural tourism and the use of plants in alternative therapies, and its practitioners play a key role in our country's economic future. The UWS Horticulture program embraces such areas as plant form and function, soils, landscape design, production systems, pest and disease control, people/plant relationships and business management. It offers a range of specialisations, underpinned by studies in biotechnology, molecular biology, genetic engineering, process engineering, botany, chemistry, microbiology and soil science.

**Offer**

Campus	Mode
Hawkesbury Campus	Internal

**Unit Set Structure****Year 1**

## Autumn

<b>300497.1</b>	Professional Skills for Science
<b>300221.1</b>	Biology 1
<b>300502.1</b>	Primary Production

Choose one of:

<b>300642.1</b>	Understanding Landscape
<b>300469.1</b>	Introductory Chemistry

**Spring**

<b>200263.1</b>	Biometry
<b>300663.1</b>	Resource Sustainability
<b>300616.1</b>	Crop Production

Choose one of:

<b>300535.1</b>	Soils
<b>300222.1</b>	Biology 2

**Year 2****Autumn session**

<b>300664.1</b>	Science in Society
<b>300328.1</b>	Botany
<b>300452.1</b>	Postharvest

And one elective

**Spring session**

<b>300662.1</b>	Research Methods
<b>300501.1</b>	Plant Diversity

And two Electives

**Year 3****Autumn session**

<b>300659.1</b>	Field Project 1
<b>300336.1</b>	Plant-Microbe Interactions

And two Electives

**Spring session**

<b>300660.1</b>	Field Project 2
<b>300534.1</b>	Analysis of Agricultural Supply Chains
<b>300643.1</b>	Plant Protection

And one Elective

**Key Program - Agriculture****KT3010.1**

Agriculture is an exciting, inter disciplinary area that is essential to feeding the growing world population. It involves the application of science and business skills to the management of over half of Australia's land for the production of food, feed, fibre and other goods by the systematic growing/harvesting/distribution of plants, animals and other life forms. It contributes to fundamental aspects of urban development and rural prosperity: sustainable resource usage, food security, social stability, and environmental protection for this and future generations. With its applied focus, the UWS Agriculture program prepares graduates for an extensive range of employment opportunities, with specialised knowledge and understanding of the balance between agriculture, landscape ecology, and business activities.

**Offer**

Campus	Mode
Hawkesbury Campus	Internal

**Unit Set Structure****Year 1****Autumn**

<b>300497.1</b>	Professional Skills for Science
<b>300221.1</b>	Biology 1
<b>300523.1</b>	Agricultural Supply Chains
<b>300502.1</b>	Primary Production

**Spring**

<b>200263.1</b>	Biometry
<b>300663.1</b>	Resource Sustainability
<b>300535.1</b>	Soils
<b>300616.1</b>	Crop Production

**Year 2****Autumn session**

<b>300664.1</b>	Science in Society
<b>300524.1</b>	Agronomy

And two electives

**Spring session**

<b>300662.1</b>	Research Methods
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Choose one of

<b>300530.1</b>	Advances in Agronomy
<b>300563.1</b>	Animal Reproduction

And

<b>300635.2</b>	Water Quality Assessment and Management
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And one elective

**Year 3****Autumn session****300659.1** Field Project 1

Choose one of

**300427.1** Animal Production**300284.2** Environmental Risk Management

And two electives

**Spring session****300660.1** Field Project 2**300534.1** Analysis of Agricultural Supply Chains**300624.1** Landuse and the Environment

And one elective

**Key Program - Agricultural Business****KT3011.1**

The agribusiness sector is one of Australia's largest and most vibrant industry sectors, and provides a broad range of exciting career opportunities. The Sydney basin is the focus for Australia's agricultural business. Local agribusiness companies enjoy major competitive advantages on a global scale, and Australia is recognised as having one of the most sophisticated agricultural industries in the world, with extensive trade and investment alliances. Based at the intersection between production and business, the UWS Agricultural Business program provides a critical stepping-stone to a varied career, and has been developed to enable graduates to service this diverse and essential sector of the economy with its innovative mix of science, production and business studies, and a focus on agricultural supply chains.

**Offer**

<b>Campus</b>	<b>Mode</b>
Hawkesbury Campus	Internal

**Unit Set Structure****Year 1****Autumn****300497.1** Professional Skills for Science**300221.1** Biology 1**200083.1** Marketing Principles**300523.1** Agricultural Supply Chains**Spring****200263.1** Biometry**300663.1** Resource Sustainability**200525.1** Principles of Economics**300616.1** Crop Production**Year 2****Autumn session****300664.1** Science in Society**300452.1** Postharvest

And two electives

**Spring session****300662.1** Research Methods

Two Business Specialisation Units

And one elective

**Year 3****Autumn session****300659.1** Field Project 1**300524.1** Agronomy**300284.2** Environmental Risk Management

And one elective

**Spring session****300660.1** Field Project 2

Choose one of

**300534.1** Analysis of Agricultural Supply Chains

Business Specialisation Unit

And two electives

**Key Program - Food Systems****KT3012.1**

The food industry is vital to Australia in terms of profitability, exports and jobs growth, with lots of employment opportunities. The Food Systems program covers the value chain management of the food industry, from farm to fork. The program fills a critical niche in our increasingly complex food provision systems, by addressing food supply chains, production processes and business elements. Graduates will develop a grounding in food production from harvest, food possessing technologies through to the consumer. Training will be underpinned by developing an appreciation for the management and control of a safe food supply. There will be opportunities for sub-majors in management or marketing. The program is set within a strong environmental framework of learning, enabling the graduates to be equipped to deal with new challenges in a changing world. The course has strong links with the food industry and unique well equipped facilities, including a food processing pilot plant, which gives hands-on experience with equipment similar to that found in industry.

**Offer**

<b>Campus</b>	<b>Mode</b>
Hawkesbury Campus	Internal

## Unit Set Structure

### Year 1

#### Autumn session

- 300497.1** Professional Skills for Science  
**300221.1** Biology 1  
**300498.1** Food Science 1

Choose one of

- 300469.1** Introductory Chemistry  
**300502.1** Primary Production

#### Spring session

- 200263.1** Biometry  
**300663.1** Resource Sustainability  
**300499.1** Food Science 2

Choose one of

- 300616.1** Crop Production  
**300342.1** Wines and their Appreciation

### Year 2

#### Autumn session

- 300664.1** Science in Society  
**300452.1** Postharvest

Choose one of

- 300300.1** Microbiology 1  
**300331.2** General Microbiology

And one elective

#### Spring session

- 300662.1** Research Methods  
**300636.1** Food Processing and Analysis

Choose one of

- 200571.1** Management Dynamics  
**200083.1** Marketing Principles

And one elective

### Year 3

#### Autumn session

- 300659.1** Field Project 1  
**300701.1** Food Quality Assurance

And two electives

#### Spring session

- 300660.1** Field Project 2  
**300641.1** Packaging Science and Technology

And two electives

## Key Program - Animal Science

### KT3013.1

Interactions between people and animals are increasing as we become more dependent on animals for companionship and food production, and strive to understand the greater pressures being placed on our unique native wildlife. The UWS program in Animal Science embraces a unique hands on approach to understanding the interactions between animals and their environments, and combines the fields of animal behaviour and anthrozoology to explore and enhance the quality of life of wild, captive and domesticated animals. It is underpinned by on campus access to animal facilities including reptiles, small marsupials, horses, sheep, cattle and deer linked with off campus animal professionals and organisations such as national parks, wildlife parks, zoos, farms and horse studs.

### Offer

Campus	Mode
Hawkesbury Campus	Internal

## Unit Set Structure

### Year 1

#### Autumn

- 300497.1** Professional Skills for Science  
**300221.1** Biology 1  
**300560.1** Introduction to Animal Science  
**300426.1** Human Animal Interactions

#### Spring

- 200263.1** Biometry  
**300663.1** Resource Sustainability  
**300421.2** Animal Science  
**300425.1** Introduction to Wildlife Studies

### Year 2

#### Autumn

- 300664.1** Science in Society  
**300562.1** Animal Nutrition and Feeding

And two electives

#### Spring

- 300662.1** Research Methods  
**300424.1** Animal Health and Welfare  
**300563.1** Animal Reproduction

And one elective

### Year 3

#### Autumn

- 300659.1** Field Project 1  
**300427.1** Animal Production



And two electives

### Spring

<b>300660.1</b>	Field Project 2
<b>300564.1</b>	Animal Behaviour
<b>300470.1</b>	Vertebrate Biodiversity

And one elective

## Key Program - Nature Conservation

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### KT3014.1

Nature conservation is shaped by the interplay of diverse political, cultural, economic, scientific and technological forces across Australia and internationally. With the increasing exploitation of the world's non-renewable resources and the rapidly unfolding degradation of the planet's natural systems there is an urgent need to conserve those wild places we have left and begin to restore the damage man has done. The UWS program in Nature Conservation provides a deep understanding of sustainable ecosystems management, policy formulation and environmental advocacy underpinned by a solid scientific foundation.

### Offer

Campus	Mode
Hawkesbury Campus	Internal

### Unit Set Structure

#### Year 1

#### Autumn

<b>300497.1</b>	Professional Skills for Science
<b>300221.1</b>	Biology 1
<b>300633.1</b>	Management of Aquatic Environments
<b>300642.1</b>	Understanding Landscape

#### Spring

<b>200263.1</b>	Biometry
<b>300663.1</b>	Resource Sustainability
<b>300425.1</b>	Introduction to Wildlife Studies
<b>300631.1</b>	Indigenous Landscape

#### Year 2

#### Autumn

<b>300664.1</b>	Science in Society
<b>300632.1</b>	Living in Country

And two electives

### Spring

<b>300662.1</b>	Research Methods
<b>300563.1</b>	Animal Reproduction
<b>300624.1</b>	Landuse and the Environment

And one elective

### Year 3

#### Autumn

<b>300659.1</b>	Field Project 1
<b>300284.2</b>	Environmental Risk Management

And two electives

### Spring

<b>300660.1</b>	Field Project 2
<b>300465.1</b>	Aquatic Ecology
<b>300470.1</b>	Vertebrate Biodiversity

And one elective

## Key Program - Agricultural Science

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### KT3015.1

This key program equips graduates with specialised knowledge and understanding of agronomy, animal science and soil science underpinned by a sound background in biology, chemistry and biometry. Graduates will understand how agriculture impacts on the structure and function of production ecosystems in the context of nutrient, water and energy flows, carbon sequestration and use of introduced and genetically modified organisms. There is an emphasis on developing field and laboratory skills related to the major study areas that will prepare students for technical, production, research or advisory careers.

### Offer

Campus	Mode
Hawkesbury Campus	Internal

### Unit Set Structure

Students must satisfy the overall Bachelor of Science course rules, including the following schedule of units.

#### Year 1

#### Autumn session

<b>300221.1</b>	Biology 1
<b>300497.1</b>	Professional Skills for Science
<b>300502.1</b>	Primary Production

Choose one of

<b>300469.1</b>	Introductory Chemistry
<b>300224.2</b>	Chemistry 1

#### Spring session

<b>300222.1</b>	Biology 2
<b>200263.1</b>	Biometry
<b>300421.2</b>	Animal Science
<b>300535.1</b>	Soils

#### Year 2

#### Autumn session

**300300.1** Microbiology 1  
**300562.1** Animal Nutrition and Feeding  
**300619.1** Ecology of Production

And one elective

#### Spring session

**300563.1** Animal Reproduction  
**300333.1** Introductory Plant Physiology

And two electives

#### Year 3

##### Autumn session

**300427.1** Animal Production  
**300524.1** Agronomy

One Level 3 elective

And one elective

##### Spring session

**300564.1** Animal Behaviour  
**300334.1** Invertebrate Biology  
**300530.1** Advances in Agronomy

And one Level 3 elective

### Key Program - Animal Science

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#### KT3016.1

The key program in Animal Science recognises the increased demand for knowledge of how to best care for and protect our animals, including scientific knowledge of companion animals, production animals and their products, as well as knowledge related to our native animals. This program will allow students to develop in depth scientific understanding of how animals function; from the physiology and biochemistry of tissues and major organ systems down to structure and function of biomolecules and cells. The program gives particular emphasis to the study of physiology, growth, endocrinology, reproduction, genetics, nutrition, microbial interactions and immunology. It's also concerned with how these processes may be optimised to improve animal productivity, health and welfare.

#### Offer

Campus	Mode
Hawkesbury Campus	Internal

#### Unit Set Structure

Students must satisfy the overall Bachelor of Science course rules, including the following schedule of units.

#### Year 1

##### Autumn session

**300221.1** Biology 1  
**300224.2** Chemistry 1  
**300560.1** Introduction to Animal Science

**300426.1** Human Animal Interactions

#### Spring session

**300222.1** Biology 2  
**200263.1** Biometry

Choose one of

**300225.2** Chemistry 2  
**300425.1** Introduction to Wildlife Studies

Choose one of

**300753.1** Introduction to Human Physiology  
**300421.2** Animal Science

#### Year 2

##### Autumn session

**300219.2** Biochemistry 1  
**300300.1** Microbiology 1  
**300562.1** Animal Nutrition and Feeding

And one elective

##### Spring session

**300424.1** Animal Health and Welfare

Choose one of

**300623.1** Genetics  
**300220.1** Biochemistry 2

And two electives

#### Year 3

##### Autumn session

**300234.1** Molecular Biology  
**300427.1** Animal Production

Choose one of

**300665.1** Wildlife 2  
**300229.1** Immunology

And one elective

##### Spring session

**300408.1** Mammalian Cell Biology and Biotechnology  
**300470.1** Vertebrate Biodiversity

One Level 3 elective

And one elective

### Key Program - Biological Science

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#### KT3017.1

Biological Science focuses on the areas of biology that are most relevant to industry and research: biochemistry, microbiology and molecular biology. Other areas of study include anatomy and physiology, environmental science, biotechnology, human biology and plant biology.

**Offer**

Campus	Mode
Campbelltown Campus	Internal
Hawkesbury Campus	Internal
Parramatta Campus	Internal

**Unit Set Structure**

Students must satisfy the overall Bachelor of Science course rules, including the following schedule of units.

**Full-time - Start Year Intake****Year 1****Autumn session**

Choose one of

<b>300221.1</b>	Biology 1
<b>300539.1</b>	Biodiversity

Choose one of

<b>300224.2</b>	Chemistry 1
<b>300554.1</b>	Principles of Chemistry

Choose one of

<b>200191.3</b>	Fundamentals of Mathematics
<b>300672.1</b>	Mathematics 1A
<b>200263.1</b>	Biometry

One Level 1 unit from the Bachelor of Science Unit Pool

**Spring session**

Choose one of

<b>300222.1</b>	Biology 2
<b>300543.1</b>	Cell Biology

Choose one of

<b>300225.2</b>	Chemistry 2
<b>300550.1</b>	Medicinal Chemistry

And two electives

**Year 2****Autumn session**

<b>300300.1</b>	Microbiology 1
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Choose one of

<b>300219.2</b>	Biochemistry 1
<b>300555.1</b>	Proteins and Genes

One Level 2 unit from the Bachelor of Science Unit Pool

And one elective

**Spring session**

<b>300321.1</b>	Microbiology 2
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Choose one of

<b>300220.1</b>	Biochemistry 2
<b>300548.1</b>	Human Metabolism and Disease

One Level 2 unit from the Bachelor of Science Unit Pool  
And one elective

**Year 3****Autumn session**

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

**Spring session**

Two Level 3 Biology units from the Bachelor of Science Unit Pool

One Level 3 elective

And one elective

**Full-time - Mid Year Intake**

Units may be offered in different semesters at different campuses.

**Year 1****Spring session**

Choose one of

<b>200263.1</b>	Biometry
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Or one elective

Choose one of

<b>300222.1</b>	Biology 2
<b>300543.1</b>	Cell Biology

And two electives

**Autumn session**

Choose one of

<b>300221.1</b>	Biology 1
<b>300539.1</b>	Biodiversity

Choose one of

<b>300224.2</b>	Chemistry 1
<b>300554.1</b>	Principles of Chemistry

One Level 1 unit from the Science Unit Pool

And one elective

**Year 2****Spring session**

Choose one of

<b>300225.2</b>	Chemistry 2
<b>300550.1</b>	Medicinal Chemistry

Choose one of

<b>200263.1</b>	Biometry
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Or one elective

Two Level 2 Units from the Science Unit Pool

**Autumn session**

**300300.1** Microbiology 1

Choose one of

**300219.2** Biochemistry 1  
**300555.1** Proteins and Genes

And two electives

### Year 3

#### Spring session

**300321.1** Microbiology 2

Choose one of

**300220.1** Biochemistry 2  
**300548.1** Human Metabolism and Disease

And one Level 3 elective

Autumn session

Three Level 3 Biology units from the Bachelor of Science Unit Pool

And one Level 3 elective

## Key Program - Biotechnology

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### KT3018.1

Biotechnology harnesses microbial, plant and animal cells to produce useful goods and services, including food, drink, medicines and chemicals. Biotechnology also plays an important role in dealing with waste materials, the removal of pollutants from the environment, and microbial control of plants, pests and diseases. This degree provides multidisciplinary knowledge, practical skills and a wide range of real world applications.

### Offer

Campus	Mode
Hawkesbury Campus	Internal

### Unit Set Structure

Students must satisfy the overall Bachelor of Science course rules, including the following schedule of units.

#### Year 1

##### Autumn session

**300221.1** Biology 1  
**300224.2** Chemistry 1  
**300558.1** Physics 1  
**300503.1** Introduction to Biotechnology

##### Spring session

**300222.1** Biology 2  
**300225.2** Chemistry 2

Choose one of

**200263.1** Biometry  
**200191.3** Fundamentals of Mathematics

**300672.1** Mathematics 1A

And one elective

### Year 2

#### Autumn session

**300219.2** Biochemistry 1  
**300300.1** Microbiology 1

And two electives

#### Spring session

**300321.1** Microbiology 2  
**300646.1** Principles of Biotechnology

And two electives

### Year 3

#### Autumn session

**300504.1** Fermentation Science  
**300234.1** Molecular Biology  
**300621.1** Plant Biotechnology

And one elective

#### Spring session

**300647.1** Environmental Biotechnology  
**300648.1** Food and Pharmaceutical Biotechnology

One Level 3 elective

And one elective

## Key Program - Chemistry

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### KT3019.1

The Chemistry key program consists of core studies in analytical, inorganic, organic and physical chemistry. A major in geochemistry will prepare you for a career in the minerals and mining industries. A sub-major in biochemistry or microbiology will prepare you for a career in the pharmaceutical, health or food industries.

### Offer

Campus	Mode
Campbelltown Campus	Internal
Parramatta Campus	Internal

### Unit Set Structure

### Professional Accreditation

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

### Recommended Sequence

Students must satisfy the overall Bachelor of Science course rules, including the following schedule of units.

**Full-time - Start Year Intake****Year 1****Autumn session**

**300558.1** Physics 1

Choose one of

**300224.2** Chemistry 1  
**300554.1** Principles of Chemistry

Choose one of

**200191.3** Fundamentals of Mathematics  
**300672.1** Mathematics 1A

And one Level 1 unit from the Bachelor of Science Unit Pool

**Spring session**

Choose one of

**300225.2** Chemistry 2  
**300550.1** Medicinal Chemistry

One Level one unit from the Bachelor of Science Unit Pool

And two electives

**Year 2****Autumn session**

**300297.1** Analytical Chemistry 2

Choose one of

**300301.1** Organic Chemistry 2  
**300553.1** Molecules of Life: Synthesis and Reactivity

And two electives

**Spring session**

Choose one of

**300230.1** Inorganic Chemistry 2  
**300545.1** Coordination Chemistry

Choose one of

**300236.1** Physical Chemistry 2  
**300540.1** Biomolecular Dynamics

And two electives

**Year 3****Autumn session**

Choose one of

**300298.1** Analytical Chemistry 3  
**300537.1** Advanced Chemical Analysis

Choose one of

**300235.1** Organic Chemistry 3  
**300546.1** Drug Design and Synthesis

One Level 3 elective

And one elective

**Spring session**

Choose one of

**300231.1** Inorganic Chemistry 3  
**300538.1** Advanced Inorganic Chemistry

Choose one of

**300303.1** Physical Chemistry 3  
**300475.1** Molecular Pharmacokinetics

Choose one of

**300645.1** Science Research Project 2  
**300656.1** Laboratory Quality Management  
**300542.1** Biomolecular Science Project

And one elective

**Full-time - Mid Year Intake**

Units may be offered in different semesters at different campuses.

**Year 1****Spring session**

Two Level 1 units from the Bachelor of Science Unit Pool

And two electives

**Autumn session**

**300558.1** Physics 1

Choose one of

**300224.2** Chemistry 1  
**300554.1** Principles of Chemistry

Choose one of

**200191.3** Fundamentals of Mathematics  
**300672.1** Mathematics 1A

And one elective

**Year 2****Spring session**

Choose one of

**300225.2** Chemistry 2  
**300550.1** Medicinal Chemistry

Choose one of

**300230.1** Inorganic Chemistry 2  
**300545.1** Coordination Chemistry

Choose one of

**300236.1** Physical Chemistry 2  
**300540.1** Biomolecular Dynamics

And one elective

**Autumn session**

**300297.1** Analytical Chemistry 2

Choose one of

**300301.1** Organic Chemistry 2  
**300553.1** Molecules of Life: Synthesis and Reactivity

And two electives

### Year 3

#### Spring session

Choose one of

**300231.1** Inorganic Chemistry 3  
**300538.1** Advanced Inorganic Chemistry

Choose one of

**300303.1** Physical Chemistry 3  
**300475.1** Molecular Pharmacokinetics

Choose one of

**300645.1** Science Research Project 2  
**300656.1** Laboratory Quality Management  
**300542.1** Biomolecular Science Project

And one Level 3 elective

#### Autumn session

Choose one of

**300298.1** Analytical Chemistry 3  
**300537.1** Advanced Chemical Analysis

Choose one of

**300235.1** Organic Chemistry 3  
**300546.1** Drug Design and Synthesis

And two electives

## Key Program - Environmental Science

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### KT3020.1

Environmental Science provides a strong background in key analytical techniques that have contemporary applications such as the handling and interpretation of data and the modelling of real world problems such as global warming. Students may specialise in mathematics and/or statistics as well as taking units from other science/ computing related areas or from areas such as marketing, accounting, arts and the social sciences. This will allow a wide range of career options in commercial and government institutions.

#### Offer

Campus	Mode
Hawkesbury Campus	Internal

#### Unit Set Structure

Students must satisfy the overall Bachelor of Science course rules, including the following schedule of units.

#### Year 1

##### Autumn session

**300221.1** Biology 1  
**300633.1** Management of Aquatic Environments  
**300642.1** Understanding Landscape

Choose one of

**300224.2** Chemistry 1  
**300469.1** Introductory Chemistry

#### Spring session

**300225.2** Chemistry 2  
**300222.1** Biology 2  
**200263.1** Biometry  
**300663.1** Resource Sustainability

### Year 2

#### Autumn session

**300634.1** Ecology  
**300300.1** Microbiology 1

Choose one of

**300493.1** Forensic and Environmental Analysis  
**101344.1** Environmental Area Mapping

And one elective

#### Spring session

**300467.1** Green Chemistry 1  
**300647.1** Environmental Biotechnology  
**300624.1** Landuse and the Environment

And one elective

### Year 3

#### Autumn session

**300617.1** Conservation Biology  
**300468.1** Green Chemistry 2

One Level 3 elective

And one elective

#### Spring session

**300465.1** Aquatic Ecology  
**300630.1** Environmental Regulations

One Level 3 elective

And one elective

## Key Program - Food Science

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### KT3021.1

The Food Science key program recognises that the manufacture of food is vital to Australia in terms of investment, export income and jobs growth. Within this framework there is a strong demand for practical food scientists who have skills in chemistry and microbiology and who can apply this knowledge to food processing, ensuring a safe, nutritious and appetising food supply. The course has strong food industry links and well-equipped

facilities, which include a food processing pilot plant offering hands-on experience using industry standard equipment.

## Offer

Campus	Mode
Hawkesbury Campus	Internal

## Unit Set Structure

Students must satisfy the overall Bachelor of Science course rules, including the following schedule of units. They must also satisfactorily complete the unit 300655 - Approved Industrial Experience (10 weeks), comprising a minimum of ten weeks Approved Industrial Experience.

## Full-time - Start Year Intake

### Year 1

#### Autumn session

<b>300221.1</b>	Biology 1
<b>300498.1</b>	Food Science 1

Choose one of

<b>300224.2</b>	Chemistry 1
<b>300469.1</b>	Introductory Chemistry

Choose one of

<b>300558.1</b>	Physics 1
<b>200191.3</b>	Fundamentals of Mathematics
<b>200263.1</b>	Biometry

#### Spring session

<b>300225.2</b>	Chemistry 2
<b>300499.1</b>	Food Science 2
<b>300616.1</b>	Crop Production

And one elective

### Year 2

#### Autumn session

<b>300300.1</b>	Microbiology 1
<b>300658.1</b>	Endocrinology and Metabolism
<b>300452.1</b>	Postharvest
<b>300649.1</b>	Nutrition and Health 1

#### Spring session

<b>300636.1</b>	Food Processing and Analysis
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Choose one of

<b>300638.1</b>	Experimental Foods
<b>300639.1</b>	Food Safety

And two electives

### Year 3

#### Autumn session

<b>300637.1</b>	Food Product Development Practicum
<b>300701.1</b>	Food Quality Assurance

Choose one of

<b>300307.1</b>	Analytical Microbiology
<b>300493.1</b>	Forensic and Environmental Analysis

And one elective

#### Spring session

<b>300641.1</b>	Packaging Science and Technology
<b>300656.1</b>	Laboratory Quality Management

One Level 3 elective

And one elective

## Full-time - Mid Year Intake

### Year 1

#### Spring session

<b>300499.1</b>	Food Science 2
<b>300616.1</b>	Crop Production

And two electives

#### Autumn session

<b>300221.1</b>	Biology 1
<b>300498.1</b>	Food Science 1

Choose one of

<b>300224.2</b>	Chemistry 1
<b>300469.1</b>	Introductory Chemistry

Choose one of

<b>300558.1</b>	Physics 1
<b>200191.3</b>	Fundamentals of Mathematics
<b>200263.1</b>	Biometry

### Year 2

#### Spring session

<b>300225.2</b>	Chemistry 2
<b>300636.1</b>	Food Processing and Analysis
<b>300638.1</b>	Experimental Foods

And one elective

#### Autumn session

<b>300658.1</b>	Endocrinology and Metabolism
<b>300300.1</b>	Microbiology 1
<b>300452.1</b>	Postharvest
<b>300649.1</b>	Nutrition and Health 1

### Year 3

#### Spring session

<b>300641.1</b>	Packaging Science and Technology
<b>300656.1</b>	Laboratory Quality Management

And two electives

#### Autumn session

<b>300701.1</b>	Food Quality Assurance
<b>300637.1</b>	Food Product Development Practicum

Choose one of

- 300307.1** Analytical Microbiology  
**300493.1** Forensic and Environmental Analysis

One Level 3 elective

## Key Program - Mathematical Science

### KT3022.1

Specialise in mathematics, statistics or a combination of both. You'll develop skills that allow you to model and solve real world problems using mathematical techniques. Minor studies can be completed in science related areas such as computer science and the physical sciences or in areas such as marketing, management, accounting, economics and finance, arts, humanities and social sciences.

### Offer

Campus	Mode
Campbelltown Campus	Internal
Parramatta Campus	Internal

### Unit Set Structure

Students must satisfy the overall Bachelor of Science course rules, including the following schedule of units. Units may be offered in different semesters at different campuses.

### Full-time - Start Year Intake

#### Year 1

- 200025.1** Discrete Mathematics  
**300672.1** Mathematics 1A  
**300673.1** Mathematics 1B  
**300580.1** Programming Fundamentals

Choose one of

- 300700.2** Statistical Decision Making  
**200263.1** Biometry

Two Level 1 units from the Bachelor of Science Unit Pool

And one elective

#### Year 2

- 200028.2** Advanced Calculus  
**200027.1** Linear Algebra

Choose one of

- 300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research

Choose three of

- 200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making

- 200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis

And two electives

#### Year 3

- 200045.2** Quantitative Project

Choose five of

- 200193.1** Abstract Algebra  
**200023.1** Analysis  
**200036.2** Data Mining and Visualisation  
**200024.1** Mathematical Finance  
**200022.1** Mathematical Modelling  
**300670.1** Optimisation Techniques  
**300671.1** Principles and Practice of Decision Making  
**200040.1** Probability & Stochastic Processes  
**200037.1** Regression Analysis & Experimental Design  
**200044.1** Simulation Techniques  
**200039.1** Surveys and Multivariate Analysis  
**200038.1** Time Series and Forecasting

And two electives

### Full-time - Mid Year Intake

Units may be offered in different semesters at different campuses.

#### Year 1

- 200025.1** Discrete Mathematics  
**300672.1** Mathematics 1A  
**300673.1** Mathematics 1B  
**300580.1** Programming Fundamentals

Choose one of

- 300700.2** Statistical Decision Making  
**200263.1** Biometry

Two Level 1 units from the Bachelor of Science Unit Pool

And one elective

#### Year 2

- 200028.2** Advanced Calculus  
**200027.1** Linear Algebra

Choose one of

- 300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research

Choose three of

- 200033.2** Applied Statistics  
**200030.1** Differential Equations  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200029.1** Numerical Analysis

And two electives

#### Year 3

- 200045.2** Quantitative Project



Choose five of

<b>200193.1</b>	Abstract Algebra
<b>200023.1</b>	Analysis
<b>200036.2</b>	Data Mining and Visualisation
<b>200024.1</b>	Mathematical Finance
<b>200022.1</b>	Mathematical Modelling
<b>300670.1</b>	Optimisation Techniques
<b>300671.1</b>	Principles and Practice of Decision Making
<b>200040.1</b>	Probability & Stochastic Processes
<b>200037.1</b>	Regression Analysis & Experimental Design
<b>200044.1</b>	Simulation Techniques
<b>200039.1</b>	Surveys and Multivariate Analysis
<b>200038.1</b>	Time Series and Forecasting

And two electives

## Key Program - Nutrition and Food

### KT3024.1

Healthy eating is a vital part of good health. Nutrition and Food covers a range of subjects from the nutritional benefits of particular foods to food safety and medical conditions affected by diet, such as diabetes and heart disease.

### Offer

Campus	Mode
Hawkesbury Campus	Internal

### Unit Set Structure

Students must satisfy the overall Bachelor of Science course rules, including the following schedule of units. They must also satisfactorily complete the unit 300655-Approved Industrial Experience (10 weeks), comprising a minimum of ten weeks Approved Industrial Experience.

### Full-time - Start Year Intake

#### Year 1

##### Autumn session

<b>300221.1</b>	Biology 1
<b>300498.1</b>	Food Science 1

Choose one of

<b>300469.1</b>	Introductory Chemistry
<b>300224.2</b>	Chemistry 1

Choose one of

<b>300558.1</b>	Physics 1
<b>200191.3</b>	Fundamentals of Mathematics
<b>200263.1</b>	Biometry
<b>300700.2</b>	Statistical Decision Making

##### Spring session

<b>300225.2</b>	Chemistry 2
<b>300499.1</b>	Food Science 2

Choose one of

<b>300753.1</b>	Introduction to Human Physiology
<b>300620.1</b>	Human Physiology 1

And one elective

#### Year 2

##### Autumn session

<b>300300.1</b>	Microbiology 1
<b>300649.1</b>	Nutrition and Health 1

Choose one of

<b>300219.2</b>	Biochemistry 1
<b>300658.1</b>	Endocrinology and Metabolism

And one elective

##### Spring session

<b>300650.1</b>	Nutrition and Health 2
<b>300638.1</b>	Experimental Foods

And two electives

#### Year 3

##### Autumn session

<b>300360.1</b>	Consumer Issues in Nutrition
<b>300637.1</b>	Food Product Development Practicum

Choose one of

<b>300652.1</b>	Nutrition and Health Biochemistry
<b>300622.1</b>	Human Physiology 2

And one elective

##### Spring session

<b>300653.1</b>	Applied Nutrition
<b>300651.1</b>	Nutrition and Community Health
<b>300640.1</b>	Culinary Studies

And one elective

### Full-time - Mid Year Intake

#### Year 1

##### Spring session

<b>300499.1</b>	Food Science 2
<b>300753.1</b>	Introduction to Human Physiology

And two electives

##### Autumn session

<b>300221.1</b>	Biology 1
<b>300498.1</b>	Food Science 1

Choose one of

<b>300224.2</b>	Chemistry 1
<b>300469.1</b>	Introductory Chemistry

Choose one of

<b>300558.1</b>	Physics 1
<b>200191.3</b>	Fundamentals of Mathematics

**200263.1** Biometry

### Year 2

#### Spring session

**300225.2** Chemistry 2  
**300638.1** Experimental Foods  
**300650.1** Nutrition and Health 2

And one elective

#### Autumn session

**300300.1** Microbiology 1  
**300649.1** Nutrition and Health 1

Choose one of

**300219.2** Biochemistry 1  
**300658.1** Endocrinology and Metabolism

And one elective

### Year 3

#### Spring session

**300640.1** Culinary Studies  
**300653.1** Applied Nutrition  
**300651.1** Nutrition and Community Health

And one elective

#### Autumn session

**300637.1** Food Product Development Practicum  
**300360.1** Consumer Issues in Nutrition

Choose one of

**300622.1** Human Physiology 2  
**300652.1** Nutrition and Health Biochemistry

And one elective

## Key Program - Construction

### KT3026.1

The Construction Key Program consists of core subjects in structural engineering, project management and construction technologies. Graduates will work in the fields of construction, structural design, project management, quantity surveying and estimation. Career opportunities include those in the private or public sector on projects covering roads, bridges, airports, and residential and commercial buildings.

### Offer

Campus	Mode
Penrith Campus	Internal

## Unit Set Structure

### Full time - Autumn intake

#### Year 2

#### Autumn session

**300731.1** Soil Engineering  
**300040.1** Mechanics of Materials  
**200486.1** Quantity Surveying 1  
**300482.1** Engineering Geology and Concrete Materials

#### Spring session

**300733.1** Introduction to Structural Engineering  
**MG102A.2** Management Foundations  
**300738.1** Surveying for Engineers  
**200468.1** Estimating 1

#### Year 3

#### Autumn session

**300732.1** Structural Analysis  
**300727.1** Project Management  
**300728.1** Construction Planning  
**300488.2** Numerical Methods in Engineering

#### Spring session

**300053.2** Professional Practice  
**300730.1** Steel Structures  
**300736.1** Concrete Structures (UG)  
**300485.1** Foundation Engineering

#### Industrial Experience

**300741.1** Industrial Experience (Engineering)

#### Year 4 (Non-Honours stream)

#### Autumn session

**300483.1** Engineering Project  
**200471.2** Construction Technology 5 (Envelope)

And two electives

#### Spring session

**300483.1** Engineering Project  
**300725.1** Construction Technology 6 (Services)

And two electives

### Honours Stream

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

#### Year 4 (Honours stream)

#### Autumn session

**300675.1** Honours Thesis

And two electives

### Spring session

**300675.1** Honours Thesis

And two electives

## Full-time - Spring intake

### Year 1

#### Spring session

**200237.1** Mathematics for Engineers 1  
**300463.1** Fundamentals of Mechanics  
**300021.1** Electrical Fundamentals  
**300462.1** Engineering and Design Concepts

#### Autumn session

**200238.1** Mathematics for Engineers 2  
**300464.1** Physics and Materials  
**300040.1** Mechanics of Materials  
**300674.1** Engineering, Design and Construction Practice

### Year 2

#### Spring session

**300733.1** Introduction to Structural Engineering  
**MG102A.2** Management Foundations  
**300738.1** Surveying for Engineers  
**200468.1** Estimating 1

#### Autumn session

**300731.1** Soil Engineering  
**300027.1** Engineering Computing  
**200486.1** Quantity Surveying 1  
**300482.1** Engineering Geology and Concrete Materials

### Year 3

#### Spring session

**300053.2** Professional Practice  
**300730.1** Steel Structures  
**300736.1** Concrete Structures (UG)  
**300485.1** Foundation Engineering

#### Autumn session

**300732.1** Structural Analysis  
**300727.1** Project Management  
**300728.1** Construction Planning  
**300488.2** Numerical Methods in Engineering

### Industrial Experience

**300741.1** Industrial Experience (Engineering)

### Year 4 (Non-Honours stream)

#### Spring session

**300483.1** Engineering Project

**300725.1** Construction Technology 6 (Services)

And two electives

#### Autumn session

**300483.1** Engineering Project  
**200471.2** Construction Technology 5 (Envelope)

And two electives

### Honours Stream

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

### Year 4 (Honours stream)

#### Spring session

**300675.1** Honours Thesis

And two electives

#### Autumn session

**300675.1** Honours Thesis

And two electives

It is strongly recommended that electives are chosen from the following list.

**300706.1** Building 1  
**300707.1** Building 2  
**300748.1** Quality and Value Management  
**300723.1** Development Control  
**300722.1** Building Regulations Studies  
**200482.1** Construction in Practice 1  
**200484.2** Construction in Practice 3  
**300740.1** Water Engineering  
**300486.1** Infrastructure Engineering  
**200471.2** Construction Technology 5 (Envelope)  
**300725.1** Construction Technology 6 (Services)

## Key Program - Civil

### **KT3027.1**

Civil engineering covers the fields of structural design, construction management and water engineering, together with quality assurance and environmental engineering. Graduates will work in the fields of design, construction and management. Projects may cover roads, airports, water supply and sewerage schemes, and large buildings. You may be an engineer in private industry, government departments, or in city, municipal or shire councils.

### Offer

Campus	Mode
Penrith Campus	Internal

## Unit Set Structure

### Professional Accreditation

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer.

### Full-time - Autumn Intake

#### Year 2

##### Autumn session

<b>300731.1</b>	Soil Engineering
<b>300040.1</b>	Mechanics of Materials
<b>300740.1</b>	Water Engineering
<b>300482.1</b>	Engineering Geology and Concrete Materials

##### Spring session

<b>300733.1</b>	Introduction to Structural Engineering
<b>MG102A.2</b>	Management Foundations
<b>300738.1</b>	Surveying for Engineers
<b>300737.1</b>	Environmental Engineering

#### Year 3

##### Autumn session

<b>300732.1</b>	Structural Analysis
<b>300486.1</b>	Infrastructure Engineering
<b>300479.1</b>	Drainage Engineering
<b>300488.2</b>	Numerical Methods in Engineering

##### Spring session

<b>300053.2</b>	Professional Practice
<b>300730.1</b>	Steel Structures
<b>300736.1</b>	Concrete Structures (UG)
<b>300485.1</b>	Foundation Engineering

### Industrial Experience:

<b>300741.1</b>	Industrial Experience (Engineering)
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### Year 4 (Non-Honours stream)

#### Autumn session

<b>300483.1</b>	Engineering Project
<b>300734.1</b>	Water Resources Engineering (UG)
<b>300739.1</b>	Timber Structures (UG)

And one elective

#### Spring session

<b>300483.1</b>	Engineering Project
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And three electives

### Honours Stream

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

### Year 4 (Honours stream)

#### Autumn session

<b>300675.1</b>	Honours Thesis
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And two electives

#### Spring session

<b>300675.1</b>	Honours Thesis
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And two electives

### Full-time - Spring Intake

#### Year 1

##### Spring session

<b>200237.1</b>	Mathematics for Engineers 1
<b>300463.1</b>	Fundamentals of Mechanics
<b>300021.1</b>	Electrical Fundamentals
<b>300462.1</b>	Engineering and Design Concepts

##### Autumn session

<b>200238.1</b>	Mathematics for Engineers 2
<b>300464.1</b>	Physics and Materials
<b>300040.1</b>	Mechanics of Materials
<b>300674.1</b>	Engineering, Design and Construction Practice

#### Year 2

##### Spring session

<b>300733.1</b>	Introduction to Structural Engineering
<b>MG102A.2</b>	Management Foundations
<b>300738.1</b>	Surveying for Engineers
<b>300737.1</b>	Environmental Engineering

##### Autumn session

<b>300731.1</b>	Soil Engineering
<b>300027.1</b>	Engineering Computing
<b>300740.1</b>	Water Engineering
<b>300482.1</b>	Engineering Geology and Concrete Materials

#### Year 3

##### Spring session

<b>300053.2</b>	Professional Practice
<b>300730.1</b>	Steel Structures
<b>300736.1</b>	Concrete Structures (UG)
<b>300485.1</b>	Foundation Engineering

##### Autumn session

<b>300732.1</b>	Structural Analysis
<b>300486.1</b>	Infrastructure Engineering
<b>300479.1</b>	Drainage Engineering
<b>300488.2</b>	Numerical Methods in Engineering

### Industrial Experience

<b>300741.1</b>	Industrial Experience (Engineering)
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**Year 4 (Non-Honours stream)****Spring session**

**300483.1** Engineering Project

And three electives

**Autumn session**

**300483.1** Engineering Project  
**300734.1** Water Resources Engineering (UG)  
**300739.1** Timber Structures (UG)

And one elective

**Honours Stream**

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

**Year 4 (Honours stream)****Spring session**

**300675.1** Honours Thesis

And two electives

**Autumn session**

**300675.1** Honours Thesis

And two electives

**Key Program - Environmental****KT3028.1**

This program provides an essential grounding in ecology, civil engineering and environmental management. Environmental engineers are concerned with ensuring a sustainable and better future for the community by developing and managing systems that integrate with and protect our environment. Graduates will work as environmental engineers in private, industrial, and mining companies; government departments; and city, municipal and shire councils.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure****Professional Accreditation**

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer.

**Full-time - Autumn intake****Year 2****Autumn session**

**300731.1** Soil Engineering  
**300040.1** Mechanics of Materials  
**300740.1** Water Engineering  
**300469.1** Introductory Chemistry

**Spring session**

**300733.1** Introduction to Structural Engineering  
**300738.1** Surveying for Engineers  
**300663.1** Resource Sustainability

And one elective

**Year 3****Autumn session**

**300633.1** Management of Aquatic Environments  
**300482.1** Engineering Geology and Concrete Materials  
**300486.1** Infrastructure Engineering  
**300479.1** Drainage Engineering

**Spring session**

**300737.1** Environmental Engineering  
**MG102A.2** Management Foundations  
**300053.2** Professional Practice  
**300628.1** Air Quality Management

**Industrial Experience**

**300741.1** Industrial Experience (Engineering)

**Year 4 (Non-Honours stream)****Autumn session**

**300483.1** Engineering Project  
**300734.1** Water Resources Engineering (UG)  
**MG309A.1** Water and Waste Management  
**300488.2** Numerical Methods in Engineering

**Spring session**

**300483.1** Engineering Project

And three electives

**Honours Stream**

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

**Year 4 (Honours stream)****Autumn session**

**300675.1** Honours Thesis  
**300488.2** Numerical Methods in Engineering

And one elective

**Spring session**

**300675.1** Honours Thesis

And two electives

**Full-time - Spring Intake****Year 1****Spring session**

**200237.1** Mathematics for Engineers 1  
**300463.1** Fundamentals of Mechanics  
**300021.1** Electrical Fundamentals  
**300462.1** Engineering and Design Concepts

**Autumn session**

**200238.1** Mathematics for Engineers 2  
**300464.1** Physics and Materials  
**300040.1** Mechanics of Materials  
**300674.1** Engineering, Design and Construction Practice

**Year 2****Spring session**

**300733.1** Introduction to Structural Engineering  
**300738.1** Surveying for Engineers  
**300663.1** Resource Sustainability

And one elective

**Autumn session**

**300731.1** Soil Engineering  
**300027.1** Engineering Computing  
**300740.1** Water Engineering  
**300469.1** Introductory Chemistry

**Year 3****Spring session**

**300737.1** Environmental Engineering  
**MG102A.2** Management Foundations  
**300053.2** Professional Practice  
**300628.1** Air Quality Management

**Autumn session**

**300633.1** Management of Aquatic Environments  
**300482.1** Engineering Geology and Concrete Materials  
**300486.1** Infrastructure Engineering  
**300479.1** Drainage Engineering

**Industrial Experience**

**300741.1** Industrial Experience (Engineering)

**Year 4 (Non-Honours stream)****Spring session**

**300483.1** Engineering Project

And three electives

**Autumn session**

**300483.1** Engineering Project  
**300734.1** Water Resources Engineering (UG)  
**MG309A.1** Water and Waste Management  
**300488.2** Numerical Methods in Engineering

**Honours Stream**

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

**Year 4 (Honours stream)**

**300675.1** Honours Thesis

And two electives

**Autumn session**

**300675.1** Honours Thesis  
**300488.2** Numerical Methods in Engineering

And one elective

**Key Program - Computer****KT3029.1**

Computer engineering is a specialist area that relates to computers and communication systems that process information and control physical processes and to designing faster computers. Subjects include computer networks, digital systems and communications, microprocessors and embedded micro-controllers. Graduates will work in hardware and software development, in supervisory and data acquisition systems, in industrial applications of computer controlled equipment, in networking and data communications and in developing networking technologies. You will primarily be a problem-solver and organiser, with specialist knowledge of computer hardware, software, communications, computer networking, computer control and real-time computer systems.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure****Professional Accreditation**

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer.

**Full-time - Autumn session****Year 2****Autumn session**

<b>200242.2</b>	Mathematics for Engineers 3
<b>300018.1</b>	Digital Systems 1
<b>300005.1</b>	Circuit Theory
<b>300025.2</b>	Electronics

**Spring session**

<b>300076.1</b>	Microprocessor Systems
<b>300057.2</b>	Signals and Systems
<b>300096.4</b>	Computer Organisation
<b>300052.1</b>	Power and Machines

**Year 3****Autumn session**

<b>300167.2</b>	Systems Programming 1
<b>300069.2</b>	Digital Signal Processing
<b>300075.3</b>	Instrumentation and Measurement
<b>300009.2</b>	Control Systems

**Spring session**

<b>300149.1</b>	Operating Systems
<b>300053.2</b>	Professional Practice
<b>300010.2</b>	Data Networks

And one elective

**Industrial Experience:**

<b>300741.1</b>	Industrial Experience (Engineering)
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**Year 4 (Non-Honours stream)****Autumn session**

<b>300483.1</b>	Engineering Project
<b>300092.1</b>	Computer Architecture

Choose one of

<b>300019.3</b>	Digital Systems 2
<b>300029.2</b>	Engineering Visualization

And one elective

**Spring session**

<b>300483.1</b>	Engineering Project
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Choose one of

<b>300370.1</b>	Digital Control Systems
<b>300044.1</b>	Microcontrollers and PLCs

And two electives

**Honours Stream**

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

**Year 4 (Honours stream)****Autumn session**

<b>300675.1</b>	Honours Thesis
<b>300092.1</b>	Computer Architecture

And one elective

**Spring session**

<b>300675.1</b>	Honours Thesis
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And two electives

**Full-time - Spring intake****Year 1****Spring session**

<b>200237.1</b>	Mathematics for Engineers 1
<b>300463.1</b>	Fundamentals of Mechanics
<b>300021.1</b>	Electrical Fundamentals
<b>300462.1</b>	Engineering and Design Concepts

**Autumn session**

<b>200238.1</b>	Mathematics for Engineers 2
<b>300464.1</b>	Physics and Materials
<b>300027.1</b>	Engineering Computing
<b>300005.1</b>	Circuit Theory

**Year 2****Spring session**

<b>200242.2</b>	Mathematics for Engineers 3
<b>300057.2</b>	Signals and Systems
<b>300052.1</b>	Power and Machines

And one elective

**Autumn session**

<b>300018.1</b>	Digital Systems 1
<b>300674.1</b>	Engineering, Design and Construction Practice
<b>300025.2</b>	Electronics

And one elective

**Year 3****Spring session**

<b>300096.4</b>	Computer Organisation
<b>300053.2</b>	Professional Practice
<b>300010.2</b>	Data Networks
<b>300076.1</b>	Microprocessor Systems

**Autumn session**

<b>300167.2</b>	Systems Programming 1
<b>300075.3</b>	Instrumentation and Measurement
<b>300009.2</b>	Control Systems

**Industrial Experience**

<b>300741.1</b>	Industrial Experience (Engineering)
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**Year 4 (Non-Honours stream)****Spring session**

**300483.1** Engineering Project  
**300149.1** Operating Systems

Choose one of

**300370.1** Digital Control Systems  
**300044.1** Microcontrollers and PLCs

And one elective

**Autumn session**

**300483.1** Engineering Project  
**300092.1** Computer Architecture

Choose one of:

**300019.3** Digital Systems 2  
**300029.2** Engineering Visualization

And one elective

**Honours Stream**

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

**Year 4 (Honours stream)****Spring session**

**300675.1** Honours Thesis  
**300149.1** Operating Systems

And one elective

**Autumn session**

**300675.1** Honours Thesis  
**300092.1** Computer Architecture

One elective

**Key Program - Food Technology****KT3030.1**

This program recognises that good nutrition, food quality and safety are fundamental to the national priority of food security. There is a strong demand and wide range of employment opportunities for practical food technologists who have a strong science base and can apply this knowledge to food processing, ensuring a safe, nutritious and appetising food supply. Graduates can bring these skills into high school Food Technology teaching, raising the standards of teaching curricular, providing depth and problem solving skills. The course has strong food industry links and well-equipped facilities, which include a food processing pilot plant offering hands-on experience. The program consists of core studies in food technology, nutrition, biology and chemistry. Students can combine units to achieve teaching accreditation to also teach in the

secondary disciplines of Biology, Chemistry, Design and Technology, and Physics depending on elective choices. Academic credit may be offered for relevant TAFE or other qualifications; for example, a diploma in a relevant field may attract academic credit of up to one year, making the degree an attractive re-skilling option

**Offer**

Campus	Mode
Hawkesbury Campus	Internal

**Unit Set Structure****Full-time - Start Year Intake****Year 1****Autumn session**

**300221.1** Biology 1  
**300498.1** Food Science 1

Choose one of

**300224.2** Chemistry 1  
**300469.1** Introductory Chemistry

Choose one of

**300558.1** Physics 1  
**200191.3** Fundamentals of Mathematics

**Spring session**

**300222.1** Biology 2  
**300225.2** Chemistry 2  
**300499.1** Food Science 2

And one elective

**Year 2****Autumn session**

**300300.1** Microbiology 1  
**300658.1** Endocrinology and Metabolism  
**300649.1** Nutrition and Health 1

And one elective

**Spring session**

**300636.1** Food Processing and Analysis

Choose one of

**300638.1** Experimental Foods  
**300639.1** Food Safety

And two electives

**Year 3****Autumn session**

**300637.1** Food Product Development Practicum  
**300701.1** Food Quality Assurance

And two electives\*



**Spring session**

**300641.1** Packaging Science and Technology  
**300640.1** Culinary Studies

And two electives\*

\*At least one of these electives must be a Level 3 unit.

**Full-time - Mid-year Intake****Year 1****Spring session**

**300222.1** Biology 2  
**300225.2** Chemistry 2  
**300499.1** Food Science 2

And one elective

**Year 2****Autumn session**

**300224.2** Chemistry 1  
**300498.1** Food Science 1

Choose one of

**300558.1** Physics 1  
**200191.3** Fundamentals of Mathematics

**Spring session**

**300636.1** Food Processing and Analysis  
**300638.1** Experimental Foods

And two electives

**Year 3****Autumn session**

**300300.1** Microbiology 1  
**300658.1** Endocrinology and Metabolism  
**300649.1** Nutrition and Health 1

And one elective

**Spring session**

**300641.1** Packaging Science and Technology  
**300640.1** Culinary Studies

And two electives\*

**Year 4****Autumn session**

**300637.1** Food Product Development Practicum  
**300701.1** Food Quality Assurance

And two electives\*

\*At least one of these electives must be a Level 3 unit.

In addition to the above units, all students must complete:

**200191.3** Fundamentals of Mathematics

or

**200263.1** Biometry

or

Sub Major - Education Studies

Students wanting to teach in Biology, Chemistry, Design and Technology or Physics as a second teaching area must include the following units in their program of study (to be taken as electives).

**Biology**

At least two units from

**300307.1** Analytical Microbiology  
**300452.1** Postharvest  
**300504.1** Fermentation Science  
**300656.1** Laboratory Quality Management  
**300236.1** Physical Chemistry 2  
**300301.1** Organic Chemistry 2  
**300493.1** Forensic and Environmental Analysis  
**300297.1** Analytical Chemistry 2

Note: 300236 is available on the Parramatta campus

**Chemistry**

At least two units from

**300236.1** Physical Chemistry 2  
**300301.1** Organic Chemistry 2  
**300493.1** Forensic and Environmental Analysis  
**300230.1** Inorganic Chemistry 2  
**300297.1** Analytical Chemistry 2

Note: Some of these units are offered on the Parramatta campus only.

**Design and Technology**

At least one unit from

**100947.1** Design Thinking  
**101022.1** 20th Century Design Histories  
**300012.2** Design Management 1: Product Design Audit

Note: All of these units are offered on the Penrith campus only.

**Physics**

**300558.1** Physics 1  
**300559.1** Physics 2

Note: 300559 is offered on the Parramatta campus only.

**Suggested electives**

If students do not wish to be accredited to teach in one or more of the disciplines above, then one or more of the following could be chosen as electives:

**300464.1** Physics and Materials  
**300016.1** Design Science  
**300616.1** Crop Production  
**300650.1** Nutrition and Health 2

## Key Program - Medical Nanotechnology

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### KT3031.1

This Key Program prepares students for professional careers in the multidisciplinary field of nanotechnology, covering biological, chemical and physical processes at the nanoscale. Students will develop fundamental skills in the technology of advanced imaging and characterisation techniques for seeing and manipulating of atoms/molecules, creating chemical and biological nanomachines, smart materials, biomaterials and biodevices, molecular mimics and fabrication of nanostructured devices through the specialised units in this program. Graduates will be skilled to pursue further postgraduate research and/or many challenging career options, examples include as nanotechnologists, smart and effective product developers, managers and consultants in biotechnology, defence, petroleum and pharmaceutical and health industries, chemical, material and engineering focused industries.

#### Offer

Campus	Mode
Campbelltown Campus	Internal

#### Unit Set Structure

##### Year 1

##### Autumn session

300554.1	Principles of Chemistry
300672.1	Mathematics 1A
300558.1	Physics 1
300705.1	Nanotechnology

##### Spring session

300550.1	Medicinal Chemistry
300673.1	Mathematics 1B
300559.1	Physics 2
300543.1	Cell Biology

##### Year 2

##### Autumn session

300413.1	Applied Instrumentation in Nanotechnology
300540.1	Biomolecular Dynamics
300545.1	Coordination Chemistry
300555.1	Proteins and Genes

##### Spring session

300553.1	Molecules of Life: Synthesis and Reactivity
300590.1	Nanochemistry

And two electives

##### Year 3

##### Autumn session

300414.1	Biodevices
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### 300419.1 Quantum Properties of Chemical Systems

One Level 3 elective

And one elective

#### Spring session

### 300415.1 Fabrication of Nanostructured Devices

And one Nanotechnology Alternate Unit

One Level 3 elective

One elective

#### Nanotechnology Alternate Units

300557.1	Molecular Spectroscopy
300556.1	Analytical Protein Science
300537.1	Advanced Chemical Analysis
300544.1	Cell Signalling
300757.1	Molecular Biology of the Immune System
300538.1	Advanced Inorganic Chemistry
200022.1	Mathematical Modelling
300546.1	Drug Design and Synthesis
300324.1	Pharmacological Chemistry
300475.1	Molecular Pharmacokinetics

## Key Program - Electrical

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### KT3032.1

This program includes core subjects from all branches of electrical engineering. Graduates will work in the fields of electronic components, computers, electro-magnetics, power generation and distribution systems, power and control in public utilities, telecommunications, manufacturing, and electrical systems.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

#### Professional Accreditation

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer.

#### Full-time - Autumn intake

##### Year 2

##### Autumn session

200242.2	Mathematics for Engineers 3
300018.1	Digital Systems 1
300005.1	Circuit Theory
300025.2	Electronics

##### Spring session

300076.1	Microprocessor Systems
300057.2	Signals and Systems
300481.1	Engineering Electromagnetics

**300052.1** Power and Machines

### Year 3

#### Autumn session

**300007.1** Communication Systems  
**300069.2** Digital Signal Processing  
**300071.1** Electrical Machines 1  
**300009.2** Control Systems

#### Spring session

**300026.2** Energy Systems  
**300053.2** Professional Practice  
**300070.2** Electrical Drives

And one elective

#### Industrial Experience:

**300741.1** Industrial Experience (Engineering)

### Year 4 (Non-honours stream)

#### Autumn session

**300483.1** Engineering Project  
**300075.3** Instrumentation and Measurement

Choose one of

**300019.3** Digital Systems 2  
**300024.1** Electronic Systems Design

And one elective

#### Spring session

**300483.1** Engineering Project

Choose one of

**300370.1** Digital Control Systems  
**300010.2** Data Networks

And two electives

### Honours Stream

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

### Year 4 (Honours stream)

#### Autumn session

**300675.1** Honours Thesis  
**300075.3** Instrumentation and Measurement

And one elective

#### Spring session

**300675.1** Honours Thesis

And two electives

### Full-time - Spring intake

#### Year 1

#### Spring intake

**200237.1** Mathematics for Engineers 1  
**300463.1** Fundamentals of Mechanics  
**300021.1** Electrical Fundamentals  
**300462.1** Engineering and Design Concepts

#### Autumn session

**200238.1** Mathematics for Engineers 2  
**300464.1** Physics and Materials  
**300027.1** Engineering Computing  
**300005.1** Circuit Theory

#### Year 2

#### Spring session

**200242.2** Mathematics for Engineers 3  
**300057.2** Signals and Systems  
**300481.1** Engineering Electromagnetics  
**300052.1** Power and Machines

#### Autumn session

**300018.1** Digital Systems 1  
**300674.1** Engineering, Design and Construction Practice  
**300025.2** Electronics

And one elective

#### Year 3

#### Spring session

**300026.2** Energy Systems  
**300053.2** Professional Practice  
**300076.1** Microprocessor Systems

And one elective

#### Autumn session

**300007.1** Communication Systems  
**300069.2** Digital Signal Processing  
**300071.1** Electrical Machines 1  
**300009.2** Control Systems

#### Industrial Experience

**300741.1** Industrial Experience (Engineering)

### Year 4 (Non-Honours stream)

#### Spring session

**300483.1** Engineering Project  
**300070.2** Electrical Drives

Choose one of

**300370.1** Digital Control Systems  
**300010.2** Data Networks

And one elective

#### Autumn session

**300483.1** Engineering Project  
**300075.3** Instrumentation and Measurement

Choose one of:

**300019.3** Digital Systems 2  
**300024.1** Electronic Systems Design

And one elective

#### Honours Stream

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

#### Year 4 (Honours stream)

##### Spring session

**300675.1** Honours Thesis  
**300070.2** Electrical Drives

And one elective

##### Autumn session

**300675.1** Honours Thesis  
**300075.3** Instrumentation and Measurement

And one elective

#### Key Program - Robotics and Mechatronics

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##### **KT3033.1**

This program provides the skills necessary for the design of smart machines of all types: cruise control in automobiles, pilotless spacecraft, automated factories and medical telerobotics. The course, accompanied by an extensive and integrated hands-on laboratory program, is essentially concerned with the design of intelligent mechanical systems and automation, and includes the study of robotics, computer control, automated manufacturing, microprocessor applications and machine design. Graduates in the program acquire the combined skills of mechanical and computer/electrical engineering that are needed in leading-edge industries such as aerospace systems, the car industry, automation and robotic applications, biomedical engineering, laser systems, and building materials manufacture.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

##### Professional Accreditation

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer.

##### Full-time - Autumn intake

###### Year 2

###### Autumn session

**300035.2** Kinematics and Kinetics of Machines  
**300040.1** Mechanics of Materials  
**300005.1** Circuit Theory  
**300025.2** Electronics

###### Spring session

**300044.1** Microcontrollers and PLCs  
**300735.1** Automated Manufacturing  
**300480.1** Dynamics of Mechanical Systems  
**300052.1** Power and Machines

###### Year 3

###### Autumn session

**300018.1** Digital Systems 1  
**300071.1** Electrical Machines 1  
**300009.2** Control Systems

Choose one of

**300056.2** Robotics  
**300043.2** Mobile Robotics

###### Spring session

**300053.2** Professional Practice

Choose one of

**300478.1** Design of Servo-systems  
**300487.1** Mechatronic Design

And two electives

##### Industrial Experience:

**300741.1** Industrial Experience (Engineering)

###### Year 4 (Non-Honours stream)

###### Autumn session

**300483.1** Engineering Project  
**300075.3** Instrumentation and Measurement

Choose one of

**300056.2** Robotics  
**300043.2** Mobile Robotics

And one elective

###### Spring session

**300483.1** Engineering Project

Choose one of

- 300478.1** Design of Servo-systems  
**300487.1** Mechatronic Design

Choose one of

- 300304.2** Sustainable Design: Materials Technology  
**300076.1** Microprocessor Systems

And one elective

### Honours Stream

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

### Year 4 (Honours stream)

#### Autumn session

- 300675.1** Honours Thesis

Choose one of

- 300056.2** Robotics  
**300043.2** Mobile Robotics

And one elective

#### Spring session

- 300675.1** Honours Thesis

Choose one of

- 300478.1** Design of Servo-systems  
**300487.1** Mechatronic Design

And one elective

### Full-time - Spring Intake

#### Year 1

#### Spring session

- 200237.1** Mathematics for Engineers 1  
**300463.1** Fundamentals of Mechanics  
**300021.1** Electrical Fundamentals  
**300462.1** Engineering and Design Concepts

#### Autumn session

- 200238.1** Mathematics for Engineers 2  
**300464.1** Physics and Materials  
**300040.1** Mechanics of Materials  
**300005.1** Circuit Theory

#### Year 2

#### Spring session

- 300735.1** Automated Manufacturing  
**300052.1** Power and Machines

And two electives

#### Autumn session

- 300035.2** Kinematics and Kinetics of Machines  
**300027.1** Engineering Computing  
**300674.1** Engineering, Design and Construction Practice  
**300025.2** Electronics

#### Year 3

#### Spring session

- 300053.2** Professional Practice  
**300480.1** Dynamics of Mechanical Systems  
**300044.1** Microcontrollers and PLCs

Choose one of

- 300478.1** Design of Servo-systems  
**300487.1** Mechatronic Design

#### Autumn session

- 300018.1** Digital Systems 1  
**300071.1** Electrical Machines 1  
**300009.2** Control Systems

Choose one of

- 300056.2** Robotics  
**300043.2** Mobile Robotics

#### Industrial Experience:

- 300741.1** Industrial Experience (Engineering)

#### Year 4 (Non-Honours stream)

#### Spring session

- 300483.1** Engineering Project

Choose one of

- 300478.1** Design of Servo-systems  
**300487.1** Mechatronic Design

Choose one of

- 300304.2** Sustainable Design: Materials Technology  
**300076.1** Microprocessor Systems

And one elective

#### Autumn session

- 300483.1** Engineering Project  
**300075.3** Instrumentation and Measurement

Choose one of

- 300056.2** Robotics  
**300043.2** Mobile Robotics

And one elective

### Honours Stream

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

**Year 4 (Honours stream)****Spring session**

**300675.1** Honours Thesis

Choose one of

**300478.1** Design of Servo-systems  
**300487.1** Mechatronic Design

And one elective

**Autumn session**

**300675.1** Honours Thesis

Choose one of:

**300056.2** Robotics  
**300043.2** Mobile Robotics

And one elective

**Key Program - Telecommunications****KT3034.1**

This program emphasises the hardware issues related to telecommunications, including digital systems, antenna design, communication hardware, data transfer and management and signal processing. Graduates will work in a variety of situations, such as communications in offices, communications between machines, and intercontinental communication issues. There is a high demand for telecommunications engineers as providers struggle to meet the rapid increase demand for both personal and business use of different modes of communications, including the mobile telephone and Internet.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure****Professional Accreditation**

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer.

**Full-time - Autumn intake****Year 2****Autumn session**

**200242.2** Mathematics for Engineers 3  
**300018.1** Digital Systems 1  
**300005.1** Circuit Theory  
**300025.2** Electronics

**Spring session**

**300076.1** Microprocessor Systems  
**300057.2** Signals and Systems

**300481.1** Engineering Electromagnetics  
**300052.1** Power and Machines

**Year 3****Autumn session**

**300007.1** Communication Systems  
**300069.2** Digital Signal Processing  
**300167.2** Systems Programming 1  
**300029.2** Engineering Visualization

**Spring session**

**300065.2** Wireless Communications  
**300053.2** Professional Practice  
**300010.2** Data Networks

And one elective

**Industrial Experience:**

**300741.1** Industrial Experience (Engineering)

**Year 4 (Non-honours stream)****Autumn session**

**300483.1** Engineering Project

Choose one of

**300075.3** Instrumentation and Measurement  
**300009.2** Control Systems

Choose one of

**300019.3** Digital Systems 2  
**300046.1** Multimedia Signal Processing

And one elective

**Spring session**

**300483.1** Engineering Project

Choose one of

**300068.2** Communication Electronics  
**300489.1** Radio and Satellite Communication

And two electives

**Honours Stream**

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

**Year 4 (Honours stream)****Autumn session**

**300675.1** Honours Thesis

And two electives

**Spring session**

**300675.1** Honours Thesis

Choose one of:

- 300068.2** Communication Electronics  
**300489.1** Radio and Satellite Communication

And one elective

## Full-time - Spring intake

### Year 1

#### Spring intake

- 200237.1** Mathematics for Engineers 1  
**300463.1** Fundamentals of Mechanics  
**300021.1** Electrical Fundamentals  
**300462.1** Engineering and Design Concepts

#### Autumn session

- 200238.1** Mathematics for Engineers 2  
**300464.1** Physics and Materials  
**300027.1** Engineering Computing  
**300005.1** Circuit Theory

### Year 2

#### Spring session

- 200242.2** Mathematics for Engineers 3  
**300057.2** Signals and Systems  
**300481.1** Engineering Electromagnetics  
**300052.1** Power and Machines

#### Autumn session

- 300018.1** Digital Systems 1  
**300674.1** Engineering, Design and Construction Practice  
**300025.2** Electronics

And one elective

### Year 3

#### Spring session

- 300053.2** Professional Practice  
**300010.2** Data Networks  
**300076.1** Microprocessor Systems

And one elective

#### Autumn session

- 300007.1** Communication Systems  
**300069.2** Digital Signal Processing  
**300167.2** Systems Programming 1  
**300029.2** Engineering Visualization

#### Industrial Experience:

- 300741.1** Industrial Experience (Engineering)

### Year 4 (Non-Honours stream)

#### Spring session

- 300483.1** Engineering Project

- 300065.2** Wireless Communications

Choose one of

- 300068.2** Communication Electronics  
**300489.1** Radio and Satellite Communication

And one elective

#### Autumn session

- 300483.1** Engineering Project

Choose one of

- 300075.3** Instrumentation and Measurement  
**300009.2** Control Systems

Choose one of

- 300019.3** Digital Systems 2  
**300046.1** Multimedia Signal Processing

And one elective

## Honours Stream

An Honours stream is offered - see the Honours in Bachelors Awards Policy and associated College Guidelines for the admission criteria.

UWS Policies

### Year 4 (Honours stream)

#### Spring session

- 300675.1** Honours Thesis  
**300065.2** Wireless Communications

Choose one of

- 300068.2** Communication Electronics  
**300489.1** Radio and Satellite Communication

#### Autumn session

- 300675.1** Honours Thesis

And two electives

## Key Program - Civil

### KT3035.1

Civil engineering covers the fields of structural design, construction management and water engineering, together with quality assurance and environmental engineering. Graduates will work in the fields of design, construction and management. Projects may cover roads, airports, water supply and sewerage schemes, and large buildings. You may be an engineer in private industry, government departments, or in city, municipal or shire councils.

## Offer

Campus	Mode
Penrith Campus	Internal

## Unit Set Structure

### Professional Accreditation

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer.

### Full-time

#### Year 1

##### Autumn session

<b>200237.1</b>	Mathematics for Engineers 1
<b>300464.1</b>	Physics and Materials
<b>300027.1</b>	Engineering Computing
<b>300674.1</b>	Engineering, Design and Construction Practice

##### Spring session

<b>200238.1</b>	Mathematics for Engineers 2
<b>300463.1</b>	Fundamentals of Mechanics
<b>300021.1</b>	Electrical Fundamentals
<b>300462.1</b>	Engineering and Design Concepts

#### Year 2

##### Autumn session

<b>300731.1</b>	Soil Engineering
<b>300040.1</b>	Mechanics of Materials
<b>300740.1</b>	Water Engineering
<b>300482.1</b>	Engineering Geology and Concrete Materials

##### Spring session

<b>300733.1</b>	Introduction to Structural Engineering
<b>MG102A.2</b>	Management Foundations
<b>300738.1</b>	Surveying for Engineers
<b>300737.1</b>	Environmental Engineering

#### Year 3

##### Autumn session

<b>300732.1</b>	Structural Analysis
<b>300488.2</b>	Numerical Methods in Engineering
<b>300666.1</b>	Advanced Engineering Topic 1

Choose one of

<b>300479.1</b>	Drainage Engineering
<b>300486.1</b>	Infrastructure Engineering

##### Spring

<b>300053.2</b>	Professional Practice
<b>300730.1</b>	Steel Structures
<b>300736.1</b>	Concrete Structures (UG)
<b>300485.1</b>	Foundation Engineering

### Industrial experience:

<b>300741.1</b>	Industrial Experience (Engineering)
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#### Year 4

##### Autumn session

<b>300668.1</b>	Advanced Engineering Thesis
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Choose one of

<b>300739.1</b>	Timber Structures (UG)
<b>300734.1</b>	Water Resources Engineering (UG)

##### Spring session

<b>300668.1</b>	Advanced Engineering Thesis
<b>300667.1</b>	Advanced Engineering Topic 2

## Key Program - Computer

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### KT3036.1

Computer engineering is a specialist area that relates to computers and communication systems that process information and control physical processes and to designing faster computers. Subjects include computer networks, digital systems and communications, microprocessors and embedded micro-controllers. Graduates will work in hardware and software development, in supervisory and data acquisition systems, in industrial applications of computer controlled equipment, in networking and data communications and in developing networking technologies. You will primarily be a problem-solver and organiser, with specialist knowledge of computer hardware, software, communications, computer networking, computer control and real-time computer systems.

### Offer

Campus	Mode
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Penrith Campus	Internal
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## Unit Set Structure

### Professional Accreditation

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer.

### Full-time

#### Year 1

##### Autumn session

<b>200237.1</b>	Mathematics for Engineers 1
<b>300464.1</b>	Physics and Materials
<b>300027.1</b>	Engineering Computing
<b>300674.1</b>	Engineering, Design and Construction Practice

##### Spring session

<b>200238.1</b>	Mathematics for Engineers 2
<b>300463.1</b>	Fundamentals of Mechanics
<b>300021.1</b>	Electrical Fundamentals



**300462.1** Engineering and Design Concepts**Year 2****Autumn session**

<b>200242.2</b>	Mathematics for Engineers 3
<b>300018.1</b>	Digital Systems 1
<b>300005.1</b>	Circuit Theory
<b>300025.2</b>	Electronics

**Spring session**

<b>300076.1</b>	Microprocessor Systems
<b>300057.2</b>	Signals and Systems
<b>300096.4</b>	Computer Organisation
<b>300052.1</b>	Power and Machines

**Year 3****Autumn session**

<b>300167.2</b>	Systems Programming 1
<b>300069.2</b>	Digital Signal Processing
<b>300075.3</b>	Instrumentation and Measurement
<b>300009.2</b>	Control Systems

**Spring session**

<b>300149.1</b>	Operating Systems
<b>300053.2</b>	Professional Practice
<b>300010.2</b>	Data Networks
<b>300666.1</b>	Advanced Engineering Topic 1

**Industrial experience:**

<b>300741.1</b>	Industrial Experience (Engineering)
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**Year 4****Autumn session**

<b>300668.1</b>	Advanced Engineering Thesis
<b>300092.1</b>	Computer Architecture

**Spring session**

<b>300668.1</b>	Advanced Engineering Thesis
<b>300667.1</b>	Advanced Engineering Topic 2

**Key Program - Construction****KT3037.1**

The Construction Key Program consists of core subjects in structural engineering, project management and construction technologies. Graduates will work in the fields of construction, structural design, project management, quantity surveying and estimation. Career opportunities include those in the private or public sector on projects covering roads, bridges, airports, and residential and commercial buildings.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure****Full-time****Year 1****Autumn session**

<b>200237.1</b>	Mathematics for Engineers 1
<b>300464.1</b>	Physics and Materials
<b>300027.1</b>	Engineering Computing
<b>300674.1</b>	Engineering, Design and Construction Practice

**Spring session**

<b>200238.1</b>	Mathematics for Engineers 2
<b>300463.1</b>	Fundamentals of Mechanics
<b>300021.1</b>	Electrical Fundamentals
<b>300462.1</b>	Engineering and Design Concepts

**Year 2****Autumn session**

<b>300731.1</b>	Soil Engineering
<b>300040.1</b>	Mechanics of Materials
<b>200486.1</b>	Quantity Surveying 1
<b>300482.1</b>	Engineering Geology and Concrete Materials

**Spring session**

<b>300733.1</b>	Introduction to Structural Engineering
<b>MG102A.2</b>	Management Foundations
<b>300738.1</b>	Surveying for Engineers
<b>200468.1</b>	Estimating 1

**Year 3****Autumn session**

<b>300732.1</b>	Structural Analysis
<b>300488.2</b>	Numerical Methods in Engineering
<b>300728.1</b>	Construction Planning
<b>300666.1</b>	Advanced Engineering Topic 1

**Spring session**

<b>300053.2</b>	Professional Practice
<b>300730.1</b>	Steel Structures
<b>300736.1</b>	Concrete Structures (UG)
<b>300485.1</b>	Foundation Engineering

**Industrial experience**

<b>300741.1</b>	Industrial Experience (Engineering)
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**Year 4****Autumn session**

<b>300668.1</b>	Advanced Engineering Thesis
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**300727.1** Project Management

#### Spring session

**300668.1** Advanced Engineering Thesis  
**300667.1** Advanced Engineering Topic 2

### Key Program - Electrical

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#### KT3038.1

This program includes core subjects from all branches of electrical engineering. Graduates will work in the fields of electronic components, computers, electro-magnetics, power generation and distribution systems, power and control in public utilities, telecommunications, manufacturing, and electrical systems.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

### Professional Accreditation

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer

#### Full-time

##### Year 1

#### Autumn session

**200237.1** Mathematics for Engineers 1  
**300464.1** Physics and Materials  
**300027.1** Engineering Computing  
**300674.1** Engineering, Design and Construction Practice

#### Spring session

**200238.1** Mathematics for Engineers 2  
**300463.1** Fundamentals of Mechanics  
**300021.1** Electrical Fundamentals  
**300462.1** Engineering and Design Concepts

##### Year 2

#### Autumn session

**200242.2** Mathematics for Engineers 3  
**300018.1** Digital Systems 1  
**300005.1** Circuit Theory  
**300025.2** Electronics

#### Spring session

**300076.1** Microprocessor Systems  
**300057.2** Signals and Systems  
**300481.1** Engineering Electromagnetics  
**300052.1** Power and Machines

##### Year 3

#### Autumn session

**300007.1** Communication Systems  
**300069.2** Digital Signal Processing  
**300071.1** Electrical Machines 1  
**300009.2** Control Systems

#### Spring session

**300026.2** Energy Systems  
**300053.2** Professional Practice  
**300070.2** Electrical Drives  
**300666.1** Advanced Engineering Topic 1

#### Industrial experience

**300741.1** Industrial Experience (Engineering)

##### Year 4

#### Autumn session

**300668.1** Advanced Engineering Thesis  
**300075.3** Instrumentation and Measurement

#### Spring session

**300668.1** Advanced Engineering Thesis  
**300667.1** Advanced Engineering Topic 2

### Key Program - Environmental

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#### KT3039.1

This program provides an essential grounding in ecology, civil engineering and environmental management. Environmental engineers are concerned with ensuring a sustainable and better future for the community by developing and managing systems that integrate with and protect our environment. Graduates will work as environmental engineers in private, industrial, and mining companies; government departments; and city, municipal and shire councils.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

### Professional Accreditation

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer.

**Full-time****Year 1****Autumn session**

<b>200237.1</b>	Mathematics for Engineers 1
<b>300464.1</b>	Physics and Materials
<b>300027.1</b>	Engineering Computing
<b>300674.1</b>	Engineering, Design and Construction Practice

**Spring session**

<b>200238.1</b>	Mathematics for Engineers 2
<b>300463.1</b>	Fundamentals of Mechanics
<b>300021.1</b>	Electrical Fundamentals
<b>300462.1</b>	Engineering and Design Concepts

**Year 2****Autumn session**

<b>300731.1</b>	Soil Engineering
<b>300040.1</b>	Mechanics of Materials
<b>300740.1</b>	Water Engineering
<b>300482.1</b>	Engineering Geology and Concrete Materials

**Spring session**

<b>300733.1</b>	Introduction to Structural Engineering
<b>300738.1</b>	Surveying for Engineers
<b>300663.1</b>	Resource Sustainability
<b>85024.1</b>	Introduction to Environmental Chemistry

**Year 3****Autumn session**

<b>300633.1</b>	Management of Aquatic Environments
<b>300666.1</b>	Advanced Engineering Topic 1

Choose one of

<b>300479.1</b>	Drainage Engineering
<b>300486.1</b>	Infrastructure Engineering

Choose one of

<b>MG309A.1</b>	Water and Waste Management
<b>300734.1</b>	Water Resources Engineering (UG)

**Spring session**

<b>300737.1</b>	Environmental Engineering
<b>MG102A.2</b>	Management Foundations
<b>300053.2</b>	Professional Practice
<b>300628.1</b>	Air Quality Management

**Industrial experience**

<b>300741.1</b>	Industrial Experience (Engineering)
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**Year 4****Autumn session**

<b>300668.1</b>	Advanced Engineering Thesis
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<b>300488.2</b>	Numerical Methods in Engineering
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**Spring session**

<b>300668.1</b>	Advanced Engineering Thesis
<b>300667.1</b>	Advanced Engineering Topic 2

**Key Program - Robotics and Mechatronics****KT3040.1**

This program provides the skills necessary for the design of smart machines of all types: cruise control in automobiles, pilotless spacecraft, automated factories and medical telerobotics. The course, accompanied by an extensive and integrated hands-on laboratory program, is essentially concerned with the design of intelligent mechanical systems and automation, and includes the study of robotics, computer control, automated manufacturing, microprocessor applications and machine design. Graduates in the program acquire the combined skills of mechanical and computer/electrical engineering that are needed in leading-edge industries such as aerospace systems, the car industry, automation and robotic applications, biomedical engineering, laser systems, and building materials manufacture.

**Offer**

<b>Campus</b>	<b>Mode</b>
Penrith Campus	Internal

**Unit Set Structure****Professional Accreditation**

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer

**Full-time****Year 1****Autumn session**

<b>200237.1</b>	Mathematics for Engineers 1
<b>300464.1</b>	Physics and Materials
<b>300027.1</b>	Engineering Computing
<b>300674.1</b>	Engineering, Design and Construction Practice

**Spring session**

<b>200238.1</b>	Mathematics for Engineers 2
<b>300463.1</b>	Fundamentals of Mechanics
<b>300021.1</b>	Electrical Fundamentals
<b>300462.1</b>	Engineering and Design Concepts

**Year 2****Autumn session**

<b>300035.2</b>	Kinematics and Kinetics of Machines
<b>300040.1</b>	Mechanics of Materials

**300005.1** Circuit Theory  
**300025.2** Electronics

#### Spring session

**300044.1** Microcontrollers and PLCs  
**300735.1** Automated Manufacturing  
**300480.1** Dynamics of Mechanical Systems  
**300052.1** Power and Machines

#### Year 3

##### Autumn session

**300018.1** Digital Systems 1  
**300071.1** Electrical Machines 1  
**300009.2** Control Systems

Choose one of

**300056.2** Robotics  
**300043.2** Mobile Robotics

##### Spring session

**300053.2** Professional Practice  
**300666.1** Advanced Engineering Topic 1

Choose one of

**300478.1** Design of Servo-systems  
**300487.1** Mechatronic Design

And one elective

##### Industrial experience

**300741.1** Industrial Experience (Engineering)

#### Year 4

##### Autumn session

**300668.1** Advanced Engineering Thesis  
**300667.1** Advanced Engineering Topic 2

##### Spring session

**300668.1** Advanced Engineering Thesis

Choose one of

**300478.1** Design of Servo-systems  
**300487.1** Mechatronic Design

## Key Program - Telecommunications

### **KT3041.1**

This program emphasises the hardware issues related to telecommunications, including digital systems, antenna design, communication hardware, data transfer and management and signal processing. Graduates will work in a variety of situations, such as communications in offices, communications between machines, and intercontinental communication issues. There is a high demand for telecommunications engineers as providers struggle to

meet the rapid increase demand for both personal and business use of different modes of communications, including the mobile telephone and Internet.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

### Professional Accreditation

This Key Program has received full accreditation from Engineers Australia at the level of Professional Engineer

#### Full-time

##### Year 1

##### Autumn session

**200237.1** Mathematics for Engineers 1  
**300464.1** Physics and Materials  
**300027.1** Engineering Computing  
**300674.1** Engineering, Design and Construction Practice

##### Spring session

**200238.1** Mathematics for Engineers 2  
**300463.1** Fundamentals of Mechanics  
**300021.1** Electrical Fundamentals  
**300462.1** Engineering and Design Concepts

##### Year 2

##### Autumn session

**200242.2** Mathematics for Engineers 3  
**300018.1** Digital Systems 1  
**300005.1** Circuit Theory  
**300025.2** Electronics

##### Spring session

**300076.1** Microprocessor Systems  
**300057.2** Signals and Systems  
**300481.1** Engineering Electromagnetics  
**300052.1** Power and Machines

##### Year 3

##### Autumn session

**300007.1** Communication Systems  
**300069.2** Digital Signal Processing  
**300167.2** Systems Programming 1  
**300029.2** Engineering Visualization

##### Spring session

**300065.2** Wireless Communications  
**300053.2** Professional Practice  
**300010.2** Data Networks  
**300666.1** Advanced Engineering Topic 1

**Industrial experience**

**300741.1** Industrial Experience (Engineering)

**Year 4****Autumn session**

**300668.1** Advanced Engineering Thesis  
**300667.1** Advanced Engineering Topic 2

**Spring session**

**300668.1** Advanced Engineering Thesis

Choose one of

**300068.2** Communication Electronics  
**300489.1** Radio and Satellite Communication

**Key Program - Health Promotion****KT4000.1**

Health Promotion extends beyond raising awareness of healthcare issues to developing and implementing strategies for communities, individuals and policy-makers to improve their health and wellbeing. Health Promotion graduates help communities and individuals to change their behaviour, working with employers, not-for-profit foundations, disability councils, the public health sector, community health centres, youth centres, schools and local government. Health promotion projects are as diverse as injury prevention, skin cancer prevention, HIV/AIDS awareness and community development. The program combines studies of health politics and planning, health promotion practice, injury prevention, public health with a comprehensive foundation of the health sciences to develop the professional competencies important for ethical and safe practice and high quality care and the skills to work in multidisciplinary teams. Evidence-based practice is one of the most important trends in healthcare today and a strong feature of the program. There is room for electives in particular areas of interest opening up a richer experience of university life or a double major in two of the areas of Health Promotion, Health Services Management or Therapeutic Recreation.

**Offer**

Campus	Mode
Campbelltown Campus	Internal

**Unit Set Structure**

Qualification for this Key Program requires the successful completion of 240 credit points including the units listed in the recommended sequence below.

**Full-time - Start Year Intake****Year 1****Autumn session**

**400870.1** Population Health and Society  
**300361.2** Introduction to Human Biology  
**400783.1** Professional Pathways in Health Science  
**400871.1** Professional Health Competencies

**Spring session**

**101614.1** Psychology and Health  
**400863.1** Foundations of Research and Evidence-Based Practice  
**400732.1** Communication in Health

And one elective

Recommended elective

**400277.2** Health Services Management

**Year 2****Autumn session**

**400867.1** Approaches to Health Promotion  
**400285.1** Public Health  
**400864.1** Research Methods (Quantitative and Qualitative)  
**400866.2** Culture, Diversity and Health

**Spring session**

**400966.1** Health Politics, Policy and Planning  
**400286.1** Injury Prevention

And two electives

**Year 3****Autumn session**

**400275.1** Health Planning Project  
**400784.1** Health Promotion Practice 1

And two electives

**Spring session**

**400785.1** Health Promotion Practice 2  
**400249.1** Ethical and Legal Issues in Health Care  
**400786.1** Professional Transition Project

And one elective

**Full-time - Mid Year Intake****Year 1****Spring session**

**101614.1** Psychology and Health  
**400863.1** Foundations of Research and Evidence-Based Practice  
**400732.1** Communication in Health

One elective

Recommended Elective

**400277.2** Health Services Management

**Year 2****Autumn session**

<b>300361.2</b>	Introduction to Human Biology
<b>400285.1</b>	Public Health
<b>400783.1</b>	Professional Pathways in Health Science
<b>400871.1</b>	Professional Health Competencies

**Spring session**

<b>400966.1</b>	Health Politics, Policy and Planning
<b>400286.2</b>	Injury Prevention

Two electives

**Year 3****Autumn session**

<b>400867.1</b>	Approaches to Health Promotion
<b>400870.1</b>	Population Health and Society
<b>400864.1</b>	Research Methods (Quantitative and Qualitative)
<b>400866.2</b>	Culture, Diversity and Health

**Spring session**

<b>400785.2</b>	Health Promotion Practice 2
<b>400249.1</b>	Ethical and Legal Issues in Health Care
<b>400786.1</b>	Professional Transition Project

One elective

**Year 4****Autumn session**

<b>400275.1</b>	Health Planning Project
<b>400784.2</b>	Health Promotion Practice 1

Two electives

**Key Program - Health Service Management****KT4001.1**

Health Services Management plays a vital role in society, in ensuring that public investment in health is well spent, and that private healthcare businesses deliver effective, efficient services. It puts management studies in the distinctive context of the health sector to integrate clinical understanding, management skills and knowledge of the health care system and policy development. Health Services Management graduates are in demand to work in quality improvement, financial management and occupational health and safety. Two areas of growth are in mental health services and the aged care sector. Graduates will be skilled in managing and responding to rapid changes within the health care system and in areas that deal with policy initiative, development and evaluation. The program combines studies of managing people, resources and finances with a comprehensive foundation of the health sciences to develop the professional competencies important for ethical and safe practice and high quality care and the skills to work in multidisciplinary

teams. Evidence-based practice is one of the most important trends in healthcare today and a strong feature of the program. There is room for electives in particular areas of interest opening up a richer experience of university life or a double major in two of the areas of Health Promotion, Health Services Management or Therapeutic Recreation.

**Offer**

Campus	Mode
Campbelltown Campus	Internal

**Unit Set Structure****Professional Accreditation**

Accreditation will be sought with the Australian College of Health Services Executives (for Health Services Management Key Program).

Qualification for this Key Program requires the successful completion of 240 credit points including the units listed in the recommended sequence below.

**Full-time - Start Year Intake****Year 1****Autumn session**

<b>400870.1</b>	Population Health and Society
<b>300361.2</b>	Introduction to Human Biology
<b>400783.1</b>	Professional Pathways in Health Science
<b>400871.1</b>	Professional Health Competencies

**Spring session**

<b>101614.1</b>	Psychology and Health
<b>400277.2</b>	Health Services Management
<b>400863.1</b>	Foundations of Research and Evidence-Based Practice
<b>400732.1</b>	Communication in Health

**Year 2****Autumn session**

<b>400867.1</b>	Approaches to Health Promotion
<b>400864.1</b>	Research Methods (Quantitative and Qualitative)
<b>400866.2</b>	Culture, Diversity and Health

And one elective

Recommended electives

<b>400285.1</b>	Public Health
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OR

<b>400244.1</b>	Introduction to Leisure and Recreation Theory
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**Spring session**

<b>400966.1</b>	Health Politics, Policy and Planning
<b>400788.1</b>	Health Services Workforce Management

And two electives

**Year 3****Autumn session**

- 400275.1** Health Planning Project  
**400787.1** Health Services Management Practice

And two electives

**Spring session**

- 400279.2** Health Services Financial Management  
**400249.1** Ethical and Legal Issues in Health Care  
**400786.1** Professional Transition Project

And one elective

**Full-time - Mid Year Intake****Year 1****Spring session**

- 101614.1** Psychology and Health  
**400277.2** Health Services Management  
**400863.1** Foundations of Research and Evidence-Based Practice  
**400732.1** Communication in Health

**Year 2****Autumn session**

- 400870.1** Population Health and Society  
**300361.2** Introduction to Human Biology  
**400783.1** Professional Pathways in Health Science  
**400871.1** Professional Health Competencies

**Spring session**

- 400966.1** Health Politics, Policy and Planning  
**400788.1** Health Services Workforce Management

Two electives

**Year 3****Autumn session**

- 400867.1** Approaches to Health Promotion  
**400864.1** Research Methods (Quantitative and Qualitative)  
**400866.2** Culture, Diversity and Health

One elective

Recommended Electives

- 400285.1** Public Health

OR

- 400244.1** Introduction to Leisure and Recreation Theory

**Spring session**

- 400279.2** Health Services Financial Management  
**400249.1** Ethical and Legal Issues in Health Care  
**400786.1** Professional Transition Project

One elective

**Year 4****Autumn session**

- 400275.1** Health Planning Project  
**400787.1** Health Services Management Practice

Two electives

**Key Program - Therapeutic Recreation****KT4002.1**

Therapeutic Recreation is the link between leisure and health improvement, using recreation as a way to improve quality of life. Therapeutic Recreation graduates work with patients to use leisure activities to improve health and life quality, for example in rehabilitation centres and psychiatric units, special schools, day care centres, aged care facilities, or in local government or community settings. The program combines theory and practice in learning, education programming, aged care, disability and mental health with a comprehensive foundation of the health sciences to develop the professional competencies important for ethical and safe practice and high quality care and the skills to work in multidisciplinary teams. Evidence-based practice is one of the most important trends in healthcare today and a strong feature of the program. There is room for electives in particular areas of interest opening up a richer experience of university life or a double major in two of the areas of Health Promotion, Health Services Management or Therapeutic Recreation.

**Offer**

Campus	Mode
Campbelltown Campus	Internal

**Unit Set Structure****Professional Accreditation**

Accreditation will be sought with the Diversional Therapy Association of Australia (for Therapeutic Recreation Key Program).

Qualification for this Key Program requires the successful completion of 240 credit points including the units listed in the recommended sequence below.

**Recommended Sequence****Full-time - Start Year Intake****Year 1****Autumn session**

- 400870.1** Population Health and Society  
**300361.2** Introduction to Human Biology  
**400783.1** Professional Pathways in Health Science  
**400871.1** Professional Health Competencies

**Spring session**

- 101614.1** Psychology and Health  
**400863.1** Foundations of Research and Evidence-Based Practice  
**400732.1** Communication in Health

And one elective

Recommended elective:

- 400277.2** Health Services Management

**Year 2****Autumn session**

- 400867.1** Approaches to Health Promotion  
**400244.1** Introduction to Leisure and Recreation Theory  
**400864.1** Research Methods (Quantitative and Qualitative)  
**400866.2** Culture, Diversity and Health

**Spring session**

- 400968.1** Professional Practice in Aged Care and Disability  
**400246.2** Workplace Learning 1 (Therapeutic Recreation)

And two electives

**Year 3****Autumn session**

- 400789.2** Leisure Education Programming and Mental Health  
**400252.1** Workplace Learning 2 (Community Placement)

And two electives

**Spring session**

- 400786.1** Professional Transition Project  
**400249.1** Ethical and Legal Issues in Health Care  
**400254.2** Therapeutic Recreation Professional Project

And one elective

**Full-time - Mid Year Intake****Year 1****Spring session**

- 101614.1** Psychology and Health  
**400863.1** Foundations of Research and Evidence-Based Practice  
**400732.1** Communication in Health

One elective

Recommended Elective:

- 400277.2** Health Services Management

**Year 2****Autumn session**

- 300361.2** Introduction to Human Biology  
**400244.1** Introduction to Leisure and Recreation Theory  
**400783.1** Professional Pathways in Health Science  
**400871.1** Professional Health Competencies

**Spring session**

- 400968.1** Professional Practice in Aged Care and Disability  
**400246.2** Workplace Learning 1 (Therapeutic Recreation)

Two electives

**Year 3****Autumn session**

- 400867.1** Approaches to Health Promotion  
**400870.1** Population Health and Society  
**400864.1** Research Methods (Quantitative and Qualitative)  
**400866.2** Culture, Diversity and Health

**Spring session**

- 400786.1** Professional Transition Project  
**400249.1** Ethical and Legal Issues in Health Care  
**400254.2** Therapeutic Recreation Professional Project

One elective

**Year 4****Autumn session**

- 400789.2** Leisure Education Programming and Mental Health  
**400252.1** Workplace Learning 2 (Community Placement)

Two electives

**Major - Computer Systems****M3000.1**

This major is only available to students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

Students must complete the following six compulsory units

- 300103.1** Data Structures and Algorithms  
**300096.4** Computer Organisation



<b>300092.1</b>	Computer Architecture
<b>300167.2</b>	Systems Programming 1
<b>300149.1</b>	Operating Systems
<b>300121.1</b>	Formal Languages and Automata

And choose two of

<b>300128.2</b>	Information Security
<b>300165.2</b>	Systems Administration Programming
<b>300368.1</b>	Intelligent Systems
<b>300093.1</b>	Computer Graphics

## Major - Advanced Programming

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### *M3001.1*

This major is only available to students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following six compulsory units

<b>300103.1</b>	Data Structures and Algorithms
<b>300167.2</b>	Systems Programming 1
<b>300404.1</b>	Formal Software Engineering
<b>300168.1</b>	Systems Programming 2
<b>300149.1</b>	Operating Systems
<b>300096.4</b>	Computer Organisation

And choose two of

<b>300130.1</b>	Internet Programming
<b>300115.1</b>	Distributed Systems and Programming
<b>300165.2</b>	Systems Administration Programming

## Major - Information Technology

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### *M3002.1*

This major is available to all students except those enrolled in the Networks or Information Systems Key Programs within the Bachelor of Computing course, and the Bachelor of Information and Communications Technology course.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following six compulsory units

<b>300580.1</b>	Programming Fundamentals
<b>300585.1</b>	Systems Analysis and Design
<b>300582.1</b>	Technologies for Web Applications

<b>300583.1</b>	Web Systems Development
<b>300565.1</b>	Computer Networking
<b>300095.2</b>	Computer Networks and Internets

And choose one of

<b>300575.1</b>	Networked Systems Design
<b>300166.1</b>	Systems and Network Management

And choose one of

<b>300104.2</b>	Database Design and Development
<b>300570.2</b>	Human-Computer Interaction
<b>300569.1</b>	Computer Security

## Major - Web Systems Development

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### *M3003.1*

This major is available to all students except those enrolled in the Bachelor of Computing, Bachelor of Computer Science or the Bachelor of Information and Communications Technology courses.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following eight units

<b>300580.1</b>	Programming Fundamentals
<b>300585.1</b>	Systems Analysis and Design
<b>300582.1</b>	Technologies for Web Applications
<b>300104.2</b>	Database Design and Development
<b>300570.2</b>	Human-Computer Interaction
<b>300583.1</b>	Web Systems Development
<b>300111.1</b>	Developing Web Applications with XML
<b>300572.1</b>	Information Systems Deployment and Management

## Major - Health Informatics

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### *M3004.1*

This major is available to all students except those enrolled in the Health Informatics key program within the Bachelor of Computing course.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following six compulsory units

<b>300566.1</b>	Introduction to Health Informatics
<b>300580.1</b>	Programming Fundamentals
<b>300104.2</b>	Database Design and Development

**300582.1** Technologies for Web Applications  
**300567.1** e-Health  
**300568.1** Services Computing in Healthcare

And choose one of

**300700.2** Statistical Decision Making  
**300585.1** Systems Analysis and Design

And choose one of:

**200036.2** Data Mining and Visualisation  
**300570.2** Human-Computer Interaction

Note: Students in the Bachelor of Computing (Information Systems) are required to select 300585 Systems Analysis and Design in order to comply with course major guidelines.

## Major - Entertainment Computing

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### M3005.1

This major is available to all students

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following eight units

**300580.1** Programming Fundamentals  
**300585.1** Systems Analysis and Design  
**300491.1** Games Technology  
**300578.2** Professional Development  
**300565.1** Computer Networking  
**300104.2** Database Design and Development  
**300093.1** Computer Graphics  
**300492.1** Games Theory and Design

## Major - Environmental Health Management

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### M3006.1

Students undertaking the Environment and Health key program may complement their studies by completing the Environmental Health Management major, which is accredited through the Environmental Health Australia (EHA), formerly the Australian Institute of Environmental Health (AIEH). This choice will strengthen and broaden their opportunities for career advancement.

#### Offer

Campus	Mode
Hawkesbury Campus	External
Hawkesbury Campus	Internal

#### Unit Set Structure

Students must complete eight units as follows

#### Autumn session

**300625.1** Noise Assessment  
**300626.1** Epidemiology  
**300284.2** Environmental Risk Management

#### Spring session

**300628.1** Air Quality Management  
**300630.1** Environmental Regulations  
**300627.1** Toxicology  
**300629.1** Environmental Planning

#### Quarter 3 External

**300702.1** Disaster and Emergency Management

## Major - Biochemistry and Molecular Biology

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### M3011.1

This major is available to all students.

#### Offer

Campus	Mode
Campbelltown Campus	Internal
Hawkesbury Campus	Internal
Parramatta Campus	Internal

#### Unit Set Structure

Students must complete eight units.

##### Level 1

Choose one of

**300221.1** Biology 1  
**300543.1** Cell Biology

Choose one of

**300224.2** Chemistry 1  
**300554.1** Principles of Chemistry

Choose one of

**300225.2** Chemistry 2  
**300550.1** Medicinal Chemistry

##### Level 2

Choose one of

**300219.2** Biochemistry 1  
**300555.1** Proteins and Genes

Choose one of

**300220.1** Biochemistry 2  
**300548.1** Human Metabolism and Disease

##### Level 3

Choose one of

**300234.1** Molecular Biology  
**300549.1** Human Molecular Biology

And choose two of

**300610.1** Biotechnology  
**300544.1** Cell Signalling  
**300229.1** Immunology  
**300408.1** Mammalian Cell Biology and Biotechnology  
**300407.1** Mammalian Molecular Medicine  
**300757.1** Molecular Biology of the Immune System

## Major - Conservation Biology

### M3012.1

This major is available to all students.

#### Offer

Campus	Mode
Hawkesbury Campus	Internal

#### Unit Set Structure

Students must complete eight units.

##### Level 1

**300222.1** Biology 2

##### Level 2

**300634.1** Ecology  
**300623.1** Genetics  
**300328.1** Botany

##### Level 3

**300465.1** Aquatic Ecology  
**300327.1** Australian Plants  
**300617.1** Conservation Biology  
**300470.1** Vertebrate Biodiversity

## Major - General Biology

### M3013.1

This major is available to all students.

#### Offer

Campus	Mode
Campbelltown Campus	Internal
Hawkesbury Campus	Internal
Parramatta Campus	Internal

#### Unit Set Structure

Students must complete eight units.

##### Level 1

Choose one of

**300221.1** Biology 1  
**300543.1** Cell Biology

Choose one of

**300222.1** Biology 2  
**300539.1** Biodiversity

Choose six of the following, including at least three Level 3 units.

##### Level 1

Choose one of

**300224.2** Chemistry 1  
**300554.1** Principles of Chemistry  
**300225.2** Chemistry 2  
**300550.1** Medicinal Chemistry

##### Level 2

**300608.1** Animal Physiology  
**300328.1** Botany  
**300634.1** Ecology  
**300658.1** Endocrinology and Metabolism  
**300228.1** Human Nutrition  
**300300.1** Microbiology 1  
**300321.1** Microbiology 2  
**300609.1** Plant Physiology

Choose one of

**300219.2** Biochemistry 1  
**300555.1** Proteins and Genes

Choose one of

**300220.1** Biochemistry 2  
**300548.1** Human Metabolism and Disease

Choose one of

**300623.1** Genetics  
**300547.1** Human Genetics

NOTE: 300658 - Endocrinology and Metabolism is not to be counted with 300219 - Biochemistry 1, 300555 - Proteins and Genes, 300220 - Biochemistry 2 or 300548 - Human Metabolism and Disease.

##### Level 3

**300556.1** Analytical Protein Science  
**300307.1** Analytical Microbiology  
**300465.1** Aquatic Ecology  
**300327.1** Australian Plants  
**300610.1** Biotechnology  
**300544.1** Cell Signalling  
**300617.1** Conservation Biology  
**300757.1** Molecular Biology of the Immune System  
**300607.1** Environmental Biology  
**300647.1** Environmental Biotechnology  
**300229.1** Immunology  
**300656.1** Laboratory Quality Management  
**300408.1** Mammalian Cell Biology and Biotechnology  
**300407.1** Mammalian Molecular Medicine  
**300749.1** Medical Microbiology

**300652.1** Nutrition and Health Biochemistry  
**300470.1** Vertebrate Biodiversity

Choose one of

**300234.1** Molecular Biology  
**300549.1** Human Molecular Biology

## Major - Microbiology

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### M3014.1

This major is available to all students.

#### Offer

Campus	Mode
Campbelltown Campus	Internal
Hawkesbury Campus	Internal
Parramatta Campus	Internal

#### Unit Set Structure

Students must complete eight units.

##### Level 1

Choose one of

**300221.1** Biology 1  
**300543.1** Cell Biology

Choose one of

**300224.2** Chemistry 1  
**300554.1** Principles of Chemistry  
**300225.2** Chemistry 2  
**300550.1** Medicinal Chemistry

##### Level 2

**300300.1** Microbiology 1  
**300321.1** Microbiology 2

Choose one of

**300219.2** Biochemistry 1  
**300555.1** Proteins and Genes

##### Level 3

Choose three of

**300307.1** Analytical Microbiology  
**14455.1** Biotechnology  
**300749.1** Medical Microbiology

And

**300234.1** Molecular Biology

or

**300549.1** Human Molecular Biology

## Major - Plant Science

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### M3015.1

This major is available to all students.

#### Offer

Campus	Mode
Hawkesbury Campus	Internal

#### Unit Set Structure

Students must complete eight units.

##### Level 1

**300221.1** Biology 1  
**300222.1** Biology 2

##### Level 2

**300328.1** Botany  
**300333.1** Introductory Plant Physiology

##### Level 3

**300336.1** Plant-Microbe Interactions  
**300334.1** Invertebrate Biology  
**300327.1** Australian Plants  
**300621.1** Plant Biotechnology

## Major - Animal Science

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### M3016.1

This major is not available to students who complete the Bachelor of Science (Animal Science).

#### Offer

Campus	Mode
Hawkesbury Campus	Internal

#### Unit Set Structure

Students must complete eight units from the following, including at least three Level 3 units

##### Level 1

**300560.1** Introduction to Animal Science  
**300425.1** Introduction to Wildlife Studies

##### Level 2

**300562.1** Animal Nutrition and Feeding  
**300563.1** Animal Reproduction  
**300219.2** Biochemistry 1  
**300623.1** Genetics  
**300620.1** Human Physiology 1

**Level 3**

<b>300427.1</b>	Animal Production
<b>300564.1</b>	Animal Behaviour
<b>300334.1</b>	Invertebrate Biology
<b>300470.1</b>	Vertebrate Biodiversity

**Major - Nutrition and Physiology****M3017.1**

This major is available to all students.

**Offer**

Campus	Mode
Hawkesbury Campus	Internal

**Unit Set Structure**

Students must complete eight units.

**Level 1**

Choose one of

<b>300221.1</b>	Biology 1
<b>300222.1</b>	Biology 2

**Level 2**

<b>300620.1</b>	Human Physiology 1
<b>300649.1</b>	Nutrition and Health 1
<b>300650.1</b>	Nutrition and Health 2

Choose one of

<b>300219.2</b>	Biochemistry 1
<b>300658.1</b>	Endocrinology and Metabolism

**Level 3**

<b>300622.1</b>	Human Physiology 2
<b>300652.1</b>	Nutrition and Health Biochemistry

Choose one of

<b>300653.1</b>	Applied Nutrition
<b>300360.1</b>	Consumer Issues in Nutrition
<b>300229.1</b>	Immunology

**Major - Biotechnology****M3018.1**

This major is not available to students who complete the Bachelor of Science (Biotechnology).

**Offer**

Campus	Mode
Hawkesbury Campus	Internal

**Unit Set Structure**

Students must complete eight units.

**Level 1**

<b>300221.1</b>	Biology 1
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Choose one of

<b>300224.2</b>	Chemistry 1
<b>300225.2</b>	Chemistry 2

**Level 2**

<b>300219.2</b>	Biochemistry 1
<b>300300.1</b>	Microbiology 1
<b>300321.1</b>	Microbiology 2
<b>300646.1</b>	Principles of Biotechnology

**Level 3**

Choose three of

<b>300610.1</b>	Biotechnology
<b>300647.1</b>	Environmental Biotechnology
<b>300504.1</b>	Fermentation Science
<b>300648.1</b>	Food and Pharmaceutical Biotechnology
<b>300234.1</b>	Molecular Biology
<b>300621.1</b>	Plant Biotechnology

**Major - Chemistry****M3019.1**

This major is not available to students who complete the Bachelor of Science (Chemistry).

**Offer**

Campus	Mode
Campbelltown Campus	Internal
Parramatta Campus	Internal

**Unit Set Structure**

Students must complete eight units from the following, including at least three Level 3 units.

**Level 1**

Choose one of

<b>300224.2</b>	Chemistry 1
<b>300554.1</b>	Principles of Chemistry

Choose one of

<b>300225.2</b>	Chemistry 2
<b>300550.1</b>	Medicinal Chemistry

and

Choose at least three units from the Level 1, 2 and 3 pools

**Level 1**

<b>300672.1</b>	Mathematics 1A
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**200191.3** Fundamentals of Mathematics  
**300497.1** Professional Skills for Science

**Level 2**

**300297.1** Analytical Chemistry 2

or

**300493.1** Forensic and Environmental Analysis  
**300230.1** Inorganic Chemistry 2

or

**300545.1** Coordination Chemistry  
**300301.1** Organic Chemistry 2

or

**300553.1** Molecules of Life: Synthesis and Reactivity  
**300236.1** Physical Chemistry 2

or

**300540.1** Biomolecular Dynamics

**Level 3**

**300298.1** Analytical Chemistry 3  
**300231.1** Inorganic Chemistry 3

or

**300538.1** Advanced Inorganic Chemistry  
**300235.1** Organic Chemistry 3

or

**300546.1** Drug Design and Synthesis  
**300303.1** Physical Chemistry 3

or

**300475.1** Molecular Pharmacokinetics

NOTE: Students cannot count both 300672 - Mathematics 1A and 200191 - Fundamentals of Mathematics towards this major.

And choose up to three of

**Level 3**

**300218.1** Applied Aspects of Inorganic Chemistry  
**300656.1** Laboratory Quality Management  
**300557.1** Molecular Spectroscopy  
**300645.1** Science Research Project 2

or

**300542.1** Biomolecular Science Project

**Major - Geochemistry****M3020.1**

This major is available to all students.

**Offer**

Campus	Mode
Parramatta Campus	Internal

**Unit Set Structure**

Students must complete eight units.

**Level 1**

<b>300224.2</b>	Chemistry 1
<b>300232.1</b>	Introduction to Earth Sciences
<b>300613.1</b>	Introductory Geochemistry: Earth, Resources and Environments

**Level 2**

<b>300611.1</b>	Chemical Mineralogy
<b>300612.1</b>	Geochemical Systems

**Level 3**

<b>300218.1</b>	Applied Aspects of Inorganic Chemistry
<b>300614.1</b>	Environmental Geochemistry
<b>300645.1</b>	Science Research Project 2

**Major - Mathematics****M3021.1**

This major is available to all students. This major may meet the NSW Institute of Teachers accreditation requirements for teaching Mathematics as a first subject in NSW state high schools.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

Students must complete eight units.

<b>300672.1</b>	Mathematics 1A
<b>300673.1</b>	Mathematics 1B
<b>200025.1</b>	Discrete Mathematics
<b>200028.2</b>	Advanced Calculus

Choose two of

<b>200027.1</b>	Linear Algebra
<b>200030.1</b>	Differential Equations
<b>200029.1</b>	Numerical Analysis

Choose two of

<b>200193.1</b>	Abstract Algebra
<b>200023.1</b>	Analysis
<b>200022.1</b>	Mathematical Modelling

Students enrolled in the Bachelor of Information and Communications Technology may replace 200025 Discrete Mathematics with Discrete Structures and Complexity.

Note: For students who want to complete the Mathematics Major but may not necessarily want to qualify for NSW Institute of Teachers accreditation, 200024 Mathematical Finance would be added to the list of Level 3 units.

## Major - Statistics

### M3022.1

This major is available to all UWS students.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete eight units.

<b>200033.2</b>	Applied Statistics
<b>300606.1</b>	Foundations of Statistical Modelling and Decision Making
<b>300104.2</b>	Database Design and Development
<b>200037.1</b>	Regression Analysis & Experimental Design
<b>200038.1</b>	Time Series and Forecasting
<b>200036.2</b>	Data Mining and Visualisation
<b>200039.1</b>	Surveys and Multivariate Analysis

Choose one of

<b>300700.2</b>	Statistical Decision Making
<b>200263.1</b>	Biometry
<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

## Major - Computational Decision Making

### M3023.1

This major is available to all students.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete eight units

<b>300606.1</b>	Foundations of Statistical Modelling and Decision Making
<b>200042.2</b>	Introduction to Operations Research
<b>200027.1</b>	Linear Algebra
<b>300670.1</b>	Optimisation Techniques
<b>300671.1</b>	Principles and Practice of Decision Making
<b>200044.1</b>	Simulation Techniques

Choose one of

<b>300700.2</b>	Statistical Decision Making
<b>200263.1</b>	Biometry

<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

And choose one of

<b>200025.1</b>	Discrete Mathematics
<b>300672.1</b>	Mathematics 1A

## Major - Knowledge Discovery and Data Mining

### M3024.1

This major is available to all students.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete eight units.

<b>300585.1</b>	Systems Analysis and Design
<b>200033.2</b>	Applied Statistics
<b>300606.1</b>	Foundations of Statistical Modelling and Decision Making
<b>300104.2</b>	Database Design and Development
<b>200036.2</b>	Data Mining and Visualisation
<b>300117.2</b>	Enterprise Database

Choose one of

<b>300700.2</b>	Statistical Decision Making
<b>200263.1</b>	Biometry
<b>200032.2</b>	Statistics for Business
<b>300700.2</b>	Statistical Decision Making

Choose one of

<b>200037.1</b>	Regression Analysis & Experimental Design
<b>200038.1</b>	Time Series and Forecasting
<b>200039.1</b>	Surveys and Multivariate Analysis
<b>200042.2</b>	Introduction to Operations Research
<b>300670.1</b>	Optimisation Techniques
<b>300671.1</b>	Principles and Practice of Decision Making

## Major - Networking

### M3025.1

This major is only available to students enrolled in 3639 Bachelor of Information and Communications Technology course.

#### Offer

Campus	Mode
Campbelltown Campus	Internal
Parramatta Campus	Internal
Penrith Campus	Internal

## Unit Set Structure

Students must complete eight units.

<b>300565.1</b>	Computer Networking
<b>300576.1</b>	Networking Workshop
<b>300582.1</b>	Technologies for Web Applications
<b>300095.2</b>	Computer Networks and Internets
<b>300143.2</b>	Network Security
<b>300575.1</b>	Networked Systems Design
<b>300166.1</b>	Systems and Network Management

Choose one of

<b>300583.1</b>	Web Systems Development
<b>300112.1</b>	Digital Communication Technology
<b>300088.1</b>	Broadband Networking

## Major - Forensic Science Major

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### M3033.1

This major gives a systematic introduction to the principles and practice of forensic science, emphasising the importance of maintaining the integrity of physical evidence during its recovery and analysis. The major is designed to complement a science-based degree, but it may also be taken by students who are studying a different discipline or profession. It includes the relevant pre-requisites for the Level 2 and 3 units, and the forensic content and principles are sequenced through the curriculum. This major in may be complemented by units from other disciplines such as the biological sciences, statistics, policing, criminology and law. Students who are interested in the analysis of DNA evidence may take Biochemistry 1 and Molecular Biology, or equivalent units. Other relevant science units include Biometry, Botany, Genetics, Introduction to Anatomy and Histology, Invertebrate Biology, Environmental Biology, Ecology and Physics 1.

### Offer

Campus	Mode
Hawkesbury Campus	Internal

### Unit Set Structure

Students must complete eight units.

#### Level 1

<b>300224.2</b>	Chemistry 1
<b>300225.2</b>	Chemistry 2
<b>300654.1</b>	Forensic Science

#### Level 2

<b>300493.1</b>	Forensic and Environmental Analysis
<b>300746.1</b>	Evidence and Crime Scene Management

#### Level 3

<b>300378.1</b>	Forensic Archaeology
<b>300494.1</b>	Forensic Chemistry
<b>300656.1</b>	Laboratory Quality Management

## Major - Computer Forensics

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### M31015V2.1

Computer forensics focuses on the gathering of evidence (often as part of an investigation) from computers and computer networks. Such evidence may consist of actual files (e.g. an image) or the traces of a user's activities that are left in the activity logs of operating systems, browsers, databases, web proxies, or network firewalls, etc. Identifying such evidence requires in-depth technical knowledge of the interactions between hardware, the operating system, programs, and the network. Similarly, knowledge of cryptographic techniques is required where data has been encrypted and/or obfuscated. This major develops this requisite knowledge; it also develops the skills necessary to ensure that evidence is not corrupted, and can be documented and presented in an intelligible manner.

### Offer

Campus	Mode
Penrith Campus	Internal

### Unit Set Structure

<b>300447.1</b>	Computer Forensics Workshop
<b>CP308A.1</b>	Information Systems Ethics and Law
<b>300149.1</b>	Operating Systems
<b>300165.2</b>	Systems Administration Programming
<b>300128.2</b>	Information Security
<b>300143.2</b>	Network Security
<b>300095.2</b>	Computer Networks and Internets
<b>300569.1</b>	Computer Security

## Major - Networked Systems

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### M31026V2.1

This major aims to develop graduates with sound skills in the discipline of networked computer systems. Recent advances in computer and telecommunications networked systems, particularly those based on TCP/IP, have increased the importance of network technologies in the discipline of computer science. This major covers a wide range of topics including computer communication network concepts and protocols, multimedia systems, Internet standards and technologies, network security, wireless and mobile computing, and distributed systems. The candidates are also introduced to some of the relevant current key research issues of the field.

### Offer

Campus	Mode
Penrith Campus	Internal

### Unit Set Structure



<b>300128.2</b>	Information Security
<b>300095.2</b>	Computer Networks and Internets
<b>300166.1</b>	Systems and Network Management
<b>300575.1</b>	Networked Systems Design
<b>300143.2</b>	Network Security
<b>300149.1</b>	Operating Systems
<b>300115.1</b>	Distributed Systems and Programming
<b>300576.1</b>	Networking Workshop

## Major - Innovation Design Management

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### *M3503IDM.1*

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following eight units.  
The following are core units.

<b>200083.1</b>	Marketing Principles
<b>300014.2</b>	Design Management 3: Organisational Skills for Designers

The following are drawn from alternative/elective units.

<b>300012.2</b>	Design Management 1: Product Design Audit
<b>300013.2</b>	Design Management 2: Corporate Image and Identity
<b>300015.2</b>	Design Management 4: Design Process
<b>200163.1</b>	Innovation and Product Development
<b>100800.2</b>	Consumer Psychology
<b>200154.2</b>	Entrepreneurial Management and Innovation

## Major - Interactive Industrial Graphics

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### *M3503IIG2.1*

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following eight units.  
The following are core units.

<b>300302.1</b>	Industrial Graphics 1: Presentation
<b>300282.1</b>	Industrial Graphics 2: Transition
<b>300310.2</b>	Industrial Graphics 3: 3D Solids

The following are drawn from alternative/elective units

<b>300312.2</b>	Industrial Graphics 4: Surface
<b>300315.1</b>	Industrial Graphics 5: Integrated
<b>101180.1</b>	Web and Time Based Design
<b>100789.2</b>	Interactive Design I
<b>100949.2</b>	Interactive Design II

## Major - International Design Management

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### *M3503INTDM.1*

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following eight units.  
The following are core units.

<b>200083.1</b>	Marketing Principles
<b>300014.2</b>	Design Management 3: Organisational Skills for Designers

The following are drawn from alternative/elective units.

<b>300012.2</b>	Design Management 1: Product Design Audit
<b>300013.2</b>	Design Management 2: Corporate Image and Identity
<b>300015.2</b>	Design Management 4: Design Process
<b>200088.1</b>	Brand and Product Management
<b>61671.1</b>	International Management
<b>200154.2</b>	Entrepreneurial Management and Innovation

## Major - Biomedical Science

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### *M3577BS\_C.1*

The biomedical science major focuses on microbiology, biochemistry and aspects of health.

#### Offer

Campus	Mode
Campbelltown Campus	Internal

#### Unit Set Structure

The recommended sequence that follows is specific to units offered at the Campbelltown Campus.

#### Year 2

<b>300300.1</b>	Microbiology 1
<b>300321.1</b>	Microbiology 2
<b>300548.1</b>	Human Metabolism and Disease

And one unit from Schedule A

#### Year 3

<b>300749.1</b>	Medical Microbiology
<b>300549.1</b>	Human Molecular Biology

And two units from Schedule A

#### Schedule A Units:

<b>300307.1</b>	Analytical Microbiology
<b>300756.1</b>	Topics in Physiology

<b>300407.1</b>	Mammalian Molecular Medicine
<b>300408.1</b>	Mammalian Cell Biology and Biotechnology
<b>300505.1</b>	Pharmacology
<b>300757.1</b>	Molecular Biology of the Immune System
<b>300556.1</b>	Analytical Protein Science
<b>BC306A.1</b>	Human Physiology 3.1
<b>BI201A.1</b>	Genetics 2.2
<b>SC301A.1</b>	Laboratory Quality Management

## Major - Biomedical Science

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### *M3577BS\_H.1*

The biomedical science major focuses on microbiology, biochemistry and aspects of health.

#### Offer

Campus	Mode
Hawkesbury Campus	Internal

#### Unit Set Structure

The recommended sequence that follows is specific to units offered at the Hawkesbury Campus.

##### Year 2

<b>300300.1</b>	Microbiology 1
<b>300321.1</b>	Microbiology 2
<b>300220.1</b>	Biochemistry 2

And one unit from Schedule A

##### Year 3

<b>300749.1</b>	Medical Microbiology
<b>300234.1</b>	Molecular Biology

And two units from Schedule A

#### Schedule A Units:

<b>300307.1</b>	Analytical Microbiology
<b>300756.1</b>	Topics in Physiology
<b>300407.1</b>	Mammalian Molecular Medicine
<b>300408.1</b>	Mammalian Cell Biology and Biotechnology
<b>300505.1</b>	Pharmacology
<b>300757.1</b>	Molecular Biology of the Immune System
<b>300556.1</b>	Analytical Protein Science
<b>BC306A.1</b>	Human Physiology 3.1
<b>BI201A.1</b>	Genetics 2.2
<b>SC301A.1</b>	Laboratory Quality Management

## Major - Human Bioscience

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### *M3577HBV2.1*

The human bioscience major focuses on anatomy, physiology and pharmacology.

#### Offer

Campus	Mode
Campbelltown Campus	Internal

#### Unit Set Structure

##### Year 2

<b>300548.1</b>	Human Metabolism and Disease
<b>300751.1</b>	Anatomy of the Thorax and Abdomen
<b>300755.1</b>	The Appendicular Skeleton
<b>300505.1</b>	Pharmacology

##### Year 3

<b>300754.1</b>	Neuroanatomy
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And three units from Schedule B

#### Schedule B Units:

<b>300749.1</b>	Medical Microbiology
<b>300307.1</b>	Analytical Microbiology
<b>300750.1</b>	Anatomy of the Head and Neck
<b>300321.1</b>	Microbiology 2
<b>300549.1</b>	Human Molecular Biology
<b>400138.2</b>	Pathophysiology 1
<b>400267.1</b>	Pathophysiology 2

Choose one of

<b>300756.1</b>	Topics in Physiology
<b>BC306A.1</b>	Human Physiology 3.1

## Major - Medicinal Chemistry

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### *M3577MCV2.1*

The medicinal chemistry major focuses on chemistry and biochemistry.

#### Offer

Campus	Mode
Campbelltown Campus	Internal

#### Unit Set Structure

#### Professional Accreditation

The Bachelor of Medical Science (Medicinal Chemistry Major) is accredited by The Royal Australian Chemical Institute Incorporated.

##### Year 2

<b>300548.1</b>	Human Metabolism and Disease
<b>300553.1</b>	Molecules of Life: Synthesis and Reactivity
<b>300297.1</b>	Analytical Chemistry 2

Choose one of

<b>300545.1</b>	Coordination Chemistry
<b>300540.1</b>	Biomolecular Dynamics

**Year 3**

<b>300546.1</b>	Drug Design and Synthesis
<b>300537.1</b>	Advanced Chemical Analysis
<b>300324.1</b>	Pharmacological Chemistry

Choose one of

<b>300538.1</b>	Advanced Inorganic Chemistry
<b>300475.1</b>	Molecular Pharmacokinetics

**Major - Therapeutic Recreation****M4000.1****Unit Set Structure**

Students must complete the following eight units

<b>400244.1</b>	Introduction to Leisure and Recreation Theory
<b>400968.1</b>	Professional Practice in Aged Care and Disability
<b>400246.2</b>	Workplace Learning 1 (Therapeutic Recreation)
<b>400789.2</b>	Leisure Education Programming and Mental Health
<b>400252.1</b>	Workplace Learning 2 (Community Placement)
<b>400254.2</b>	Therapeutic Recreation Professional Project
<b>400249.1</b>	Ethical and Legal Issues in Health Care
<b>400786.1</b>	Professional Transition Project

**Major - Health Promotion****M4001.1****Unit Set Structure**

Students must complete the following eight units

<b>400285.1</b>	Public Health
<b>400966.1</b>	Health Politics, Policy and Planning
<b>400286.1</b>	Injury Prevention
<b>400275.1</b>	Health Planning Project
<b>400784.1</b>	Health Promotion Practice 1
<b>400785.1</b>	Health Promotion Practice 2
<b>400249.1</b>	Ethical and Legal Issues in Health Care
<b>400786.1</b>	Professional Transition Project

**Major - Health Services Management****M4002.1****Unit Set Structure**

Students must complete the following eight units

<b>400277.2</b>	Health Services Management
<b>400966.1</b>	Health Politics, Policy and Planning
<b>400788.1</b>	Health Services Workforce Management
<b>400275.1</b>	Health Planning Project

<b>400787.1</b>	Health Services Management Practice
<b>400279.2</b>	Health Services Financial Management
<b>400249.1</b>	Ethical and Legal Issues in Health Care
<b>400786.1</b>	Professional Transition Project

**Major - Systems Programming****RU3010V2.1**

This major aims to develop graduates with sound skills in the discipline of programming. The focus is on programming at the level of system calls to the underlying operating system and many of the units use the industry standard language for systems programming, namely C/C++, as the vehicle of instruction. There is a strong emphasis on the development of highly efficient and reliable code that can provide support services for higher level application oriented programs, as well as the development of programs suitable for systems administration and management. Practical work utilises both Unix and Microsoft environments. This major is appropriate where a career in systems programming or systems administration is planned, or where the student wishes to develop advanced systems programming skills.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

<b>300128.2</b>	Information Security
<b>300092.1</b>	Computer Architecture
<b>300149.1</b>	Operating Systems
<b>300115.1</b>	Distributed Systems and Programming
<b>300165.2</b>	Systems Administration Programming
<b>300168.1</b>	Systems Programming 2
<b>300143.2</b>	Network Security
<b>300569.1</b>	Computer Security

**Sub Major - Design Management****S3502DM.1****Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

Students must complete the following four units.

The following is a core unit.

<b>300014.2</b>	Design Management 3: Organisational Skills for Designers
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The following are drawn from alternative/elective units.

<b>300012.2</b>	Design Management 1: Product Design Audit
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- 300013.2** Design Management 2: Corporate Image and Identity  
**300015.2** Design Management 4: Design Process

### Sub Major - Industrial Graphics

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#### **S3502IG.1**

##### Offer

Campus	Mode
Penrith Campus	Internal

##### Unit Set Structure

Students must complete the following five units  
 The following are core units.

- 300302.1** Industrial Graphics 1: Presentation  
**300282.1** Industrial Graphics 2: Transition  
**300310.2** Industrial Graphics 3: 3D Solids

The following are drawn from alternative/elective units.

- 300312.2** Industrial Graphics 4: Surface  
**300315.1** Industrial Graphics 5: Integrated

### Sub Major - Sustainable Design

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#### **S3502SD.1**

##### Offer

Campus	Mode
Penrith Campus	Internal

##### Unit Set Structure

Students must complete the following four units.  
 The following are core units.

- 300304.2** Sustainable Design: Materials Technology  
**300309.2** Sustainable Design: Life Cycle Analysis  
**300306.2** Sustainable Design: Sustainable Futures

The following are drawn from alternative/elective units.

- 300735.1** Automated Manufacturing

### Sub Major - Education Studies

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#### **SM1031.1**

The Education Studies Sub-major comprises a foundation pool of units which addresses key issues in contemporary educational thinking and practice. Education has a key role to play in bridging the gap between social advantage and disadvantage, in transforming the lives of individuals and their families and building capacity within communities.

##### Offer

Campus	Mode
Bankstown Campus	Internal
Penrith Campus	Internal

##### Unit Set Structure

Students must complete four of the following units

- 101259.2** Learning and Creativity  
**101263.1** Education and Transformation  
**101117.1** Learning through Community Service  
**101661.1** Education in a Cosmopolitan Society  
**101662.1** Young People, Their Futures and Education  
**101663.1** Education for Sustainability

### Sub Major - Computer Systems

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#### **SM3000.1**

This sub-major is only available to students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses.

##### Offer

Campus	Mode
Penrith Campus	Internal

##### Unit Set Structure

Students must complete the following four units

- 300096.4** Computer Organisation  
**300167.2** Systems Programming 1  
**300092.1** Computer Architecture  
**300149.1** Operating Systems

### Sub Major - Systems Administration

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#### **SM3001.1**

This sub-major is only available to students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses.

##### Offer

Campus	Mode
Penrith Campus	Internal

##### Unit Set Structure

Students must complete the following four units

- 300167.2** Systems Programming 1  
**300103.1** Data Structures and Algorithms  
**300149.1** Operating Systems  
**300165.2** Systems Administration Programming

## Sub Major - Systems Security

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### SM3002.1

This sub-major is only available to students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following four units

300167.2	Systems Programming 1
300128.2	Information Security
300143.2	Network Security
300149.1	Operating Systems

## Sub Major - Systems Programming

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### SM3003.1

This sub-major is only available to students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Student must complete the following three units

300167.2	Systems Programming 1
300103.1	Data Structures and Algorithms
300149.1	Operating Systems

And choose one of

300115.1	Distributed Systems and Programming
300168.1	Systems Programming 2

## Sub Major - Formal Systems

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### SM3004.1

This sub-major is only available to students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Student must complete the following three units

300103.1	Data Structures and Algorithms
300121.1	Formal Languages and Automata
300404.1	Formal Software Engineering

And choose one of

300368.1	Intelligent Systems
300093.1	Computer Graphics
200237.1	Mathematics for Engineers 1
200193.1	Abstract Algebra
200033.2	Applied Statistics
200042.2	Introduction to Operations Research

## Sub Major - Applied Mathematics

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### SM3005.1

This sub-major is only available to students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following unit

200237.1	Mathematics for Engineers 1
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And choose three of

200238.1	Mathematics for Engineers 2
200242.2	Mathematics for Engineers 3
200023.1	Analysis
200193.1	Abstract Algebra
200033.2	Applied Statistics
200042.2	Introduction to Operations Research
200027.1	Linear Algebra

## Sub Major - Web Application Development (for Computing Students)

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### SM3006.1

This sub-major is only available to students enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

Students must complete the following four units

<b>300582.1</b>	Technologies for Web Applications
<b>300583.1</b>	Web Systems Development
<b>300111.1</b>	Developing Web Applications with XML
<b>300574.1</b>	Internet Structures and Web Servers

**Sub Major - Web Application Development (for Non-Computing Students)****SM3007.1**

This sub-major is available to all UWS students except those enrolled in the Bachelor of Computing or Bachelor of Information and Communications Technology courses.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

Students must complete the following three units

<b>300580.1</b>	Programming Fundamentals
<b>300582.1</b>	Technologies for Web Applications
<b>300583.1</b>	Web Systems Development

And choose one of

<b>300104.2</b>	Database Design and Development
<b>300570.2</b>	Human-Computer Interaction
<b>300569.1</b>	Computer Security
<b>300111.1</b>	Developing Web Applications with XML
<b>300574.1</b>	Internet Structures and Web Servers

**Sub Major - Networking****SM3008.1**

This sub-major is available to all students except those enrolled in the Bachelor of Computing (Networks).

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

Students must complete the following three units

<b>300565.1</b>	Computer Networking
<b>300095.2</b>	Computer Networks and Internets
<b>300575.1</b>	Networked Systems Design

And choose one of

<b>300143.2</b>	Network Security
<b>300166.1</b>	Systems and Network Management
<b>300088.1</b>	Broadband Networking

**Sub Major - Health Information Management****SM3009.1**

This sub-major deals with the management of Health Information and the management and analysis of that data via databases. This sub-major is available to all students except those enrolled in the Health Informatics key program within the Bachelor of Computing course.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

Students must complete the following four units

<b>300566.1</b>	Introduction to Health Informatics
<b>300104.2</b>	Database Design and Development
<b>300567.1</b>	e-Health
<b>200036.2</b>	Data Mining and Visualisation

**Sub Major - Health Information Applications****SM3010.1**

This sub-major will deal with the application of approaches, tools and techniques and the development of programs appropriate for Health Information systems. This sub-major is available to all students except those enrolled in the Health Informatics key program within the Bachelor of Computing course.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

Students must complete the following four units

<b>300566.1</b>	Introduction to Health Informatics
<b>300582.1</b>	Technologies for Web Applications
<b>300567.1</b>	e-Health
<b>300568.1</b>	Services Computing in Healthcare

Note: 300582 Technologies for Web Applications requires 300580 Programming Fundamentals as a pre-requisite.

## Sub Major - Entertainment Computing

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### SM3011.1

This sub-major is available to all students.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete the following four units

<a href="#">300580.1</a>	Programming Fundamentals
<a href="#">300491.1</a>	Games Technology
<a href="#">300492.1</a>	Games Theory and Design
<a href="#">300093.1</a>	Computer Graphics

## Sub Major - Biochemistry and Molecular Biology

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### SM3016.1

This sub-major is available to all students.

#### Offer

Campus	Mode
Campbelltown Campus	Internal
Hawkesbury Campus	Internal
Parramatta Campus	Internal

#### Unit Set Structure

Students must complete four units as follows:

##### Level 2

Choose one of

<a href="#">300219.2</a>	Biochemistry 1
<a href="#">300555.1</a>	Proteins and Genes

Choose one of

<a href="#">300220.1</a>	Biochemistry 2
<a href="#">300548.1</a>	Human Metabolism and Disease

##### Level 3

Choose one of

<a href="#">300234.1</a>	Molecular Biology
<a href="#">300549.1</a>	Human Molecular Biology

And choose one of

<a href="#">300544.1</a>	Cell Signalling
<a href="#">300229.1</a>	Immunology
<a href="#">300408.1</a>	Mammalian Cell Biology and Biotechnology
<a href="#">300407.1</a>	Mammalian Molecular Medicine

[300757.1](#) Molecular Biology of the Immune System

## Sub Major - Conservation Biology

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### SM3017.1

This sub-major is available to all students.

#### Offer

Campus	Mode
Hawkesbury Campus	Internal

#### Unit Set Structure

Students must complete four units.

##### Level 1

[300222.1](#) Biology 2

##### Level 2

<a href="#">300634.1</a>	Ecology
<a href="#">300623.1</a>	Genetics

##### Level 3

Choose one of

<a href="#">300465.1</a>	Aquatic Ecology
<a href="#">300327.1</a>	Australian Plants
<a href="#">300617.1</a>	Conservation Biology
<a href="#">300470.1</a>	Vertebrate Biodiversity

## Sub Major - Microbiology

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### SM3018.1

This sub-major is available to all students.

#### Offer

Campus	Mode
Campbelltown Campus	Internal
Hawkesbury Campus	Internal
Parramatta Campus	Internal

#### Unit Set Structure

Students must complete four units.

##### Level 2

<a href="#">300300.1</a>	Microbiology 1
<a href="#">300321.1</a>	Microbiology 2

##### Level 3

Choose two of

<a href="#">300307.1</a>	Analytical Microbiology
<a href="#">14455.1</a>	Biotechnology

300749.1 Medical Microbiology  
 300234.1 Molecular Biology  
 300549.1 Human Molecular Biology

### Sub Major - Plant Science

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#### SM3019.1

This sub-major is available to all students.

#### Offer

Campus	Mode
Hawkesbury Campus	Internal

#### Unit Set Structure

Students must complete four units.

##### Level 2

300328.1 Botany  
 300333.1 Introductory Plant Physiology

##### Level 3

300336.1 Plant-Microbe Interactions  
 300327.1 Australian Plants

### Sub Major - Animal Science

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#### SM3020.1

This sub-major is not available to students who complete the Bachelor of Science (Animal Science).

#### Offer

Campus	Mode
Hawkesbury Campus	Internal

#### Unit Set Structure

Students must complete four units from the following.

##### Level 1

300560.1 Introduction to Animal Science  
 300425.1 Introduction to Wildlife Studies

##### Level 2

300562.1 Animal Nutrition and Feeding  
 300563.1 Animal Reproduction  
 300219.2 Biochemistry 1  
 300623.1 Genetics  
 300620.1 Human Physiology 1

##### Level 3

300427.1 Animal Production  
 300564.1 Animal Behaviour

300334.1 Invertebrate Biology  
 300470.1 Vertebrate Biodiversity

### Sub Major - Nutrition and Physiology

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#### SM3021.1

This sub-major is available to all students.

#### Offer

Campus	Mode
Hawkesbury Campus	Internal

#### Unit Set Structure

Students must complete four units.

##### Level 2

Choose one of

300219.2 Biochemistry 1  
 300658.1 Endocrinology and Metabolism

Choose three of

##### Level 2

300620.1 Human Physiology 1  
 300649.1 Nutrition and Health 1  
 300650.1 Nutrition and Health 2

##### Level 3

300653.1 Applied Nutrition  
 300360.1 Consumer Issues in Nutrition  
 300622.1 Human Physiology 2  
 300229.1 Immunology  
 300652.1 Nutrition and Health Biochemistry

### Sub Major - Geochemistry

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#### SM3022.1

This sub-major is available to all students.

#### Offer

Campus	Mode
Parramatta Campus	Internal

#### Unit Set Structure

Students must complete any four units from the following.

##### Level 1

300232.1 Introduction to Earth Sciences  
 300613.1 Introductory Geochemistry: Earth, Resources and Environments

##### Level 2



**300611.1** Chemical Mineralogy  
**300612.1** Geochemical Systems

**Level 3**

**300218.1** Applied Aspects of Inorganic Chemistry  
**300614.1** Environmental Geochemistry  
**300645.1** Science Research Project 2

**Sub Major - Environmental Chemistry****SM3023.1**

This sub-major is available at the Hawkesbury campus to all students.

**Offer**

Campus	Mode
Hawkesbury Campus	Internal

**Unit Set Structure**

Students must complete four units.

**Level 2**

**300493.1** Forensic and Environmental Analysis  
**300467.1** Green Chemistry 1  
**300468.1** Green Chemistry 2

**Level 3**

**300630.1** Environmental Regulations

**Sub Major - Forensic Chemistry****SM3024.1**

This sub-major is also form part of the course 3637 Bachelor of Natural Science.

**Offer**

Campus	Mode
Hawkesbury Campus	Internal

**Unit Set Structure**

Students must complete four units.

**300377.1** Forensic Analysis of Physical Evidence  
**300493.1** Forensic and Environmental Analysis  
**300494.1** Forensic Chemistry  
**300656.1** Laboratory Quality Management

**Sub Major - Mathematics****SM3025.1**

This sub-major is available to all students. This sub-major may meet the NSW Institute of Teachers accreditation requirements for teaching Mathematics as a second subject in NSW state high schools.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

Students must complete four units.

**300672.1** Mathematics 1A  
**300673.1** Mathematics 1B

And choose two of

**200028.2** Advanced Calculus  
**200027.1** Linear Algebra  
**200030.1** Differential Equations

**Sub Major - Statistics****SM3026.1**

This sub-major is available to all students.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

Students must complete four units.

Choose one unit from:

**200263.1** Biometry  
**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

And choose at least one of

**200033.2** Applied Statistics  
**300606.1** Foundations of Statistical Modelling and Decision Making  
**300104.2** Database Design and Development

And choose at least one of

**200037.1** Regression Analysis & Experimental Design  
**200038.1** Time Series and Forecasting  
**200036.2** Data Mining and Visualisation  
**200039.1** Surveys and Multivariate Analysis

## Sub Major - Computational Decision Making

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### SM3027.1

This sub-major is available to all students.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete four units.

**200025.1** Discrete Mathematics

And choose one of

**200263.1** Biometry  
**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

And choose two of

**300606.1** Foundations of Statistical Modelling and Decision Making  
**200042.2** Introduction to Operations Research  
**200027.1** Linear Algebra  
**300670.1** Optimisation Techniques  
**300671.1** Principles and Practice of Decision Making  
**200044.1** Simulation Techniques

Students enrolled in Bachelor of Information and Communications Technology course may replace 200025 Discrete Mathematics with 300699 Discrete Structures and Complexity.

Note: For students who want to complete a Mathematics sub-major, but may not necessarily want to qualify for NSW Institute of Teachers accreditation, 200029 Numerical Analysis would be added to the list of Level 2 units and 200024 Mathematical Finance would be added to the list of Level 3 units.

## Sub Major - Knowledge Discovery and Data Mining

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### SM3028.1

This sub-major is available to all students.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete four units as follows

**300606.1** Foundations of Statistical Modelling and Decision Making  
**300104.2** Database Design and Development

**200036.2** Data Mining and Visualisation

And choose one of

**200263.1** Biometry  
**200032.2** Statistics for Business  
**300700.2** Statistical Decision Making

## Sub Major - Construction Economics

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### SM3029.1

This sub-major is a requirement for membership of the Australian Institute of Quantity Surveyors and is a useful course of study for those interested in the area of cost control and project planning.

#### Unit Set Structure

To graduate with a sub major in Construction Economics students must successfully complete the following four specialist units

**200503.1** Construction Information Systems  
**200487.1** Quantity Surveying 2  
**300748.1** Quality and Value Management  
**300726.1** Estimating 2

## Sub Major - IT Support

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### SM3031.1

This sub-major is only available to students enrolled in the Bachelor of Information and Communications Technology course.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

Students must complete four units.

**300150.2** PC Workshop  
**300576.1** Networking Workshop  
**300136.3** I.T. Support Practicum

And choose one of

**200083.1** Marketing Principles  
**300167.2** Systems Programming 1  
**200120.1** E-Business Fundamentals and Systems

## Sub Major - Computer Engineering

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### SM3032.1

This sub-major is available to students other than those enrolled in B Engineering (Computer) Key Program. This

sub-major includes core subjects of computer engineering. It provides a comprehensive introduction to essential aspects of the discipline.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

<b>300029.2</b>	Engineering Visualization
<b>300167.2</b>	Systems Programming 1
<b>300096.4</b>	Computer Organisation

And one of

<b>300092.1</b>	Computer Architecture
<b>300149.1</b>	Operating Systems
<b>300044.1</b>	Microcontrollers and PLCs

**Sub Major - Construction****SM3033.1**

This sub-major is available to any student in UWS other than those enrolled in Bachelor of Construction Management or Bachelor of Housing. This sub-major includes core subjects of construction. It provides a comprehensive introduction to essential aspects of the discipline.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

<b>300707.1</b>	Building 2
<b>BG302A.1</b>	Building Regulation Studies
<b>200471.2</b>	Construction Technology 5 (Envelope)
<b>MG313A.1</b>	Project Management

**Sub Major - Electrical Engineering****SM3034.1**

This sub-major is available to students other than those enrolled in B Engineering (Electrical) Key Program. This sub-major includes core subjects of electrical engineering. It provides a comprehensive introduction to essential aspects of the discipline.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

<b>300071.1</b>	Electrical Machines 1
<b>300481.1</b>	Engineering Electromagnetics

And two of

<b>300026.2</b>	Energy Systems
<b>300070.2</b>	Electrical Drives
<b>300024.2</b>	Electronic Systems Design

**Sub Major - Environmental Engineering****SM3035.1**

This sub-major is available to students other than those enrolled in B Engineering (Environmental) Key Program. This sub-major includes core subjects of environmental engineering. It provides a comprehensive introduction to essential aspects of the discipline.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

<b>300469.1</b>	Introductory Chemistry
<b>EY101A.1</b>	Terrestrial Environment Management
<b>MG309A.1</b>	Water and Waste Management
<b>EH321A.1</b>	Air Quality Assessment & Management (UG)

**Sub Major - Wireless Engineering****SM3036.1**

This sub-major is available to students other than those enrolled in B Engineering (Telecommunications) Key Program. This sub-major covers specialised topics on wireless communications, in addition to general concepts on telecommunications.

**Offer**

Campus	Mode
Penrith Campus	Internal

**Unit Set Structure**

<b>300007.1</b>	Communication Systems
<b>300065.2</b>	Wireless Communications
<b>300024.2</b>	Electronic Systems Design

And one of

<b>300068.2</b>	Communication Electronics
<b>300489.1</b>	Radio and Satellite Communication

## Sub Major - Civil Engineering

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### SM3621CIVE.1

This sub-major is available to students other than those enrolled in the B Engineering (Civil) Key Program. This sub-major includes core subjects of civil engineering. It provides a comprehensive introduction to essential aspects of the discipline.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

300732.1	Structural Analysis
300730.1	Steel Structures
300739.1	Timber Structures (UG)
300736.1	Concrete Structures (UG)

## Sub Major - Ecological Engineering

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### SM3621ECOE.1

This sub-major is available to students other than those enrolled in the B Engineering (Civil) or (Environmental) Key Program. This sub-major includes core subjects of ecological engineering. It provides a comprehensive introduction to essential aspects of the discipline.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

300482.1	Engineering Geology and Concrete Materials
300738.1	Surveying for Engineers
300486.1	Infrastructure Engineering
300737.1	Environmental Engineering

## Sub Major - Robotics and Mechatronics

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### SM3621R&M.1

This sub-major is available to students other than those enrolled in B Engineering (Robotics and Mechatronics) Key Program. The units forming this sub-major provide a comprehensive introduction to essential aspects of mechatronics and robotics. It is intended as a coherent set of units in mechanics of machines, automation and robotics that can add to engineering knowledge gained in other fields of engineering. The sub-major may be taken by

students in non-engineering areas provided they satisfy the unit prerequisites and assumed knowledge.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

300035.2	Kinematics and Kinetics of Machines
300735.1	Automated Manufacturing
300044.1	Microcontrollers and PLCs

And one of

300056.2	Robotics
300043.2	Mobile Robotics

## Sub Major - Soil Engineering

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### SM3621SOE.1

This sub-major is available to students other than those enrolled in B Engineering (Civil) or (Environmental) Key Programs. This sub-major includes core subjects of soil engineering. It provides a comprehensive introduction to essential aspects of the discipline.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

200237.1	Mathematics for Engineers 1
300482.1	Engineering Geology and Concrete Materials
300731.1	Soil Engineering
300485.1	Foundation Engineering

## Sub Major - Structural Engineering

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### SM3621STRE.1

This sub-major is available to students other than those enrolled in the B Engineering (Civil) or (Environmental) Key Programs. This sub-major includes core subjects of structural engineering. It provides a comprehensive introduction to essential aspects of the discipline.

#### Offer

Campus	Mode
Penrith Campus	Internal

#### Unit Set Structure

300463.1	Fundamentals of Mechanics
300040.1	Mechanics of Materials
300733.1	Introduction to Structural Engineering

**300732.1** Structural Analysis

## Sub Major - Water Engineering

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### **SM3621WATE.1**

This sub-major is available to students other than those enrolled in B Engineering (Civil) or (Environmental) Key Programs. This sub-major includes core subjects of water engineering. It provides a comprehensive introduction to essential aspects of the discipline.

#### **Offer**

<b>Campus</b>	<b>Mode</b>
Penrith Campus	Internal

#### **Unit Set Structure**

<b>200237.1</b>	Mathematics for Engineers 1
<b>300740.1</b>	Water Engineering
<b>300479.1</b>	Drainage Engineering
<b>300734.1</b>	Water Resources Engineering (UG)

## Units

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### 101022.1 20th Century Design Histories

**Credit Points** 10 **Level** 1

#### Equivalent Units

11080 - Design Issues 2: Modernism and Postmodernism, 100596 - 20th Century Design Histories

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This unit explores the history and theory of 20th Century design from two dominant perspectives, modernism and postmodernism. Students will become acquainted with the doctrines around which the modernist movement cohered, and the conditions under which these doctrines are questioned by postmodernism. Students will be introduced to a range of design outcomes such as photo-media, typography, illustration, the built environment, graphics, digital media, film and animation.

### 200193.1 Abstract Algebra

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200025 - Discrete Mathematics

#### Equivalent Units

14702 - Advanced Algebra, 14383 - Algebra 3

.....

This unit develops algebraic thought to a high level. The abstract concepts involved in the main topics (group theory and number theory) have many applications in science and technology, and the unit includes an application to cryptography.

### 700056.1 Academic English (UWSCFS)

**Credit Points** 10 **Level** Z

#### Special Requirements

Only students enrolled at UWS College may undertake this unit.

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This unit is designed to improve English proficiency across the four macro skills, of overseas and local students who wish to progress to university studies. In particular, the course aims to help students access the conventions of academic English by focusing on attitudes to knowledge, the ways in which ideas are structured and presented and surface language correctness. In addition, the course encourages students to develop strategies to maximize their learning and to reflect on their own learning styles.

### 200101.2 Accounting Information for Managers

**Credit Points** 10 **Level** 1

#### Corequisite

**200336.1** Business Academic Skills

#### Equivalent Units

61111 - Intro Financial Accounting, 84458 - Engineering Management 3, 89109 - Management for Engineers 2, AC105A - Finance and Accounting, H1746 - Financial and Management Accounting 1, MG324A - Management 3.2, 200103 - Accounting Reports and Decisions

#### Special Requirements

External offerings for this unit are only available to students who are enrolled in a Property course or Property key program. Co-requisite 200336 - Business Academic Skills only applies to students in courses 2739 Bachelor of Business and Commerce, 2741 Bachelor of Business and Commerce (Advanced Business Leadership) and 2740 Bachelor of Business and Commerce/Bachelor of Laws.

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This unit provides exposure to financial and management accounting information from a user of accounting information viewpoint. The unit aims to provide breadth of awareness and knowledge in relevant fields of accounting essential to decision making for managers.

### 700005.1 Accounting Information for Managers (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

200101 - Accounting Information for Managers

#### Special Requirements

Students must be enrolled at UWS College.

.....

This unit provides exposure to financial and management accounting information from a user of accounting information viewpoint. The unit aims to provide breadth of awareness and knowledge in relevant fields of accounting essential to decision making for managers.

### 200534.1 Accounting Information Systems

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Basic financial and management accounting fundamentals, including use of spreadsheets in accounting and the use of a computerised accounting package.

#### Prerequisite

**200111.1** Financial Accounting Applications

#### Equivalent Units

AC202A - Accounting Information Systems, H3331 - Accounting Information Systems, 61141 - Accounting Information Systems, 200114 - Issues in Accounting Information Systems

.....

This unit considers the design and implementation of accounting information systems as a data model for resource allocation and management of an organisation. It includes consideration of current trends in information management and the changing regulatory requirements.

### 400895.1 Aquatic Sports

**Credit Points** 10 **Level** 3

#### Special Requirements

This unit is only available to students enrolled in course 4659 - Bachelor of Health Science (PDHPE). To undertake this unit, students must comply with the following special requirements: possess a current WorkCover Authority approved First Aid Certificate.

.....

Students will be instructed on how to teach swimming, diving, water aerobics, canoeing, kayaking, rowing, snorkelling and SCUBA diving to individuals of different ages. Students will also train in swimming to improve stroke mechanics and fitness in order to pass the Bronze Medallion Lifesaving certification. Students will also be exposed to each of the aforementioned aquatic activities in order to develop moderate to high competencies to aid their abilities to teach each activity in a school or community recreation setting.

### 400873.1 Acupuncture Techniques

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Assumed knowledge equivalent to Channels and Points 1 and 2.

#### Equivalent Units

400350 - Acupuncture 2

.....

This unit consolidates and extends students' knowledge of acupuncture theory and practice, and provides further opportunity to develop practical skills. Students are introduced to the theory of point combinations and the development of acupuncture prescriptions and treatment plans. Practical sessions include advanced needle manipulation, moxibustion, cupping, plum blossom and prismatic needling. This unit also expands upon the student's understanding of TCM theory and practice principles.

### 200267.1 Advanced Accounting

**Credit Points** 10 **Level** 3

#### Prerequisite

**200109.1** Corporate Accounting Systems

#### Equivalent Units

200102 - Accounting Philosophies and Theories

.....

This unit addresses the advanced aspects of accounting with particular emphasis on accounting theories and how they assist us in understanding current accounting practice and accounting standards. This unit focuses on the relationship between the theoretical concepts and current news and events.

### 200028.2 Advanced Calculus

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

200189 - Concepts of Mathematics

#### Equivalent Units

14504 - Mathematics 4, 14379 - Advanced Calculus, 14385 - Calculus 3, J2764 - Mathematics 2.1, J2765 Mathematics 2.2

#### Incompatible Units

200238 - Mathematics for Engineers 2

.....

This unit is designed for students undertaking studies in mathematics, statistics, operations research and mathematical finance. It provides further mathematical training in the areas of multivariable and vector calculus, which is essential to the understanding of many areas of both pure and applied mathematics.

### 300537.1 Advanced Chemical Analysis

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Material covered in Analytical Chemistry 2.

#### Prerequisite

**300297.1** Analytical Chemistry 2

#### Equivalent Units

300298 - Analytical Chemistry 3, J3657 - Analytical Chemistry 3, CH301A - Analytical Chemistry 3.1

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Students studying at Hawkesbury or Parramatta campus should refer to 300298 - Analytical Chemistry 3. This unit provides the student with skills to carry out the more advanced wet chemical analysis and provides an understanding of the principles of instrumental analysis, covering the areas of spectroscopy, chromatography, electrochemistry, thermal methods and automated methods of analysis. The techniques of analytical method development, inorganic and organic residue analysis, herbal analysis and forensic toxicology analysis will be discussed. Aspects of quality control and quality assurance will also be included.

### 300586.1 Advanced Computer Science Activities 1

**Credit Points** 0 **Level** 1

#### Special Requirements

Students must be enrolled in course 3634 Bachelor of Computer Science (Advanced).

.....

This unit is only for Bachelor of Computer Science (Advanced) students in year one of their studies. Students will participate in industry and research based extension activities (non-assessable). These activities will be identified with the goal of exposing students early in their degree and integrating them into a culture of academic

enquiry, problem solving, knowledge generation and scholarship and an awareness of the challenges and current issues confronting the computing/IT industry. The unit will be used to record student activities and a satisfactory/ unsatisfactory grade will be applied at the end of each year.

### **300587.1 Advanced Computer Science Activities 2**

**Credit Points** 0 **Level** 2

#### **Special Requirements**

Students must be enrolled in course 3634 Bachelor of Computer Science (Advanced).

.....

This unit is only for Bachelor of Computer Science (Advanced) students in year two of their studies. Students will participate in industry and research based extension activities (non-assessable). These activities will be identified with the goal of exposing students early in their degree and integrating them into a culture of academic enquiry, problem solving, knowledge generation and scholarship and an awareness of the challenges and current issues confronting the computing/IT industry. The unit will be used to record student activities and a satisfactory/ unsatisfactory grade will be applied at the end of each year.

### **300588.1 Advanced Computer Science Activities 3**

**Credit Points** 0 **Level** 3

#### **Special Requirements**

Students must be enrolled in course 3634 Bachelor of Computer Science (Advanced).

.....

This unit is only for Bachelor of Computer Science (Advanced) students in year three of their studies. Students will participate in industry and research based extension activities (non-assessable). These activities will be identified with the goal of exposing students early in their degree and integrating them into a culture of academic enquiry, problem solving, knowledge generation and scholarship and an awareness of the challenges and current issues confronting the computing/IT industry. The unit will be used to record student activities and a satisfactory/ unsatisfactory grade will be applied at the end of each year.

### **300668.1 Advanced Engineering Thesis**

**Credit Points** 60 **Level** 5

#### **Assumed Knowledge**

Students should have achieved at least 240 Credit Points because this is an honours level unit. Students must have a course GPA equal to or greater than 5.5, which is required to maintained their candidature in course 3636 Bachelor of Engineering (Advanced).

#### **Prerequisite**

**300053.2** Professional Practice

#### **Corequisite**

**81999.1** Industrial Experience (Engineering)

#### **Incompatible Units**

300484 - Engineering Thesis, 300483 - Engineering Project

#### **Special Requirements**

This unit is only available to students in course 3636 Bachelor of Engineering (Advanced). An eligible student must enrol in this unit in two consecutive halves (e.g., 1H and 2H in 2009, or 2H in 2009 and 1H in 2010).

.....

This unit provides students with the opportunity to conduct original research on their chosen topics under the supervision of academics. Students are encouraged to disseminate their research results as refereed publications.

### **300666.1 Advanced Engineering Topic 1**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Students should have achieved at least 160 Credit Points to be able to study the advanced engineering topics in the unit. Students must have a course GPA equal to or greater than 5.5, which is required to maintained their candidature in course 3636 Bachelor of Engineering (Advanced).

#### **Special Requirements**

This unit is only available to students in course 3636 Bachelor of Engineering (Advanced).

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This unit provides students with the opportunity to tackle challenging engineering problems. They will study advanced topics in selected areas under the supervision of academics. The advanced topics will prepare students for further study and research.

### **300667.1 Advanced Engineering Topic 2**

**Credit Points** 10 **Level** 4

#### **Assumed Knowledge**

Students must have a course GPA equal to or greater than 5.5, which is required to maintained their candidature in course 3636 Bachelor of Engineering (Advanced).

#### **Prerequisite**

**300666.1** Advanced Engineering Topic 1

#### **Special Requirements**

This unit is only available to students in course 3636 Bachelor of Engineering (Advanced).

.....

This unit provides students with the opportunity to tackle engineering problems that are more challenging than those in Advanced Engineering Topic 1. They will study advanced topics in selected areas under the supervision of academics. The advanced topics will prepare students for further study and research.



### 300538.1 Advanced Inorganic Chemistry

**Credit Points** 10 **Level** 3

#### Prerequisite

**300545.1** Coordination Chemistry OR **300230.1** Inorganic Chemistry 2

#### Equivalent Units

300231 - Inorganic Chemistry 3, J3668 - Inorganic Chemistry 3

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Students studying at Hawkesbury or Parramatta campus should refer to 300231 - Inorganic Chemistry 3. Advanced Inorganic Chemistry is based on the foundations laid in the unit Coordination Chemistry. It covers structure and bonding in inorganic chemistry, higher coordination numbers, lanthanide and actinides, followed by the bioinorganic chemistry of zinc and iron in mammalian and microbial systems. Kinetics and mechanism of inorganic reactions are examined. The important area of organo-transition metal chemistry and catalysis is introduced. Students build on their familiarity with the literature of inorganic chemistry and are introduced to several advanced databases of chemical information. The laboratory sessions develop knowledge of advanced techniques such as anaerobic syntheses and instrumental techniques of characterisation such as NMR, IR and electronic spectra. This is also used to develop an appreciation of the role of computer-based molecular modelling in inorganic chemistry.

### 300591.1 Advanced Science Research Project A

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Knowledge equivalent to successful completion of all Level 1 core units in the student's key program and a GPA greater than or equal to 5.0.

#### Equivalent Units

Students currently enrolled in course 3562 Bachelor of Science (Advanced Science) who wish to transfer to the new program will be given advanced standing for any projects successfully completed.

#### Special Requirements

This unit is only available to students enrolled in course 3562 Bachelor of Science (Advanced Science).

.....

This unit introduces the student to thinking as a research scientist whilst developing skills in a particular area of interest. The student undertakes a minor research project under directed supervision, during which they outline the problem and undertake a full literature review, undertake appropriate research, and analyze and discuss the results in lecture format.

### 300592.1 Advanced Science Research Project B

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Knowledge equivalent to successful completion of all Level 1 core units in the student's key program and a Grade Point Average greater than 5.

#### Equivalent Units

Students currently enrolled in 3562 Bachelor of Science (Advanced Science) who wish to transfer to the new program will be given advanced standing for any projects successfully completed.

#### Special Requirements

This unit is only available to students enrolled in course 3562 Bachelor of Science (Advanced Science).

.....

This unit introduces the student to thinking as a research scientist whilst developing skills in a particular area of interest. The student undertakes a minor research project under directed supervision, during which they outline the problem and undertake a full literature review, undertake appropriate research, and analyze and discuss the results in lecture format.

### 300593.1 Advanced Science Research Project C

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Knowledge equivalent to successful completion of all Level 1 core units in the student's key program and a GPA > 5.

#### Equivalent Units

Students currently enrolled in 3562 Bachelor of Science (Advanced Science) who wish to transfer to the new program will be given advanced standing for any projects successfully completed.

#### Special Requirements

This unit is only available to students enrolled in course 3562 Bachelor of Science (Advanced Science).

.....

This unit introduces the student to thinking as a research scientist whilst developing skills in a particular area of interest. The student undertakes a minor research project under directed supervision, during which they outline the problem and undertake a full literature review, undertake appropriate research, and analyze and discuss the results in both formal report and lecture format.

### 400888.1 Advanced Sports Physiology

**Credit Points** 10 **Level** 3

#### Prerequisite

**400326.1** Exercise Prescription for General Populations AND **400883.1** Exercise Bioenergetics AND **400885.1** Sport and Exercise Physiology

### Equivalent Units

400329 - Sports Physiology

### Special Requirements

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science). To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

.....

This unit presents the knowledge and laboratory skills essential to understanding the physiological demands on the sports participant, as well as to develop, implement and evaluate sports-specific training programs. Students will develop the knowledge and skills necessary to perform and interpret results for a number of standard laboratory and field-based physiological tests used in talent identification and the assessment of high performance athletes. Prescription focuses on the development and implementation of sport specific fitness programs. Also covered are the physiology of ergogenic aids, overtraining, muscle fatigue and soreness; physiological factors limiting performance; and physiological responses to exercise in challenging environments.

### 300410.2 Advanced Topics and Research Skills

**Credit Points** 20 **Level** 8

### Assumed Knowledge

Successful completion of a Bachelors degree in a science discipline. Normally the student will have achieved a grade point average of greater than 5.0 in Level 2 and 3 units.

### Special Requirements

Students must be enrolled in postgraduate or honours courses.

.....

This unit will allow students to explore more advanced topics, including wider areas of research and their applications in science, technology, tourism or the environment. It will encompass and build upon subject areas and techniques already encountered in the undergraduate program, and provide students with an appreciation of more sophisticated applications of scientific principles, emphasising the practical, social, environmental and/or economic value of the sciences. In addition, students will further develop competency in the communication of research results and conclusions through participation in seminar series within the College of Science, Technology and Environment.

### 200411.1 Advanced Topics in Mathematics

**Credit Points** 30 **Level** 5

### Special Requirements

Restriction to students enrolled in a Bachelors honours course.

.....

The Advanced Topics in Mathematics is an integral part of the Bachelor of Science (Honours) course work program. It is structured in such a way that there are extensive links with the other components in the program (Honours Thesis). In undertaking and completing tasks associated with this component the student will be working toward the ultimate goal of completion of the Thesis document. Successful completion of the Advanced Topics in Mathematics Program will allow development of skills, knowledge and a way of thinking to assist in the learning of mathematics/statistics, which will help in the production of the thesis. In this program students will be given the opportunity to present work in assignments and examinations.

### 300530.1 Advances in Agronomy

**Credit Points** 10 **Level** 3

### Equivalent Units

AG403A - Advances in Agronomy

.....

This unit aims to provide students with professional exposure to current state-of-the-art approaches to the science of Agronomy. It focuses on future trends in Agronomy in the contexts of current research, extension and commercial practice, with particular emphasis on the environmental and socio-economic sustainability of agronomic production systems. Students will gain valuable experiences in the applications of selected agronomic models/tools to farm and environmental decision making, as well as evaluating the usefulness of these models/tools as discussion support systems in the contexts of agriculture, horticulture, food and environmental risk and opportunity management.

### 300523.1 Agricultural Supply Chains

**Credit Points** 10 **Level** 1

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This unit will provide students with an understanding of agricultural production in relation to its broader environment including the value/supply chain. Emphasis will be placed on the agricultural industries in Australia integrated nature of the production supply chain and the roles of the various players in the chain. In addition information will be provided on factors external to the chain that influence its operation. This unit will provide the holistic framework within which the other units they study in first year will be placed in context.

### 300524.1 Agronomy

**Credit Points** 10 **Level** 2

### Equivalent Units

AG307A - Agronomy

.....

This unit aims to enable students to develop a sound understanding of the broad principles involved in the production and management of crops and pastures, identification of plant species, linking crop/pasture growth to animal production, and interacting with researchers, community workers and industry professionals in understanding broader and specific issues related to

agronomy. Topics include basic crop and pasture botany, seed physiology, crop/pasture establishment, growth, development, adaptation, grazing management and plant protection. Students manage a crop in the field and a pot trial in the glasshouse. The practical sessions enable students to apply the management principles and become familiar with various measuring techniques.

### **EH321A.1 Air Quality Assessment & Management (UG)**

**Credit Points** 10 **Level** 3

#### **Equivalent Units**

EH302A - Air Quality Assessment and Management

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From 2009 this unit was replaced by 300628 - Air Quality Management. This unit is designed for students who wish to gain knowledge of air pollution, its causes and control methods. Topics include: clean air legislation; air pollution; meteorology; ambient air quality; emission testing; odour and hydrocarbon control; control technology; emissions inventory. At the completion of this unit the student will have a good understanding in the following: pollution types and sources; effects of air pollution; influence of meteorology; indoor air quality; dispersion modelling; monitoring and control of pollution from stationary and mobile sources; legislation and standards, and global air pollution issues.

### **300628.1 Air Quality Management**

**Credit Points** 10 **Level** 3

#### **Equivalent Units**

EH321A - Air Quality Assessment and Management (UG)

.....

This unit is designed for students who wish to gain knowledge of air pollution, its causes and control methods. Topics include: clean air legislation; air pollution; meteorology; ambient air quality; emission testing; odour and hydrocarbon control; control technology; emissions inventory. At the completion of this unit the student will have a good understanding in the following: pollution types and sources; effects of air pollution; influence of meteorology; indoor air quality; dispersion modelling; monitoring and control of pollution from stationary and mobile sources; legislation and standards, and global air pollution issues.

### **400815.2 Alterations in Breathing, Work/Leisure and Mobility**

**Credit Points** 10 **Level** 2

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This unit will elaborate the mechanisms of health breakdown and their application to professional nursing practice in supporting people who are affected by alteration in breathing, work/leisure, sexuality and mobility.

### **400814.2 Alterations in Nutrition, Elimination and Sexuality**

**Credit Points** 10 **Level** 2

#### **Equivalent Units**

400754 - Understanding Alterations in Nutrition and Elimination

.....

This unit will elaborate the mechanisms of health breakdown and their application to professional nursing practice in supporting people who are affected by alteration in eating, drinking, nutrition, elimination and sexuality.

### **200023.1 Analysis**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Advanced Calculus

#### **Equivalent Units**

14388 - Advanced Mathematical Topics, J3762 - Solid State and Semiconductor Physics

.....

This unit provides the theoretical basis of real and complex numbers, including differentiation and integration. Topics include: field axioms and completeness, sequences, series, convergence, compactness, continuity, differentiability, integrability, and related theorems in both the real and complex number systems.

### **300534.1 Analysis of Agricultural Supply Chains**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

An understanding of the interconnected nature of agricultural supply chains as would be gained through successful completion of the unit 300523 - Agricultural Supply Chains.

.....

In this unit students will gain and demonstrate a clear understanding of the integrated nature of the agricultural supply/value chain. This unit will further develop students' understanding of the integrated nature and processes to enable effective analysis of the various components of the value/supply chain. In doing so students will develop skills in the use of various tools including analytical tools and skills including high level communication skills required to work within the value/supply chain.

### **300297.1 Analytical Chemistry 2**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Level 1 Chemistry

#### **Prerequisite**

**300224.1** Chemistry 1 OR **300554.1** Principles of Chemistry

#### Equivalent Units

14132 - Chemical Analysis 1, CH201A - Analytical Chemistry 2.2, J2726 - Analytical Chemistry 2

#### Incompatible Units

14247 - Inorganic and Analytical Chemistry

.....

This unit will aim to develop within the student an understanding of, and an appreciation for, the fundamentals of analytical chemistry. The student will be exposed to the theory and practice of a range of chemical analyses with emphasis on 'wet' or 'classical' methods, and an introduction to some instrumental methods. An important component of this unit is to develop within the student laboratory skills in chemical analysis. Topics covered in this unit include: the evaluation of analytical data; sampling and sample preparation; unit operations in analytical chemistry; stoichiometry and equilibrium; gravimetric analysis; volumetric analysis; separation methods; spectroscopic methods of analysis; electrochemical methods of analysis; analysis of real samples.

### 300298.1 Analytical Chemistry 3

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Satisfactory completion of first year degree level chemistry and a second year analytical chemistry subject.

#### Prerequisite

**300297.1** Analytical Chemistry 2

#### Equivalent Units

14152 - Chemical Analysis 2, CH301A - Analytical Chemistry 3.1, J3657 - Analytical Chemistry 3

.....

Students studying at Hawkesbury or Parramatta campus should refer to 300538 - Advanced Chemical Analysis. This unit equips the student with: an understanding of the principles of instrumental analysis; enhanced knowledge of contemporary analytical chemistry; wider experience of modern analytical instrumentation and its applications; improved skills in laboratory analysis using a range of instrumental techniques. Techniques covered include: separation methods, atomic spectroscopy, electrochemical methods, X-ray methods, principles of spectroscopic methods, electron microscopy and mass spectroscopy, gas and liquid chromatography, automated methods of analysis, analytical method development, quality control and quality assurance, pesticide residue analysis, toxicological (forensic) analysis.

### 300307.1 Analytical Microbiology

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

A good general knowledge of analytical methods in microbiology.

#### Prerequisite

**300300.1** Microbiology 1

#### Equivalent Units

MI301A - Analytical Microbiology (V1)

.....

This unit in analytical microbiology aims to introduce students to analytical techniques for the detection, identification and enumeration of microorganisms in food, pharmaceutical, cosmetic and environmental materials.

### 300556.1 Analytical Protein Science

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Detailed knowledge of protein structure at primary, secondary, tertiary, and quaternary levels; relationship between protein structure and protein function; protein denaturation; isoelectric points and their relevance for protein separation; basic knowledge of and competency in biochemical laboratory techniques, such as spectrophotometry, centrifugation, enzyme assay, graphical methods and biochemical calculations.

#### Prerequisite

**300555.1** Proteins and Genes OR **300219.1** Biochemistry 1

#### Equivalent Units

J3656 - Analytical Biochemistry

.....

This unit covers a range of biochemical techniques and methodologies used for both analysis and purification of biological molecules. It includes advanced aspects of spectroscopy, centrifugation, radioisotopes; RNA isolation and detection, chromatographic principles and methods (gel filtration, ion exchange, affinity, hydrophobic interaction, chromatofocusing); electrophoresis principles and methods (SDS-PAGE, isoelectric focusing, pore gradient, two-dimensional, capillary); protein extraction and separation strategies. The methods and applications of proteomic research are included. The laboratory work parallels lecture material, and students gain hands-on experience in many of these techniques. The importance of quality control is emphasised and quality control programs are carried out concurrently with other laboratory work.

### 300750.1 Anatomy of the Head and Neck

**Credit Points** 10 **Level** 3

#### Equivalent Units

300316 - Anatomy of the Head and Neck

.....

This unit provides a thorough understanding of the topographic anatomy of the human head and neck areas. It undertakes this by utilising a regional approach (as against a systems approach), emphasising the interplay of the different body systems. Cadaver specimens are used to facilitate the learning of spatial relationships between bony and soft tissues.

### **300751.1 Anatomy of the Thorax and Abdomen**

**Credit Points** 10 **Level** 2

#### **Equivalent Units**

E2320 - Human Biological Sciences IV, 300317 - Anatomy of the Thorax and Abdomen

.....

This unit provides a thorough understanding of the topographic anatomy of the human thorax and abdomen. It undertakes this by utilising a regional approach (as against a systems approach), emphasising the interplay of the different body systems within this part of the axial skeleton. The relationship between form and function, at a topographical level, will underpin all teaching of this unit.

### **300564.1 Animal Behaviour**

**Credit Points** 10 **Level** 3

#### **Special Requirements**

All activities in the unit involving live animals must be approved by the UWS Animal Care and Ethics Committee. All activities in the unit involving the use of animal specimens must be approved by the UWS Institutional Biosafety and Radiation Safety Committee.

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Focusing on a variety of wildlife and companion animal species, this unit will teach and demonstrate to students the many areas of animal behaviour and the importance of understanding these behaviours in animal management. Students will observe and work with groups of animals on the UWS campus as well as witnessing and participating in events with industry that highlight the importance of knowledge and acceptance of animal behaviour.

### **300424.1 Animal Health and Welfare**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

General biology.

#### **Special Requirements**

All activities in the unit involving live animals must be approved by the UWS Animal Care and Ethics Committee. All activities in the unit involving the use of animal specimens must be approved by the UWS Institutional Biosafety and Radiation Safety Committee.

.....

This unit will introduce students to the major issues related to animal health and welfare that form essential knowledge for those working with animals. In particular, students will gain an understanding of disease agents, disease transmission and methods for disease control as well as an introduction to disease diagnosis. In addition, students will gain knowledge about the relationships between animal management and the health and welfare expectations for domesticated and wild animals. The causes of common animal diseases will be introduced as well as the legal obligations of those owning, working or observing animals with respect to maintaining and monitoring their health and welfare. This unit will be taught in a block of eight weeks.

### **300562.1 Animal Nutrition and Feeding**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Basic knowledge of biology

#### **Equivalent Units**

NT305A - Equine Nutrition and Feeding

#### **Special Requirements**

All activities in the unit involving live animals must be approved by the UWS Animal Care and Ethics Committee. All activities in the unit involving the use of animal specimens must be approved by the UWS Institutional Biosafety and Radiation Safety Committee.

.....

This unit aims to give students a good understanding of nutrient requirements of different types of animals and the nutrient composition of common feeds so that they can evaluate and formulate rations to meet a range of animal requirements at different stages of growth, reproduction, lactation and production.

### **300608.1 Animal Physiology**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Sound knowledge of undergraduate level 1 biology.

#### **Equivalent Units**

14405 - Animal Physiology

.....

This unit aims to develop students with an understanding of the basic principles of animal physiology; the physiologic and homeostatic strategies and mechanisms employed by diverse animal groups particularly among the vertebrates in maintaining normal coordinated body functions under various physical conditions. Topics covered include the physiology of transport system, respiratory system, nutritional strategies, hormones and hormonal control, osmoregulation, neural processing, thermoregulation, reproduction and foetal development.

### **300427.1 Animal Production**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Knowledge of introductory Animal Science.

#### **Equivalent Units**

AG308A - Animal Production 2 - Production Systems

.....

This unit aims to develop an understanding of the major animal production systems used for food and fibre in Australia (beef, dairy, pigs, poultry and sheep) and to apply this knowledge to improving problematic issues and understanding topical issues. Topics will focus on the applications of animal production principles to these production systems.

### **300563.1 Animal Reproduction**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Basic knowledge of biology.

#### **Equivalent Units**

AG306A - Equine Reproduction and Stud Management

#### **Special Requirements**

All activities in the unit involving live animals must be approved by the UWS Animal Care and Ethics Committee. All activities in the unit involving the use of animal specimens must be approved by the UWS Institutional Biosafety and Radiation Safety Committee.

.....

This unit aims to provide students with a sound understanding of reproduction of both domestic and non domestic animals so that they can design and manage a breeding program for a species of choice. Topics will include anatomy and physiology of male and female reproductive tracts; hormonal control of reproduction; fertilisation, pregnancy, parturition and lactation; artificial reproductive techniques.

### **300421.2 Animal Science**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Basic knowledge of biology.

.....

This unit will provide students with an understanding of comparative physiological and anatomical concepts of a range of mammalian and avian species. Students will develop the skills to apply these concepts in practical situations through the use of field observations and the relationship of these to functional anatomy and physiology of production animals. In addition students will develop many of the principles and concepts employed in animal production. Concepts discussed in lectures are reinforced by practical classes held in the laboratory and on the outdoor laboratories.

### **300218.1 Applied Aspects of Inorganic Chemistry**

**Credit Points** 10 **Level** 3

#### **Equivalent Units**

14108 - Chemistry Topics 1

.....

This unit covers three important applied aspects of modern inorganic chemistry: environmental inorganic chemistry; chemistry in mineral and metallurgical processing; and the characterisation of solid inorganic materials by state-of-the-art analytical techniques. The course material is presented via weekly lectures, one three-day field excursion at the school's field station at Burruga, and some essential integrated hands-on practical work with the relevant analytical instrumentation.

### **400889.1 Applied Biomechanics of Sport and Exercise**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

It is expected that students have the knowledge and skills associated with the prerequisite unit.

#### **Prerequisite**

**400882.1** Introduction to Biomechanics

#### **Equivalent Units**

400330 - Applied Biomechanics of Exercise

#### **Special Requirements**

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science).

.....

To fully understand the science underlying the optimisation of human movement, students require a comprehensive working knowledge of Biomechanics. This unit represents a theoretical and applied study of selected topics in Biomechanics. It builds on the basic principles of Biomechanics that are presented in the unit Introduction to Biomechanics and applies this knowledge to the analysis of sporting and human exercise performance. To achieve this, advanced methods and concepts in the biomechanical analysis of human performance are identified and explored.

### **10943.2 Applied Ergonomics**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Knowledge related to the successful completion of Year 1 first semester would be of advantage and is assumed.

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In 2011 this unit replaced by 300776 - Applied Ergonomics. Ergonomics is the study of the interaction between people, their living and working environments and the objects they use in those environments. Scientific information and research concerning humans is applied to the design of objects, systems and environments they interact with. A sound understanding of the principles of this applied science allows a designer to develop products, systems and environments with optimum usability, providing increased comfort, pleasure and productivity of the end user/operator. Other interchangeable terms for ergonomics are Biotechnology, Ergonomics, Human Engineering, Human Factors Engineering and Human Factors.

### **300776.1 Applied Ergonomics**

**Credit Points** 10 **Level** 1

.....

Ergonomics is the study of the interaction between people, their environments, and their objects. A sound understanding of the principles of ergonomics allows a designer to develop products, systems and environments with optimum usability, comfort, pleasure and productivity for the end user. In this unit, students undertake their own ergonomic study. They are firstly introduced to modelling

workshop procedures. They then build and test a model hand-held product, and integrate user feedback into its redesign. Other interchangeable terms for ergonomics are Biomechanics, Ergonomics, Human Engineering, and Human Factors.

### 300413.1 Applied Instrumentation in Nanotechnology

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

300558 Physics 1, 200224 Chemistry 1, 300221 Biology 1, 300417 Nanotechnology 1, 300559 Physics 2, 300225 Chemistry 2, 200189 Concepts of Mathematics, 300418 Nanotechnology 2

.....

This unit will cover the instrumentation used for the characterisation of materials, devices and biological systems with nanoscale features requiring analysis tools with extreme precision. New and innovative cutting edge characterisation techniques for the analysis of surface and bulk of the devices will be discussed.

### 300653.1 Applied Nutrition

**Credit Points** 10 **Level** 3

#### Equivalent Units

NT307A - Applied Nutrition

.....

This unit builds on basic concepts in human nutrition and facilitates the study of nutrition needs during the life-cycle and for specific lifestyle and nutrition related diseases. This study will incorporate how to assess individuals and diets and to manipulate diets to ensure nutritional sufficiency and to manage nutritional therapy of lifestyle related diseases. This assessment is also applied to the dietary requirements of specific community groups and covers topics in sports nutrition, food supply and food product development.

### 200033.2 Applied Statistics

**Credit Points** 10 **Level** 2

#### Prerequisite

200032.2 Statistics for Business OR 200192.1 Statistics for Science OR 200263.1 Biometry OR 300700.2 Statistical Decision Making

.....

The unit builds on the basic statistical concepts introduced in first year and also prepares students for broader application of statistics for students majoring in both science and business. In broad terms, the unit consists of some common Probability Distributions, Revision of Hypothesis Testing; Analysis of Categorical Data; Analysis of Variance Simple and Multiple Linear Regression Analysis and Correlation; Some Nonparametric Methods, Fundamentals of Time Series Analysis

### 400867.1 Approaches to Health Promotion

**Credit Points** 10 **Level** 2

#### Equivalent Units

400782 - Essentials of Health Promotion

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Health promotion is a process that seeks to enable individuals, carers, communities and populations to increase control over their health by addressing the determinants of health and equity issues, resulting in improved health outcomes. Theoretical underpinnings of the various approaches to health promotion are explored, enhancing and limiting factors analysed and the levels of health promoting actions demonstrated, including the bigger picture approaches of working with policy, environmental and engineering solutions. Health promotion competencies are developed including conducting a needs and stakeholder analysis, also planning and evaluating an intervention. The best practice, evidence base for health promotion is outlined and the need to move beyond education.

### 700065.1 Approaches to Health Promotion (UWSC)

**Credit Points** 10 **Level** 2

#### Equivalent Units

400867 - Approaches to Health Promotion

#### Special Requirements

This unit is only available to UWS College students and is not to be studied in the first semester of the Diploma as this is a Level 2 unit.

.....

Health promotion is a process that seeks to enable individuals, carers, communities and populations to increase control over their health by addressing the determinants of health and equity issues, resulting in improved health outcomes. Theoretical underpinnings of the various approaches to health promotion are explored, enhancing and limiting factors analysed and the levels of health promoting actions demonstrated, including the bigger picture approaches of working with policy, environmental and engineering solutions. Health promotion competencies are developed including conducting a needs and stakeholder analysis, also planning and evaluating an intervention. The best practice, evidence base for health promotion is outlined and the need to move beyond education.

### 300465.1 Aquatic Ecology

**Credit Points** 10 **Level** 3

#### Equivalent Units

BI304A - Environmental Biology 3.2 (V1)

.....

Temperate aquatic ecosystems, freshwater, estuarine and marine are some of the most threatened ecosystems. Lack of understanding and pressures from urbanisation have caused alteration of these habitats, sometimes without regard to the ecological and social consequences. This unit

will emphasise that to understand human impacts in our environment involves the logic and philosophy of science. On completion of this unit students will have knowledge of the main animal and plants in aquatic ecosystems and the techniques in experimental design and analysis needed to investigate estuarine, freshwater and marine ecosystems. Throughout this unit, the results of scientific and experimental work on temperate aquatic ecosystems, which inform decision-making and conservation of these habitats will be emphasised.

### 200535.1 Auditing and Assurance Services

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

A basic knowledge of computing.

#### Prerequisite

**200109.1** Corporate Accounting Systems

#### Equivalent Units

AC301A - Auditing, H3822 - Auditing, 61151 - Principles of Auditing, 200107 - Auditing Principles

#### Incompatible Units

61152 - Auditing & Professional Practice

.....

This unit studies the roles and responsibilities of the auditor, auditing principles and standards and the application of those standards, particularly in an electronic environment.

### 300327.1 Australian Plants

**Credit Points** 10 **Level** 3

#### Equivalent Units

BI306A - Plant Form and Function

.....

This unit enables students to study the biology of Australian plants. The unit covers the topics of origins of the flora of Australia, Gondwanan plants, vegetation structures in Australia, ecology of Australian plants, physiology of Australian plants and the uses of Australian plants.

### 300735.1 Automated Manufacturing

**Credit Points** 10 **Level** 2

#### Prerequisite

**300463.1** Fundamentals of Mechanics AND **200237.1** Mathematics for Engineers 1 OR **200191.3** Fundamentals of Mathematics AND **300304.2** Sustainable Design: Materials Technology

#### Equivalent Units

86301 - Automated Manufacturing

.....

The aim of this unit is to provide an introduction into the fundamentals of manufacturing operations, automation and control technologies including numerical control and industrial robotics. In addition, material handling and identification technologies will be discussed as well as manufacturing systems. The latter will examine single-

station manufacturing cells, manual assembly lines, automated production and assembly lines as well as flexible manufacturing systems. Mechanical behaviour of common materials used in manufacturing will be studied, and their suitability for various manufacturing processes including metal cutting, sheet-metal forming, bulk deformation and abrasion. Properties and processing of polymers and reinforced plastics will be examined especially with respect to rapid prototyping and rapid tooling.

### 86301.2 Automated Manufacturing

**Credit Points** 10 **Level** 3

#### Prerequisite

**300463.1** Fundamentals of Mechanics AND **200237.1** Mathematics for Engineers 1 OR **200191.1** Fundamentals of Mathematics AND **300304.2** Sustainable Design: Materials Technology

#### Equivalent Units

300735 - Automated Manufacturing

.....

In 2010 this unit is being replaced by 300735 Automated Manufacturing. This unit covers areas of manufacturing processes, automated production systems and an introduction to CAD/CAM systems. Aspects of automated manufacturing are included and require students to model simple products in CAD and produce CNC toolpath programs by using the CAM part of the system. Also, it involves students using a CNC lathe and mill to manufacture the product. The mechanics of metal cutting in machine tools is included and ties in with cost estimation techniques of manufacturing processes. Tool materials and wear estimation are also covered. Some of the common forms of manufacturing that are included in this unit are metal forming, extrusion, welding, rolling and metal spinning. In addition, automation systems such as flexible manufacturing, robotic cells and mass production methods are described. Computer-aided manufacturing, process planning and robotic assembly will also be covered.

### 400748.2 Becoming a Nurse

**Credit Points** 10 **Level** 1

#### Equivalent Units

400045 - Nursing Context 1

.....

This unit introduces the student to the basic constructs that form professional nursing and nursing practice.

### 200518.1 Behavioural Finance

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students should have at least an introductory finance background before entering into this unit.

#### Prerequisite

**200048.1** Financial Institutions and Markets AND **200488.1** Corporate Financial Management

.....



Traditional theories of finance are based the assumption that investors are both rational and utility maximizing. The Efficient Markets Hypothesis in particular has assumptions about investor behaviour which underpin its key predictions. The tenants of behavioural finance disputes the validity of these assumptions. This unit challenges traditional theory by examining how decision making and investor behaviour may be driven by personal and market psychology.

### 400747.2 Behavioural Foundations of Nursing Practice

**Credit Points** 10 **Level** 1

#### Equivalent Units

400046 - Nursing Science 1

#### Special Requirements

As a result of space restrictions students must be enrolled in 4642,4643 or 4648 Bachelor of Nursing course.

.....

This unit introduces the student to psycho-social concepts and principles that underpin human behaviour and inform professional nursing practice.

### 300219.2 Biochemistry 1

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Knowledge of bacterial, plant and animal cell structure; chromosomes, mitosis and meiosis; structure of DNA and its role as carrier of genetic information; Mendelian genetics; chemical bonding, including covalent, hydrogen and ionic bonds and hydrophobic interactions; properties of water, acids, bases and buffers; structure of common functional groups; stereoisomerism; stoichiometry; principles of chemical reactions. Basic laboratory skills such as weighing, mixing, laboratory record keeping and calculations.

#### Prerequisite

**300221.1** Biology 1 OR **300543.1** Cell Biology AND **300224.2** Chemistry 1 OR **300225.2** Chemistry 2 OR **300550.1** Medicinal Chemistry OR **300554.1** Principles of Chemistry

#### Equivalent Units

14421 - Biochemistry 1, 14437 - Biochemistry 1, 300555 - Proteins and Genes, BC201A - Biochemistry 2.1 (V1)

#### Incompatible Units

300227 - General Biochemistry, 300658 - Endocrinology and Metabolism

.....

This unit develops understanding of the structure, function and synthesis of proteins, principles of enzyme function and regulation, and the structures and roles of nucleic acids, chromosomes and genes. Topics include the characteristic features of the four levels of protein structure and their significance for protein function; protein denaturation; enzyme function, kinetics and inhibition, allosteric enzymes, and mechanisms of enzyme regulation; structure of DNA, RNA, chromosomes, genes; the molecular events in transcription and translation in bacteria and eukaryotes,

and protein modification and targeting. Complex carbohydrate biochemistry and protein glycosylation is also included.

### 300220.1 Biochemistry 2

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Knowledge of enzyme structure and function, understanding of the importance of co-factors to enzyme activity, understanding of enzymatic active sites and catalysis, knowledge of the types of enzymatic inhibition and regulatory mechanisms, knowledge of eukaryotic intracellular compartments and their broad function.

#### Prerequisite

**300219.1** Biochemistry 1 OR **300555.1** Proteins and Genes

#### Equivalent Units

14427 - Biochemistry 2, 14440 - Biochemistry 2, 300548 - Human Metabolism and Disease, BC202A - Biochemistry 2.2 (V1), J2821 - Biochemistry of Metabolism

#### Incompatible Units

300227 - General Biochemistry

.....

Students studying at Campbelltown campus should refer to 300548 - Human Metabolism and Disease. This unit develops understanding of the metabolic processes by which an organism degrades food molecules to generate energy and converts excess food molecules into internal fuel stores. Topics include: bioenergetics; structures of key molecules; glycolysis, gluconeogenesis, glycogen synthesis and breakdown; fatty acid oxidation and synthesis; amino acid catabolism; urea synthesis; citric acid cycle; electron transport and oxidative phosphorylation. Emphasis is on regulation and integration of the pathways, including their responses to hormonal regulation. The effects of altered dietary and hormonal status on metabolic pathways and their consequences for the organism will be discussed.

### 300414.1 Biodevices

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200224 Chemistry 1, 300225 Chemistry 2, 300221 Biology 1, 300418 Nanotechnology 2.

.....

The unit will cover the enormous nanotechnological breakthroughs in biology covering the nature's nanomachines; lipids, DNA and proteins. The students will learn how only a few basic building blocks would self-assemble into more complex structures, which in turn, self-assemble into more complex hierarchical structures from which one could build biodevices. These fascinating self-organising supramolecular structures generally involve some kind of non-covalent binding. In nature, virtually every living cell is powered by a myriad of tiny rotating nanoturbines called ATPase. The unit will cover the great advances that have been achieved in extremely sensitive biosensors to complex biodevices mimicking biological world.

### 300539.1 Biodiversity

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Basic Chemistry and Biology.

#### Equivalent Units

14436 - Foundation Biology, 300222 - Biology 2, BI102A - Biological Sciences 1.2 (VI), BI108A - Biological Sciences 1.2(X), J1761 - General Biology

#### Incompatible Units

300361 - Introduction to Human Biology, 400130 - Human Medical Sciences 1, B1904 - Biology for Psychologists, B1905 - Genetics and Bioscience for Psychologists, BI005A - Biology 1.1D, BI106A - Biological Sciences, BI107A - Biological Sciences 1.1 (X)

.....

Students studying at Hawkesbury or Parramatta campus should refer to 300222 - Biology 2. This unit demonstrates the diversity of living organisms and viruses, with particular emphasis on those that affect human health. Students will discover how these organisms are classified, and how they have evolved. Besides exploring the breadth of biodiversity, the unit also examines the links between organisms. Evolutionary advances made by different taxonomic groups to develop mechanisms for reproduction and growth, respiration, maintaining water balance, excretion, digestion, and coordination will be compared. Ultimately human health depends on a sustainable environment and the study of ecosystems will link the biodiversity components of the unit.

### 700032.1 Biodiversity (UWSC)

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Basic Chemistry and Biology

#### Equivalent Units

J1761 - General Biology, 14436 - Foundation Biology 2, BI102A - Biological Sciences 1.2 (V1), 300222 - Biology 2, BI108A - Biological Sciences 1.2

#### Incompatible Units

B1904 - Biology for Psychologists, B1905 - Genetics and Bioscience for Psychologists, BI005A - Biology 1.1D, BI106A - Biological Sciences 1.2, BI107A - Biological Sciences 1.1, 300361 - Introduction to Human Biology, 400130 - Human Medical Sciences 1

#### Special Requirements

Students must be enrolled at UWS College.

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This unit demonstrates the diversity of living organisms and viruses, with particular emphasis on those that affect human health. Students will discover how these organisms are classified, and how they have evolved. Besides exploring the breadth of biodiversity, the unit also examines the links between organisms. Evolutionary advances made by different taxonomic groups to develop mechanisms for reproduction and growth, respiration, maintaining water balance, excretion, digestion, and coordination will be

compared. Ultimately human health depends on a sustainable environment and the study of ecosystems will link the biodiversity components of the unit.

### 300221.1 Biology 1

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Basic Chemistry and Biology.

#### Equivalent Units

14430 - Foundation Biology 1, 300543 - Cell Biology, BI101A - Biological Sciences 1.1 (V1), J1760 - Fundamentals of Cell Biology

#### Incompatible Units

300361 - Introduction to Human Biology, BI904 - Biology for Psychologists, BI905 - Genetics and Bioscience for Psychologists, BI005A - Biology 1.1D, BI106A - Biological Sciences 1.2, BI107A - Biological Sciences 1.1(X)

.....

Students studying at Campbelltown campus should refer to 300543 - Cell Biology. The cell is the basic unit of life and some basic processes, such as membrane function and the reactions involving DNA, occur in cells of all living organisms. This unit introduces the important biological chemicals involved in those processes and the study of the processes themselves. The unit also examines phenomena such as cell replication, sex cell formation, inheritance, and cell metabolism that are shared by all eukaryotes (animals, protists, fungi and plants). The biochemical capture of the sun's energy (photosynthesis) is also studied. The evolutionary links between these cellular processes form a framework for the unit, and students consider the origin of life and their own evolution. In addition, students are introduced to the immense potential of recombinant DNA technology.

### 300222.1 Biology 2

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Basic Chemistry and Biology.

#### Equivalent Units

14436 - Foundation Biology 2, 300539 - Biodiversity, BI102A - Biological Sciences 1.2 (V1), J1761 - General Biology

#### Incompatible Units

300361 - Introduction to Human Biology, 400130 - Human Medical Sciences 1, B1904 - Biology for Psychologists, B1905 - Genetics and Bioscience for Psychologists, BI005A - Biology 1.1D, BI106A - Biological Sciences, BI107A - Biological Sciences 1.1 (X)

.....

Students studying at Campbelltown campus should refer to 300539 - Biodiversity. This unit examines the diversity of living organisms, how these organisms are classified, and how evolutionary processes resulted in such diversity. The unit also addresses the role of cells, tissues and organs in the structure and function of living whole organisms, how these organisms acquire and assimilate the resources necessary for growth, and how they excrete waste,

maintain function and coordinate growth and reproduction. The role of ecosystems in maintaining life is also studied. Students conduct basic investigations using techniques such as microscopy, sectioning, staining and dissection.

### 200263.1 Biometry

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Mathematics

#### Equivalent Units

200032 - Statistics for Business, 200192 - Statistics for Science

#### Incompatible Units

200190 - Finite Mathematics, 200194 - Engineering Mathematics 3

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This unit introduces students to various statistical techniques necessary in scientific endeavours. Presentation of the content will emphasize the correct principles and procedures for collecting and analysing scientific data, using a 'hands-on' approach. Topics include effective methods of gathering data, statistical principles of designing experiments, error analysis, describing different sets of data, probability distributions, statistical inference, non-parametric methods, and simple linear regression and correlation.

### 700033.1 Biometry (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

200192 - Statistics for Science, 200032 - Statistics for Business

#### Incompatible Units

200190 - Finite Mathematics, 200194 - Engineering Mathematics 3

#### Special Requirements

Students must be enrolled at UWS College.

.....

This unit introduces students to various statistical techniques necessary in scientific endeavours. Presentation of the content will emphasize the correct principles and procedures for collecting and analysing scientific data, using a 'hands-on' approach. Topics include effective methods of gathering data, statistical principles of designing experiments, error analysis, describing different sets of data, probability distributions, statistical inference, non-parametric methods, and simple linear regression and correlation.

### 300540.1 Biomolecular Dynamics

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

A demonstrated understanding of, and competence with, basic chemical principles including SI units, chemical symbols, formulae and equations, nomenclature, stoichiometry, the mole concept and associated

calculations, states and properties of matter, thermodynamics, chemical equilibria, acids and bases, pH and electrochemistry, to a standard equivalent to that presented in Chemistry 1 (or equivalent). Completion of first-year mathematics would also be assumed knowledge.

#### Prerequisite

**300224.1** Chemistry 1 OR **300554.1** Principles of Chemistry

#### Equivalent Units

300236 - Physical Chemistry 2, J2776 - Physical Chemistry 2

.....

Students studying at Parramatta campus should refer to 300236 - Physical Chemistry 2. The unit provides the understanding of the chemical principles as applied to biological molecules (biomolecules). Chemical and electrochemical energy transformations approaching equilibria and rates of biological processes are studied and further explored for useful experimental and data-analysis skills. Selected areas including enzyme kinetics or membrane equilibria will be studied.

### 300541.1 Biomolecular Frontiers

**Credit Points** 10 **Level** 1

#### Special Requirements

Only available to students enrolled in the Bachelor of Biomolecular Science.

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Students will learn about exciting and sometimes contentious issues in the biomolecular sciences: including stem cell research; cloning and genetic engineering; new drug development; nanoscience and human health; circadian rhythms; origins of new viruses; the human genome and human health; NMR and health; fraud, plagiarism and ethics in science; finding new drugs; computer-aided drug design; biosafety and biosecurity. Guest lecturers will present special insights into new developments. Students will gain practical experience in skills which are essential for biomolecular science: scientific writing, locating and accessing information for researching a scientific topic, and oral presentation skills.

### 300542.1 Biomolecular Science Project

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

All Level 2 core units in their key program.

#### Equivalent Units

14117 - Chemistry Project, 300299 - Chemistry Project 3, J3659 - Biological Science Project, J3662 - Chemistry Project

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Students studying at Parramatta campus should refer to 300299 - Chemistry Project 3. This unit provides the student with an introduction to thinking as a research scientist whilst developing methodological and practical skills in a particular area of interest. The student undertakes a minor research project under directed supervision, during which they outline the problem and undertake a full

literature review, perform appropriate experiments, and analyze and discuss the results in a formal report.

### 300644.1 Biophysics

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

HSC level Mathematics. Students should have completed at least one first-year university Biology unit.

#### Equivalent Units

J3719 - Biophysics

.....

This unit introduces students to the application of physics and engineering principles to biology. Artificial and cellular membranes are studied in theory and in the laboratory, with emphasis on membrane pumps and channels. Laboratory classes include the study of membrane transport processes using radioisotopes. Students are trained in the principles and use of the electron microscope and magnetic imaging (MRI).

### 300610.1 Biotechnology

**Credit Points** 10 **Level** 3

#### Prerequisite

**300219.1** Biochemistry 1 OR **300555.1** Proteins and Genes AND **300300.1** Microbiology 1

#### Equivalent Units

14455 - Biotechnology

#### Special Requirements

In addition to the pre-requisite units, students must also pass one other undergraduate Level 3 Biology unit

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This unit is an interdisciplinary unit encompassing modern and traditional aspects of the subject. Areas such as environmental, food, plant and molecular biotechnology will be studied. Special emphasis will be given to addressing biotechnological solutions to problems of economic, environmental and health significance. The unit also addresses aspects of commercialization and protection of intellectual property as well as bioethical and safety issues.

### 14455.1 Biotechnology

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

300219 Biochemistry 1, 300220 Biochemistry 2, 300300 Microbiology 1.

.....

This unit has been replaced by 300610 Biotechnology in Spring 2009. This is an interdisciplinary unit encompassing modern and traditional aspects of biotechnology. Areas such as bioprospecting, bioremediation, food, bacterial, fungal, plant and animal biotechnology will be studied. Emerging new areas such as genomics and proteomics will be covered. Special emphasis will be given to addressing biotechnological solutions to problems of economic significance to Australia. The course finishes with a discussion on aspects of commercialisation and protection

of intellectual property as well as bioethical and safety issues. Practicals, computer workshops, excursions and discussion groups reflect the lecture course.

### 400927.1 Block Clinical Practicum (PG)

**Credit Points** 10 **Level** 7

#### Assumed Knowledge

Traditional Chinese Medicine Practice 4 (PG)

#### Incompatible Units

400363 - Block Clinical Practicum

.....

This unit provides the student with intensive, supervised clinical practice experience. Arrangements will be made for students to complete this stage in China. This will involve students paying their own travel fares, as well as, training and accommodation fees to the Chinese institution. This unit represents the final clinical practicum stage and development of clinical skills. Students will be expected to demonstrate competence in handling patients in a clinical context, and manage their integrated care using TCM.

### 300328.1 Botany

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Basic knowledge in biology.

#### Equivalent Units

BI103A - Botany and Taxonomy

.....

This unit introduces students to the study of botany so that they will develop a knowledge and understanding of plants. The unit covers the topics of plant anatomy, evolution, morphology and taxonomy, economically important plants and an introduction to Australian plants.

### 200088.1 Brand and Product Management

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

A sound knowledge of marketing principles and of the key elements of consumer behaviour, marketing research and marketing communications.

#### Prerequisite

**200083.1** Marketing Principles

#### Equivalent Units

MK205A - Brand Management

.....

This unit focuses on the role of brand and product management in the context of planning and implementing marketing strategies and is intended to develop a critical appreciation of the inherent challenges contemporary firms encounter in creating and maintaining brand equity.

### 300088.1 Broadband Networking

**Credit Points** 10 **Level** 3

**Prerequisite**

**300112.1** Digital Communication Technology

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This unit covers networking technologies, and standards of broadband networks that dominate both the WAN and LAN markets. These include frame relay, ATM, broadband ISDN and high-speed LANs. Quality of Service (QoS) issues, and the need to support multimedia and real-time traffic, the need to control congestion and the need to provide different levels of QoS to different applications are the focus.

### 300706.1 Building 1

**Credit Points** 10 **Level** 1

**Equivalent Units**

BG101A - Building 1

**Special Requirements**

External offerings for this unit are only available to students who are enrolled in a Property course or Property key program.

.....

This unit provides students with an overview of regulations and construction techniques with an emphasis on low-rise residential buildings in the Australian context. It covers general process; building regulations; environmental issues; surveying techniques; structural elements (footings, framing and bracing); envelope; services; fit-out and finishes.

### 700070.1 Building 1 (UWSC)

**Credit Points** 10 **Level** 1

**Equivalent Units**

300706 - Building 1

**Special Requirements**

Only students enrolled at UWSCollege may undertake this unit.

.....

This unit provides students with an overview of regulations and construction techniques with an emphasis on low-rise residential buildings in the Australian context. It covers general process; building regulations; environmental issues; surveying techniques; structural elements (footings, framing and bracing); envelope; services; fit-out and finishes.

### 300707.1 Building 2

**Credit Points** 10 **Level** 1

**Equivalent Units**

BG103A - Building 2

.....

The aim of this unit is to provide students with an overview of the design, classification, applicable Australian

Standards, structural systems, construction techniques, materials handling systems, building services, fit-out and finishes for larger scale buildings.

### 700071.1 Building 2 (UWSC)

**Credit Points** 10 **Level** 1

**Equivalent Units**

300707 - Building 2

**Special Requirements**

Only students enrolled at UWSCollege may undertake this unit.

.....

The aim of this unit is to provide students with an overview of the design, classification, applicable Australian Standards, structural systems, construction techniques, materials handling systems, building services, fit-out and finishes for larger scale buildings.

### 200292.1 Building Law

**Credit Points** 10 **Level** 3

**Equivalent Units**

LW305A - Building Law 2

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This unit is designed to provide students with an awareness of Industrial Relations and Dispute Resolution. Content: Employment Law, unfair dismissal, constitutional law, awards, enterprise agreement, course of disputes, method of dispute resolution, alternate dispute resolution, mock dispute resolution, future trends in dispute resolution.

### BG302A.1 Building Regulation Studies

**Credit Points** 10 **Level** 3

**Equivalent Units**

300722 - Building Regulation Studies

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In 2010 this unit replaced by 300722 - Building Regulation Studies. To develop an awareness of the regulatory construction and equipment techniques in the detection, prevention, behaviour and control of fire; an understanding of and an appreciation for buildings; to extend knowledge of the modern built environment for appraisal at Council level in planning and development procedures related to the inspection role, and the legal responsibilities in fire engineering and hazard assessment. Building regulations and fire safety; performance and prescription; fire literature and development; materials in fire, fire resisting construction; detection/alarm systems; egress and human behaviour; spread of fire; work cover; smoke movement and control; fire fighting equipment; essential services and heritage buildings.

### 300722.1 Building Regulations Studies

**Credit Points** 10 **Level** 3

**Equivalent Units**

BG302A - Building Regulation Studies

To develop an awareness of the regulatory construction and equipment techniques in the detection, prevention, behaviour and control of fire; an understanding of and an appreciation for buildings; to extend knowledge of the modern built environment for appraisal at Council level in planning and development procedures related to the inspection role, and the legal responsibilities in fire engineering and hazard assessment. Building regulations and fire safety; performance and prescription; fire literature and development; materials in fire, fire resisting construction; detection/alarm systems; egress and human behaviour; spread of fire; work cover; smoke movement and control; fire fighting equipment; essential services and heritage buildings.

### 200336.2 Business Academic Skills

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC English or equivalent

#### Equivalent Units

H1745 - Business Skills for Professionals, 200155 - Business Skills and Communication, 100483 - Principles of Professional Communication 1

#### Special Requirements

External offerings for this unit are only available to students who are enrolled in a Property course or Property key program.

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The development of business skills in the form of the application of information collection, analysis and evaluation, logical reasoning skills, and communication skills relevant to business and economic issues.

### 200162.1 Business Report

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Introduction to Operations Management.

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This unit is structured as session-long, team-based projects and provides an opportunity for students to integrate the knowledge and skills acquired in units they have undertaken previously. Projects are selected by teams for approval by the unit coordinator (under special circumstances, approval may be given for projects to be undertaken on an individual basis). Students prepare a formal project proposal, which covers the problem to be addressed, the methodology to be used and the strategic plan for conduct of the project. The project culminates in the submission of a final report that includes appropriate outcomes and recommendations. Students also deliver a presentation based on their final report.

### 200091.2 Business to Business Marketing

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Basic knowledge of marketing concepts, theories and frameworks

#### Prerequisite

**200083.1** Marketing Principles

#### Equivalent Units

MK318A - Business-to-Business Marketing, 61723 - Business-to-Business Marketing

.....

This unit encompasses introduction to B2B Marketing, differences between B2B and consumer marketing, organizational buying behaviour, B2B market segmentation, business marketing strategy, management of the 4P's in B2B Marketing, relationship and network marketing, Supply Chain Management and CRM strategies, and evaluating the marketing efforts and making the marketing strategy work.

### 200158.2 Business, Society and Policy

**Credit Points** 10 **Level** 2

#### Corequisite

**200571.1** Management Dynamics OR **MG102A.1** Management Foundations OR **61611.1** Management Studies OR **H1727.1** Business Management

.....

This unit examines the interface between business, society and the state, and sensitises students to the impact of broad social, political and economic forces on the relationships between these three spheres. The unit also considers the role of different ideological models such as Keynesianism, neo-liberalism and mixed market, in shaping the relationships between business and government. It also examines the impact of increasing internationalisation and globalisation on business, society and the state.

### 300543.1 Cell Biology

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Basic Chemistry and Biology

#### Equivalent Units

14430 - Foundation Biology, 300221 - Biology 1, BI101A - Biological Sciences 1.1(X), J1760 - Fundamentals of Cell Biology

#### Incompatible Units

300361 - Introduction to Human Biology, BI904 - Biology for Psychologists, BI905 - Genetics and Bioscience for Psychologists, BI005A - Biology 1.1D, BI106A - Biological Sciences 1.2, BI107A Biological Sciences 1.1(X)

.....

Students studying at Hawkesbury or Parramatta campus should refer to 300221 - Biology 1. Cells are the foundations of life, and an understanding of cell structure and function is required for anyone working in the medical science field. Most diseases result from or lead to malfunctioning of some aspect of cellular processes such as transport across membranes or cell replication. Underlying normal cell function, however, are the molecules of which cells are composed. Consequently, the unit will introduce lipids, carbohydrates, amino and nucleic acids,

then study the processes by which these molecules are manipulated to build and recycle organelles, store and transport energy and transmit genetic information in both the prokaryote and eukaryote domains. Accordingly, the unit will include cell replication, sex cell formation, Mendelian genetics as well as cellular respiration and DNA replication, transcription and translation. The role of DNA technology in biomolecular science will be an important component of the unit and will unify the several topics listed above.

### 70034.1 Cell Biology (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

300221 - Biology 1, J1760 - Fundamentals of Cell Biology, 14430 - Foundation Biology 1, B1101A - Biological Sciences 1.1

#### Incompatible Units

B1005A - Biology 1.1D, B1107A - Biological Sciences 1.1, B1106A - Biological Sciences 1.2, BI904 - Biology for Psychologists, BI905 - Genetics and Bioscience for Psychologists, 300361 - Introduction to Human Biology

#### Special Requirements

Students must be enrolled at UWS College.

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Cells are the foundations of life, and an understanding of cell structure and function is required for anyone working in the medical science field. Most diseases result from or lead to malfunctioning of some aspect of cellular processes such as transport across membranes or cell replication. Underlying normal cell function, however, are the molecules of which cells are composed. Consequently, the unit will introduce lipids, carbohydrates, amino and nucleic acids, then study the processes by which these molecules are manipulated to build and recycle organelles, store and transport energy and transmit genetic information in both the prokaryote and eukaryote domains. Accordingly, the unit will include cell replication, sex cell formation, Mendelian genetics as well as cellular respiration and DNA replication, transcription and translation. The role of DNA technology in biomolecular science will be an important component of the unit and will unify the several topics listed above.

### 300544.1 Cell Signalling

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Detailed knowledge of protein structure and function; gene expression, protein synthesis, post-translational modifications to proteins; enzyme catalysis; protein targeting and secretion. Basic skills for a biochemistry laboratory.

#### Prerequisite

**300555.1** Proteins and Genes OR **300219.1** Biochemistry 1

#### Incompatible Units

300223 - Cell Signalling and Molecular Immunology, J3830 - Immunology and Cell Signalling

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Cell signalling looks at the molecular mechanisms by which cells communicate and make responses to each other. Disorders of cell signalling have major impacts on human health and are involved in many metabolic disorders, brain function, the immune system, cancer and embryonic development. Knowledge of cell signalling pathways has important spin-offs for design of new drugs. This unit investigates the action of hormones, growth factors, cytokines and morphogens; their receptors and signalling pathways; and the cellular responses they trigger, such as altered metabolism, shape, differentiation, death. Students will expand their understanding of current developments by scientific reading and group discussion. Laboratory work will enable students to develop basic skills in cell culture techniques.

### 400874.1 Channels and Points 1

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Assumed knowledge equivalent to Theories of Traditional Chinese Medicine 1.

#### Equivalent Units

400347 - Acupuncture 1

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Acupuncture is one of the principal therapeutic interventions in TCM. This unit introduces students to acupuncture theory and practice, and provides opportunity to develop practical skills. It covers the theory of channels and points, channel pathway, point location and indication of the three yin/yang channels of hand and points, and the three yin channels of foot and points. This unit also expands upon the student's understanding of TCM theory and practice principles.

### 400875.1 Channels and Points 2

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Assumed knowledge equivalent to Channels and Points 1.

#### Equivalent Units

400347 - Acupuncture 1

.....

Acupuncture is one of the principal therapeutic interventions in TCM. This unit completes the study of system of channels and points, which forms the basis of clinical application of acupuncture. It covers the channel pathway, point location and indication of the three yang channels of foot and points, and Du and Ren channels and points. It also introduces the points of ear and scalp acupuncture. This unit expands upon the student's understanding of TCM theory and practice principles.

### 300611.1 Chemical Mineralogy

**Credit Points** 10 **Level** 2

#### Prerequisite

**300224.1** Chemistry 1 OR **300554.1** Principles of Chemistry AND **300225.1** Chemistry 2

### Equivalent Units

14509 - Chemical Mineralogy

.....

This unit covers the composition, structure and formation of selected examples from the silicate and non-silicate mineral groups. It deals with the structures of minerals and their determination, interpretation of structural data in the literature, aspects of solid solution, the forces which stabilize mineral lattices and the grouping of various minerals in terms of their chemical and structural characteristics. The chemistry of mineral formation at high and low temperatures will be examined. Analytical methods (X-rays, SEM and microprobe and classical) in the study of minerals and their properties are explored.

### 700043.1 Chemistry (UWSCFS)

**Credit Points** 10 **Level** Z

#### Special Requirements

Students must be enrolled at UWS College.

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This unit introduces students to the basic concepts required to satisfy the needs of most first year university science courses in both skill and content areas. It is intended that students will gain a greater understanding of the theoretical concepts covered in the course by completing the practical component of the course.

### 300224.2 Chemistry 1

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Chemistry (2 unit) or HSC Multi-strand Science (3 or 4 unit) or equivalent. UWS Chemistry Bridging course or equivalent.

#### Equivalent Units

14101 - Foundation Chemistry 1, 300554 - Principles of Chemistry, CH103A - Chemistry 1.1, J1753 - Chemistry 1

#### Incompatible Units

80800 - Introductory Chemistry 1, CH101A - Introductory Chemistry 1.1D, 300449 - Introductory Chemistry

.....

This unit provides a broad introduction to the fundamental principles common to all branches of chemistry. The unit is intended to serve the needs not only of chemistry majors, but also those intending to specialise in other related disciplines. The unit focuses on scientific notation, nomenclature, chemical equations, stoichiometry, the mole concept, atomic structure, periodicity, electronic configuration, structure and bonding, states of matter, intermolecular forces, properties of solutions, chemical thermodynamics, chemical equilibria, and electrochemistry.

### 700036.1 Chemistry 1 (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

300224 - Chemistry 1, 14101 Foundation Chemistry 1, 300554 - Principles of Chemistry, CH103A - Chemistry 1.1, J1753 - Chemistry 1

#### Incompatible Units

80800 - Introductory Chemistry 1, CH101A - Introductory Chemistry 1.1D, 300469 - Introductory Chemistry

#### Special Requirements

Students must be enrolled at UWS College

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This unit provides a broad introduction to the fundamental principles common to all branches of chemistry. The unit is intended to serve the needs not only of chemistry majors, but also those intending to specialise in other related disciplines. The unit focuses on scientific notation, nomenclature, chemical equations, stoichiometry, the mole concept, atomic structure, periodicity, electronic configuration, structure and bonding, states of matter, intermolecular forces, properties of solutions, chemical thermodynamics, chemical equilibria, and electrochemistry.

### 300225.2 Chemistry 2

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

A demonstrated understanding and competence with basic chemical principles including SI units, chemical symbols, formulas and equations, nomenclature, stoichiometry, the mole concept, bonding, molecular shape and polarity, states and properties of matter, thermodynamics, equilibria, acids and bases, pH and electrochemistry, to a standard equivalent to that presented in Chemistry 1 (or equivalent).

#### Equivalent Units

14102 - Foundation Chemistry 2, 300550 - Medicinal Chemistry, CH104A - Chemistry 1.2, J1754 - Organic Chemistry 1

#### Incompatible Units

CH102A - Biological Chemistry 1.2D

.....

This unit is designed to continue the development of students' understanding of the basic principles of chemistry, with an emphasis on the chemistry of carbon compounds. The unit focuses on introductory chemical dynamics, together with an in-depth treatment of the structure, nomenclature and reactivity of the principal organic functional groups. The unit provides a necessary foundation for subsequent related studies in chemistry, biochemistry, food chemistry, nutrition science, toxicology, environmental science, and related biological sciences and technologies.



### 700037.1 Chemistry 2 (UWSC)

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

A demonstrated understanding and competence with basic chemical principles including SI units, chemical symbols, formulas and equations, nomenclature, stoichiometry, the mole concept, bonding, molecular shape and polarity, states and properties of matter, thermodynamics, equilibria, acids and bases, pH and electrochemistry, to a standard equivalent to that presented in Chemistry 1 (or equivalent).

#### Equivalent Units

300225 - Chemistry 2, 14102 - Foundation Chemistry 2, 300550 - Medicinal Chemistry, CH104A - Chemistry 1.2, J1754 - Organic Chemistry 1

#### Incompatible Units

CH102A - Biological Chemistry 1.2D

#### Special Requirements

Students must be enrolled at UWS College.

.....

This unit is designed to continue the development of students' understanding of the basic principles of chemistry, with an emphasis on the chemistry of carbon compounds. The unit focuses on introductory chemical dynamics, together with an in-depth treatment of the structure, nomenclature and reactivity of the principal organic functional groups. The unit provides a necessary foundation for subsequent related studies in chemistry, biochemistry, food chemistry, nutrition science, toxicology, environmental science, and related biological sciences and technologies.

### 400819.2 Child and Adolescent Nursing Studies

**Credit Points** 10 **Level** 3

#### Equivalent Units

400760 - Family Health Care: Child and Adolescent Nursing

#### Special Requirements

Students must be enrolled in the Bachelor of Nursing Studies.

.....

This unit version replaces version 1 from 2010. The unit explores physical, social, political and community issues which impact on the health of children and adolescents. The knowledge gained will be appropriate for working with children and families within a hospital or community setting. The concept of health promotion and the prevention of illness underpins this unit.

### 400162.1 Child and Adolescent Occupations

**Credit Points** 10 **Level** 2

#### Equivalent Units

E2043 - Occupational Therapy 3

#### Special Requirements

To undertake this unit, students must comply with the following special requirements: completion of a Prohibited

Employment Declaration; Criminal Record Check clearance; provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; possess a current WorkCover Authority approved First Aid Certificate.

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This unit will explore roles, activities and performance components relevant to occupational therapy in childhood and adolescence. The unit considers the concept of 'typical' development and deviations that may have implications for paediatric and adolescent clients. Various models and frames of reference are considered including the family centred practice approach. There will be a self directed and reflective learning approach in this unit. Students will learn about paediatric and adolescent occupational therapy practice in different clinical settings. They will observe and interact with clients in the UWS Uniclinic. This will assist students with the links between theory and practice.

### 400162.2 Child and Adolescent Occupations

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

First and second year specialty occupational therapy units or Occupational Therapy Theory and Practice.

#### Special Requirements

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; if students are visiting a NSW Health facility they will need to comply with the occupational screening and immunisation policy of NSW Health.

.....

This unit version will commence from 2012. Students learn about paediatric and adolescent occupational therapy practice in different practice settings. This unit examines child development and explores the occupations of childhood and adolescence. Occupational therapy models, frames of reference, assessments and interventions are applied to practice scenarios. Family-centred practice is a key focus of this unit. There will be a self directed and reflective learning approach in this unit.

### 400918.1 Chinese Internal Medicine 1 (PG)

**Credit Points** 10 **Level** 7

#### Assumed Knowledge

TCM 3, Acupuncture Techniques, Chinese Medicinal Formulas

#### Incompatible Units

400357 - Chinese Internal Medicine

.....

The study of internal medicine forms the basis of clinical practice in traditional Chinese medicine. This unit begins to bridge the gap between theory and practice. It enables the health professional to analyse, diagnose and treat common internal diseases with both acupuncture and herbal

medicine and using a TCM approach. The focus of this unit is on the analysis of major presenting symptoms.

### **400922.1 Chinese Internal Medicine 2 (PG)**

**Credit Points** 10 **Level** 7

#### **Assumed Knowledge**

Traditional Chinese Medicine 3, Acupuncture Techniques, Chinese Medicinal Formulas

#### **Incompatible Units**

400360 - Chinese Internal Medicine 2

.....

This unit builds on Chinese Medicine 1 and extends the student's ability to analyse, diagnose and treat common and difficult diseases in internal medicine with both acupuncture and herbal medicine and using a TCM approach. Students will develop an understanding of the causes and pathophysiological mechanisms of a wide range of diseases.

### **400876.1 Chinese Materia Medica 1**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Assumed knowledge equivalent to TCM 1.

#### **Equivalent Units**

400349 - Chinese Herbal Medicine 1

.....

Herbal medicine is one of the principal therapeutic interventions in TCM. This unit introduces students to the therapeutic and reference organisation of Chinese medicinal herbs, and enables students to commence using the materia medica. It covers the commonly used herbs in each of the six categories of the Chinese materia medica, including the herbal properties, actions, indications, contraindications, combined usage as well as herbal dispensing. This unit also expands upon the student's understanding of TCM theory and practice principles.

### **400877.1 Chinese Materia Medica 2**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Assumed knowledge equivalent to Chinese Materia Medica 1.

#### **Equivalent Units**

400351 - Chinese Herbal Medicine 2

.....

This unit completes the study of Chinese medicinal herbs, which forms the basis for Chinese herbal medicine. It covers the commonly used herbs in each of the twelve categories of the Chinese materia medica, including the herbal properties, actions, indications, contraindications and combined usage. It also introduces the basic knowledge of TCM dietary therapy and herbal pharmacognosy. This unit also expands upon the student's understanding of TCM theory and practice principles.

### **400878.1 Chinese Medicinal Formulas**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Assumed knowledge equivalent to Chinese Materia Medica 1 & 2.

#### **Equivalent Units**

400351 - Chinese Herbal Medicine 3

.....

Herbal medicine is the principal therapeutic intervention in TCM. This unit follows from Chinese Materia Medica 1 & 2, and begins the study of major Chinese herbal formulas, which form the basis for clinical prescribing in Chinese herbal medicine. The focus of this unit is to compare and contrast the main formulas in specified categories, and to analyse the specific actions of the herbs that make up the formula. Students will be required to formulate, assemble and prepare complex prescriptions. This unit expands upon the student's knowledge of the Chinese Materia Medica, as well as the understanding of TCM theory and practice principles.

### **300005.1 Circuit Theory**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Content contained in 200238 - Mathematics for Engineers 2. Ordinary Differential Equations, including first and second order. Laplace transforms: definition, inverse transform, s-shift, unit step function and Dirac delta function, transform of a derivative, solving differential equations.

#### **Prerequisite**

**300021.1** Electrical Fundamentals

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This unit aims to equip students with the tools needed for the design and analysis of electrical and electronic circuits. The unit also introduces various techniques of circuit analysis, convolution, mutual coupling, frequency response and two ports loop.

### **400969.1 Classical Texts in Chinese Medicine (PG)**

**Credit Points** 10 **Level** 7

#### **Assumed Knowledge**

TCM 3, Chinese Medicinal Formulas

#### **Incompatible Units**

400355 - Classical Texts in Chinese Medicine

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This unit provides further learning experiences that enable the students to explore the original theories on physiology, pathology, diagnosis, differentiation and treatment of diseases through select periods of Chinese history. Many theoretical concepts, diagnostic systems and therapeutic methods of TCM are still in current usage, and will be covered through the study of important classical texts and academic schools of TCM thought. This unit expands upon

the student's understanding of TCM theories and practice principles through studies of the classical literature.

**400879.1 Clinical Assessment Methods**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Understanding of human anatomy & physiology and pathophysiology of common impairments of health.

**Prerequisite**

**400138.1** Pathophysiology 1 AND **400868.1** Human Anatomy and Physiology 1 AND **400869.1** Human Anatomy and Physiology 2

**Equivalent Units**

400262 - Clinical Diagnosis

.....

This unit is designed to introduce students to basic principles and essential skills of physical examination and diagnostic/laboratory investigation procedures, required for successful approach to diagnosis of health impairment states. Primary contact health practitioners are expected to have sound understanding of disease presentation, techniques of patient interviewing and examination for collection of relevant clinical information as well as the ability to select appropriate laboratory tests and interpret their findings. This unit will also help students to develop fundamental clinical reasoning skills required in the medical decision making process.

**400887.1 Clinical Exercise Physiology 1**

**Credit Points** 10 **Level** 3

**Prerequisite**

**400326.1** Exercise Prescription for General Populations AND **400885.1** Sport and Exercise Physiology

**Equivalent Units**

400328 - Exercise Prescription For Special Populations

**Special Requirements**

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science).

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Clinical Exercise Physiology - 1 is concerned with teaching students how to; a) develop exercise tests for individuals with or at risk for cardiovascular, metabolic and/or pulmonary diseases, cancers, musculo-skeletal injuries or disorders, muscular wasting, or any other conditions that could cause increased risk during testing and/or alter the physiological responses to exercise stress; b) interpret the results from exercise testing individuals with the aforementioned special clinical conditions, and c) develop exercise programs for individuals from these more special "clinical" populations. Emphasis will be placed on: understanding the underlying condition(s), their impact on quality of life, and how exercise can be used for prevention, diagnosis and management of the condition(s). Students will also be involved in laboratory sessions aimed at developing the skills necessary for exercise testing individuals from these clinical populations, and using real case study data to interpret results.

**400964.1 Clinical Neurosciences**

**Credit Points** 10 **Level** 2

**Prerequisite**

**400130.1** Human Medical Sciences 1

**Equivalent Units**

400166 - Clinical Neurosciences

**Incompatible Units**

E2046 - Neurology and Clinical Psychiatry

.....

This unit is intended to provide students with an in depth study of those human medical sciences which underpin specific intervention principles and procedures to be taught in the professional units. Primary contact health care providers have professional requirements that cover a broad spectrum of diagnostic, medical and physical practices. In order to ensure a suitable basis for later practice, students require a detailed knowledge and understanding of clinical neurosciences including histology, embryology, anatomy, and physiology of nervous system and the clinical implications.

**300089.3 Commercial Applications Development**

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

It is assumed that students have an introductory understanding (Level 1 equivalent), of programming, analysis & design and database principles.

**Prerequisite**

**300580.1** Programming Fundamentals AND **300585.1** Systems Analysis and Design AND **300104.1** Database Design and Development

.....

This unit builds on students' existing understanding of programming principles to develop software applications situated within the Microsoft Office environment. Typical applications of this type might incorporate Microsoft Word, Excel, Access or PowerPoint. This unit covers the development of programs for Microsoft Office Applications using both recorded macros and Visual Basic for Applications Procedures. It provides a solid understanding of the knowledge and skills required to create applications using the Microsoft Visual Basic for Application's inbuilt functions and classes. It is a preparation and foundation for the construction of related, but more complex, applications using the Microsoft API or VB.NET. The unit also provides a foundation for the use of scripting and macro languages both for the web and for operating systems.

**300068.2 Communication Electronics**

**Credit Points** 10 **Level** 5

**Prerequisite**

**200238.1** Mathematics for Engineers 2 AND **300025.1** Electronics

### Equivalent Units

84488 - Advanced Electronics

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The unit presents the theory and many of the devices used in radio frequency (RF) communication electronics. S-parameters are presented and advanced to cover areas such as- multiport networks and lossless networks. S-parameter measurement techniques are presented and tested in the lab. The analysis/design of common RF components including power splitters, directional couplers, circulators and phase shifters are developed. Microstrip transmission lines are presented as a practical means of interconnecting devices at RF frequencies. RF transistor amplifier and oscillator design is presented in detail. RF mixers, RF filters and RF receiver architectures are also discussed in detail.

### 400732.1 Communication in Health

**Credit Points** 10 **Level** 1

#### Equivalent Units

400131 - Communication for the Helping Professions.

.....

Communication is integral to professional relationships, whether working individually with a client, educating community members on health matters, or working with other professionals as part of a multidisciplinary team. This unit aims to develop communication skills in preparation for work within the health professions across these areas. Communication skills will include those needed to form therapeutic relationships with individual clients and groups, as well as those required to communicate health information to clients, groups and the wider community. Students will develop skills to establish appropriate working relationships with professional colleagues.

### 700062.1 Communication in Health (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

400732 - Communication in Health

#### Special Requirements

This unit is only available to UWS College students.

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Communication is integral to professional relationships, whether working individually with a client, educating community members on health matters, or working with other professionals as part of a multidisciplinary team. This unit aims to develop communication skills in preparation for work within the health professions across these areas. Communication skills will include those needed to form therapeutic relationships with individual clients and groups, as well as those required to communicate health information to clients, groups and the wider community. Students will develop skills to establish appropriate working relationships with professional colleagues.

### 300007.1 Communication Systems

**Credit Points** 10 **Level** 3

#### Prerequisite

**300057.1** Signals and Systems

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This unit will provide a basic introduction to communication systems and techniques. Specific topics covered include energy and power spectral density, amplitude modulation, frequency modulation, pulse modulation, an overview of digital modulation techniques, noise in communication systems and an overview of current telecommunication systems; spread spectrum systems, optical communication systems, radio broadcasting and mobile communication systems.

### 400820.2 Community Health and the Nurse

**Credit Points** 10 **Level** 3

#### Incompatible Units

400751 - Nursing and Healthy Communities

#### Special Requirements

Students must be enrolled in the Bachelor of Nursing Studies.

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This unit introduces the student to psychosocial concepts and social model of health principles that promote and sustain the health of communities, and inform professional nursing practice.

### 300090.1 Compiler Theory and Practice

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

This unit relies heavily on material presented in Systems Programming 1, Data Structures and Algorithms and Formal Languages and Automata; particularly the last mentioned from which it follows on. This is an advanced unit, typically offered at third year or postgraduate level and could not be undertaken sensibly without at least the material listed.

#### Prerequisite

**300167.1** Systems Programming 1 AND **300103.1** Data Structures and Algorithms AND **300121.1** Formal Languages and Automata

#### Equivalent Units

14957 - Compiler Theory & Practice

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The discovery and practical application of compiler theory has been one of the major achievements of computer science since the mid 1950s. This unit provides computing or computer science majors with an introduction to one of the cornerstones of their discipline. The unit provides: an accurate conceptual model of what occurs when source code is being compiled; an appreciation of the limitations of compilers and translators in general; the knowledge and practical skills necessary to design and implement interfaces of greater syntactic complexity than menus;

sufficient general technical knowledge to provide an adequate basis for acquiring product-specific technical knowledge, and then to provide applications development support in any programming language environment.

### 300373.1 Complex Forensic Case Studies

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Successful completion of first year Forensic Science and/or Criminology units; understanding of the principles and practice of collecting and analysing physical evidence.

#### Special Requirements

This unit is only available to students who are enrolled in 3589 Bachelor of Science (Forensic Science).

.....

This is an advanced and integrating unit for students who have a strong background in the collection and analysis of forensic evidence. Students are required to use their skills and knowledge in the context of a range of forensic cases, which may raise contemporary issues such as terrorism, corporate crime, computer crime, money laundering and people smuggling. As well as gaining a deeper understanding of the complex social, legal, national and international contexts in which forensic evidence is evaluated, students will gain experience of managing a variety of types of evidence within a number of case studies, including the preparation and presentation of expert witness reports and consideration of the ethical issues related to the role of an expert witness.

### 300092.1 Computer Architecture

**Credit Points** 10 **Level** 3

#### Prerequisite

**300096.1** Computer Organisation

#### Equivalent Units

14949 - Computer Architecture

.....

This unit is designed for computer science students, particularly those interested in systems programming, hardware/software interfaces, and computer system performance evaluation. The topics cover memory system organisation and architecture, CPU functional organisation, pipelined and superscalar microarchitectures, multiprocessor systems, and I/O systems. After completing this unit students will understand the major issues in the state-of-the-art computer architecture, especially modern microprocessors, and will be able to use this knowledge as a basis for product choice and systems configuration.

### 300447.1 Computer Forensics Workshop

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

This is the capstone practical unit for Computer Forensics major of the Bachelor of Computer Science, as such it is assumed that the students of this unit will have completed all other units in the major.

#### Prerequisite

**300149.1** Operating Systems AND **300165.1** Systems Administration Programming AND **300143.1** Network Security

#### Special Requirements

This unit requires specialised technical laboratory facilities, and specialist academic staff that are very limited in number. As such the School of Computing & Math believes it can support the running of this unit for no more than 20-24 students per year which is the expected number completing the Computer Forensics major. In addition the specified pre-requisites are unlikely to be met by students not enrolled in the Bachelor of Computer Science.

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This unit is composed of a series of investigative workshops that put into practice, in a Computer Forensics context, many of the technical skills developed in earlier pre-requisite units. The unit is intended to not only further develop these skills but to instil best technical practice, sound understanding of technical investigative techniques and documentation of the results of investigation. Workshop topic areas include: clean media copying techniques, search and identification of hidden data, building profiles of computer activities through probing and analysis of log files and how to prepare a system and network to best support subsequent intrusion and activity detection.

### 300093.1 Computer Graphics

**Credit Points** 10 **Level** 3

#### Prerequisite

**300103.1** Data Structures and Algorithms

#### Equivalent Units

14956 - Computer Graphics

.....

Computer graphics is a fascinating area of computer science. It is widely used as a tool for visualising information in a broad variety of fields, including science and engineering, medicine, architecture, and entertainment. This unit teaches the concepts and techniques of computer graphics. It is designed as an introduction to the study of visual presentation techniques. Topics covered are intended to provide students with an understanding of the basic principles for design, use and understanding of graphics systems. The unit covers the basic concepts in computer graphics using VOGLE library on UNIX. Techniques and algorithms will be emphasized and programming in C or C++ under UNIX will be required.

### 300565.1 Computer Networking

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Fundamentals of computer architecture, binary and hexadecimal numbering systems, and programming principles. They should also have a working knowledge of the World Wide Web.

### Equivalent Units

300094 - Computer Networking Fundamentals, 300086 - Applied Data Communications and Networking

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This introductory unit in computer systems networking covers basic networking topologies, Ethernet fundamentals, ISO OSI layers, routing, switching and sub-nets, the Internet architecture, networking protocols including TCP/IP, important networking devices such as repeaters, hubs, bridges, routers and gateways, basic management and security issues. This unit is also the first of three units which will prepare students for industry based networking certification.

### 700012.1 Computer Networking (UWSC)

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Fundamentals of computer architecture, binary and hexadecimal numbering systems, and programming principles. Students should also have a working knowledge of the World Wide Web.

#### Equivalent Units

300094 - Computer Networking Fundamentals, 300086 - Applied Data Communications and Networking, 300565 - Computer Networking

#### Special Requirements

Students must be enrolled at UWS College.

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This introductory unit in computer systems networking covers basic networking topologies, Ethernet fundamentals, ISO OSI layers, routing, switching and sub-nets, the Internet architecture, networking protocols including TCP/IP, important networking devices such as repeaters, hubs, bridges, routers and gateways, basic management and security issues. This unit is also the first of three units which will prepare students for industry based networking certification.

### 300095.2 Computer Networks and Internets

**Credit Points** 10 **Level** 3

#### Prerequisite

**300094.1** Computer Networking Fundamentals OR **300565.1** Computer Networking OR **300086.1** Applied Data Communications and Networking

#### Special Requirements

This unit is offered at an advanced level and students need to have a good knowledge in fundamentals of data communications, computer networking and basic knowledge of programming in C++ language to successfully complete the unit.

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This unit provides students with an in-depth understanding of the applications of computer networks and the concept of internetworking through the TCP/IP suite of protocols. Some of the network security threats along with their appropriate counter measures are also discussed. The

main focus of the unit is on communication and network devices.

### 300096.4 Computer Organisation

**Credit Points** 10 **Level** 2

#### Prerequisite

**300580.1** Programming Fundamentals OR **300027.1** Engineering Computing

#### Corequisite

**200025.1** Discrete Mathematics OR **200237.1** Mathematics for Engineers 1

#### Incompatible Units

300092 - Computer Architecture

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This unit is designed for computer science students, particularly those interested in memory and CPU functional organisation, hardware/software interface, systems programming, and computer system performance evaluation. The unit will provide students with a fundamental knowledge of computer systems abstraction, design, exploitation and configuration. Students will primarily gain an insight into the low level interface between the hardware and software in terms of ISA (Instruction Set Architecture) abstraction of a computer system, where students will use assembly language to deal with memory addressing, load-store architecture, and I/O operations. The students will also learn about the hardware implementation of major datapath components and pipelined micro-architectures. After completing this unit students will understand the major issues in the state-of-the-art computer architecture, especially the modern microprocessors.

### 300569.1 Computer Security

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

The students are expected to have general understanding on computer systems; computer fundamentals, databases, and web technologies.

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This unit identifies and analyses various principles and technologies related to security and privacy and discusses practical application of those principles and technologies in securing computer systems. It is designed to provide basic computer security skills required by any discipline that uses computer systems and also lays a solid foundation for individuals who are keen to pursue a career in computer security. In particular, but not limited to, this unit aims at the implementation and management of security and privacy policies of organisations within the standards and legal framework that is also applicable to the Australian standards.

### 300364.2 Computing Honours Seminar Program

**Credit Points** 10 **Level** 5

#### Special Requirements

Students must be enrolled in an Honours degree.

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The seminar program is an integral part of the Bachelor of Computing (Honours) program. It is structured in such a way that there are extensive links with the other components in the program (Research Process and Practice and Computing Honours Thesis). In undertaking and completing tasks associated with this component the student will be working towards the ultimate goal of completion of the thesis document. Successful completion of the seminar program will allow development of skills, knowledge and a way of thinking which, with the research process and practice component, will assist in the production of the thesis. In this program, students will be given the opportunity to present work in progress reports to peers and academic staff, attend and report research seminars and develop practical experience in articulation of ideas.

### 300363.2 Computing Honours Thesis

**Credit Points** 60 **Level** 5

#### Special Requirements

Students must be enrolled in an Honours degree.

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The aim of this unit is to further develop the student's research and problem solving skills. The student is required to implement the research plan, complete a substantive piece of research in the field of Computing and IT and to communicate the results of that work to an interested and technically literate audience. All projects will therefore contain at least two broad areas of assessment: the substantive work itself and the oral and written communication of the work to others. All assessment components submitted in both of these areas are expected to be of a high professional standard. Students will present their research in the thesis. The thesis topic and structure will vary according to the area of interest of the student and the expertise of the supervisor. The project may comprise theoretical investigation, software or hardware development or some combination of these. The project is meant to be a significant undertaking and to incorporate some element of innovation. Throughout this unit regular planned consultations between the student and supervisor will occur. Students are expected to work to a schedule devised in consultation with their supervisor. The schedule will include set dates for the presentation of draft chapters for review by the supervisor.

### 300097.2 Computing Project 1

**Credit Points** 10 **Level** 3

#### Equivalent Units

14951/14958/48528.1 - SAD Project, 61235 - Software Engineering Project 1, J3664 - Computer Project 3

#### Incompatible Units

Incompatible with achievement in 300507.

#### Special Requirements

Students must have passed three of 200036, 300104, 300131, 300144, 300146, 300147, 300404 AND must have passed one of 300156, 300167. As the unit involves the student undertaking a project with external industry clients it is restricted to students who have demonstrated

competence in the following discipline areas: modeling methods and design techniques in systems analysis and design, programming and database.

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In 2010 this unit replaced by 300579 - Professional Experience. All students (excluding those in course 3511) must have completed 160 credit points, including an Analysis and Design unit, a Programming unit and a Database unit. Individual course coordinators have also stipulated specific/additional pre-requisites as follows: 3506 Bachelor of Computer Science - 300404 Formal Software Engineering. Bachelor of Mathematics & Information Technology - 200036 Data Mining and Visualisation. Exception: 3511 Graduate Diploma in Computing & IT - 300146 Object Oriented Design; 300104 Database Design & Development. This unit acts as a single capstone unit and through the medium of a specific project, provides opportunities for students to experience the range of issues in requirements definition, analysis, design and implementation, relating to the development of a software product.

### 300365.1 Computing Research Process and Practice

**Credit Points** 10 **Level** 7

#### Equivalent Units

300244 - Information Technology Research Methodology

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The purpose of this unit is to develop knowledge, understanding and application of the process and the practice of inquiry in the field of Computing and IT. This unit does not involve sophisticated, higher order qualitative or quantitative data treatment techniques, but it is expected that students will acquire research knowledge and skills, develop a research design and operationalise it with appropriate procedures. Students will be able to select from a range of research methods appropriate to their individual projects. A major outcome/focus of the unit is on the individualised conceptualisation and development of a structured proposal for conducting dissertation inquiry in the student's area of interest. Ethical issues such as confidentiality and responsibility to those who participate in research projects are stressed and attention is drawn to the political nature of all research. While this unit is intended to formalise research process and practice, students will be working closely with their supervisors applying their knowledge and skills to their individual projects under the guidance of their supervisor. Emphasis will be placed on consultation and negotiation with supervisors and producing deliverables for students' individual projects.

### 200189.1 Concepts of Mathematics

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Mathematics, Band 4, 5, or 6, or equivalent.

#### Equivalent Units

300672 - Mathematics 1A

#### **Incompatible Units**

200031 - Mathematics for Business, 200195 - Mathematical Methods A, 200196 - Mathematical Methods B, 200237 - Mathematics for Engineers 1

#### **Special Requirements**

No student enrolled in the 3621 Bachelor of Engineering degree course should enrol in this unit. Although not equivalent, students will not be allowed to count Mathematical Methods A, Mathematical Methods B, Maths for Business, Engineering Mathematics 1 for credit with Concepts of Maths

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This level one hundred unit provides a solid foundation in the theory and applications of differential and integral calculus, as well as some introductory work on complex numbers and matrix algebra. This unit provides the necessary preparation for many of the later-stage mathematics units.

### **300736.1 Concrete Structures (UG)**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Knowledge of engineering mechanics and statistics.

#### **Prerequisite**

**300733.1** Introduction to Structural Engineering

#### **Corequisite**

**300732.1** Structural Analysis

#### **Equivalent Units**

85251 - Concrete Structures (UG)

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This unit covers the basic elements of structural behaviour and design with reinforced and pre-stressed concrete. Students will learn to analyse the section capacity of reinforced concrete beams, slabs, and columns, and design simple suspended structures. The unit places a strong emphasis on the process of structural design, as this will be applied to timber and steel structures later in each student's academic career.

### **400184.1 Conducting Medicolegal Assessments**

**Credit Points** 10 **Level** 3

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Experienced health professionals may choose to conduct medicolegal assessments as part of their business. These assessments and subsequent reports are different in their intent and format to those completed by treating professionals. This unit teaches students about relevant state and federal legislation and statutes, legal terminology and practices, the personal injury claim process, what is expected of an expert witness, the process of conducting an assessment, report writing skills, and giving evidence in court. While the focus will be on occupational therapy medicolegal assessments, students and professionals from other disciplines should also find this unit of interest.

### **300617.1 Conservation Biology**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Knowledge of first-year university biology equivalent to satisfactory completion of 300221 - Biology 1 and 300333 - Biology 2.

#### **Equivalent Units**

BI303A - Environmental Biology 3.1, 300466 - Environmental Biology 3.3

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This unit will develop a sound understanding of the principles and practices of conservation biology in both an Australian and International context. Ethical and historical aspects of conservation biology will also be considered in addition to the science of conservation. Students will gain an understanding of the processes that have led to, and are leading to, species extinction. Methods and issues associated with conservation are considered; these include the principles of population genetics, population viability analysis, and the use of modelling. Other issues and concepts covered include the uses of wildlife, illegal wildlife trafficking and trade, biosecurity and the types of international, national and local laws and agreements that relate to conservation in general. The unit emphasises the importance of biodiversity and scientific research in conservation biology.

### **200504.1 Construction Economics**

**Credit Points** 10 **Level** 4

#### **Assumed Knowledge**

Building construction including residential, light industrial and small commercial as well as building measurement and estimating.

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This subject is designed to provide students with: an understanding of economic principles, national and international economic issues; general investment issues; how the national and international economy functions; how the building industry and the building firm relates to the national and international economy; and how economic reasoning may be applied to various problems in the building industry.

### **200482.1 Construction in Practice 1**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Local Government planning requirements, residential construction details, quantity surveying, contract documentation, site planning

#### **Prerequisite**

**BG101A.1** Building 1 AND **BG105A.1** Graphic Communication and Design (V1) AND **BG103A.1** Building 2

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This unit aims to allow student gain an understanding of the complexity of construction industry by integrating knowledge from earlier units. The unit includes planning



and management, regulatory control and client liaison required in initiating and completing a residential construction project.

### 200484.2 Construction in Practice 3

**Credit Points** 10 **Level** 4

#### Assumed Knowledge

In-depth knowledge and of construction processes for large buildings. In-depth knowledge and understanding of construction professionals involved in large scale construction projects. Ability to carry out estimates of costs for large construction projects. In-depth understanding of the principles of Project and Construction Management. In-depth understanding of Construction Planning. In-depth understanding of Building Control legislation. In-depth understanding of energy conservation issues. In-depth understanding of contract administration and tendering procedures.

#### Prerequisite

**200482.1** Construction in Practice 1 AND **MG313A.1** Project Management AND **PL302A.1** Construction Planning (V1)

#### Equivalent Units

BG408A - Building in Practice 3

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This version of the unit will commence from 2010. This unit enables students to integrate and develop knowledge gained earlier in the course allowing them to simulate industry practice. Students are given a brief to undertake large and complex construction projects (eg. high rise buildings, airport construction, or sports stadium construction). They then take account of regulatory control, financial limitations, and stakeholder impacts whilst managing a team and being flexible and responsive to changing demands.

### 200503.1 Construction Information Systems

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students must be familiar with spreadsheet and database software. Students should also have a basic understanding of contract administration.

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This unit is designed to provide skills and knowledge for information management technology and practice as it relates to the building industry. The unit gives an overview of information management, data collection and storage, information classification systems, communications, specialist computer applications and artificial intelligence.

### 300728.1 Construction Planning

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Understand estimating preliminaries for multi storey construction.

#### Prerequisite

**200468.1** Estimating 1

#### Equivalent Units

PL302A - Construction Planning

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This unit is intended to provide students with the ability to organise the resources required for a major construction project; to plan the sequence and timing of construction operations; and to assess the risk inherent in achieving a construction schedule.

### 300720.1 Construction Technology 1 (Civil)

**Credit Points** 10 **Level** 2

#### Prerequisite

**BG101A.1** Building 1 OR **BG103A.1** Building 2

#### Equivalent Units

BG204A - Construction Technology 1 (Civil)

#### Special Requirements

Pre-requisite requirements : **BG101A** - Building 1, **BG103A** - Building 2 or equivalent

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This unit develops students' knowledge and skills in appraising site requirements for construction purposes, both at the pre tendering and construction phase of a project. Content: Soil classification, site investigation, site safety, plant and equipment, trenches, detention/retention pits and basins, temporary structures, demolition, site dewatering, building surveying, and site environmental control.

### 300721.1 Construction Technology 2 (Substructure)

**Credit Points** 10 **Level** 2

#### Equivalent Units

BG207A - Construction Technology 2 (Substructure)

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This unit will aim to further develop students knowledge of substructures. Content: Retaining walls and footing structures; strip footings, piling, piers, raft slabs, waffle-pod structures, load bearing capacity, impact of structure on surface and sub-surface drainage, underpinning and temporary substructures, waterproofing techniques.

### 200502.2 Construction Technology 3 (Concrete Construction)

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

It is expected that students will have first studied the Building 1 and 2 units as well as Construction Technology 2.

#### Prerequisite

**BG207A.1** Construction Technology 2 (Substructure)

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The aim of this unit is to introduce students to the concept of structures, loads and the effect of loads on structures in relation to concrete construction. Students will have an in-depth understanding of concrete as a construction material.

It covers the construction technology aspects of concrete structural components and systems, including beams, columns, slabs and frames. Emphasis will be given to formwork design and construction. Students will be introduced to the relevant Australian Standards for concrete construction. The unit also aims at developing students' ability to deal professionally with other building professionals, including architects and structural engineers.

### **200470.2 Construction Technology 4 (Steel Construction)**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Information gained from the contents of Building units and prior Construction technology units.

#### **Prerequisite**

**BG207A.1** Construction Technology 2 (Substructure)

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This unit deals with the construction of structural steelwork. Students will gain better understanding of mechanical properties of steel. It covers various components in structural steelwork, and their behaviour under loads. Students will also be introduced to various frame systems in multi-story and high-rise construction and relevant Australian Standards for steel construction. Emphasis will be given to safe erection and assembly of structural steelwork. Due consideration will be given to the requirements of Workcover in relation to site safety and material handling. An introduction will also be given for Steel-concrete composite construction.

### **200471.2 Construction Technology 5 (Envelope)**

**Credit Points** 10 **Level** 4

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After undertaking this unit, students should understand the way building envelopes are designed and constructed to optimise thermal, visual and acoustic comfort and for energy efficiency.

### **300725.1 Construction Technology 6 (Services)**

**Credit Points** 10 **Level** 4

#### **Equivalent Units**

BG406A - Construction Technology 6 (Services)

#### **Special Requirements**

This unit is only available to students enrolled in courses 2607 - Bachelor of Construction Management, 3621 - Bachelor of Engineering - Construction Key Program, 3636 - Bachelor of Engineering (Advanced) - Construction Key Program

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To provide students with a vehicle to develop knowledge and skills needed to comprehend the design of services in major buildings, and in so doing engender a life-long interpretation of the intricacies of physical installation and their critical sequence in the construction process.

### **200084.1 Consumer Behaviour**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

61721 - Consumer Behaviour, MK105A - Buyer Behaviour

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A focus on the consumer is critical in marketing philosophy. Effective marketing strategies are necessarily formulated as a result of the understanding of basic consumer behaviour. This unit covers assumptions and concepts related to understanding the consumer, including but not limited to cultural and ethnic values, social class and status, personal influence, family and household influences, situational influences, consumer resources, involvement, motivation and knowledge, attitudes, individual differences in behaviour, personality, values and lifestyle, information processing, learning, influencing attitudes, diagnosis of decision process and behaviour, consumer decision-making process and need recognition, information search, alternative evaluation, purchase and its outcomes, retailing and consumer trends, market segmentation, diffusion of innovations, global consumer markets, consumerism and social responsibility.

### **300360.1 Consumer Issues in Nutrition**

**Credit Points** 10 **Level** 2

#### **Equivalent Units**

FS204A - Food and Nutrition Practicum 2.1

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This unit explores current food and nutrition issues relevant to health and wellbeing. The unit introduces students to the factors that influence health and explores the contribution the food system makes to consumer wellbeing. It also identifies the rights and responsibilities of the consumer/producer interface. Students will work collectively and in partnership with industry and community organizations to research a food and nutrition issue affecting the health or perceptions of consumers. This unit includes an introduction to social research methods to assist teams to plan, implement and report their research issue. Emphasis is given to the ongoing development of independent learning and problem solving skills.

### **100800.2 Consumer Psychology**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Assumed knowledge of 100020 - Social and Developmental Psychology. Consumer Psychology is an applied field. Assumed knowledge of core psychological issues will facilitate learning.

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Consumer Psychology is the study of how people relate to and involve with products and services that they purchase or use. It attempts to describe, predict, explain, and/or influence consumer responses to products and service-related information and experiences. It contains a broad range of theoretical, conceptual, and methodological perspectives. It is indeed the psychology of how consumers think, feel, reason, and select between different alternatives

(e.g., brands, products); how the consumer is influenced by his or her environment (e.g., culture, family, signs, media) and what leads to buying behaviour. By understanding the consumer, we will be able to make informed decisions and apply appropriate marketing and advertising strategies.

### 400822.2 Contemporary Issues in Health and Nursing

**Credit Points** 10 **Level** 3

#### Special Requirements

Students must be enrolled in the Bachelor of Nursing Studies to enrol in this unit.

This unit enables students to explore contemporary, national and international issues that impact on the health of people throughout the world and that require a nursing and health administration response.

### 400335.2 Contemporary Issues in Sport Management

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students should have an understanding of the objectives in Sport Marketing 1

#### Equivalent Units

B3087 - Contemporary Issues in Sport Management

Sport management operates in an environment where political, economic and legal influences impact on the running of sporting organisations. This unit critically examines contemporary issues influencing the management of sport in Australia.

### 200108.1 Contemporary Management Accounting

**Credit Points** 10 **Level** 2

#### Prerequisite

[200116.1](#) Management Accounting Fundamentals

#### Equivalent Units

61122 - Advanced Management Accounting, AC303A - Advanced Management Accounting (V1), H2762 - Management Accounting

For information on this unit please contact the Unit Coordinators: Nigel Bubalo (Parramatta Campus) and Glenda Davis (Campbelltown Campus). This unit views contemporary areas of management accounting from a strategic perspective, and critically examines some of the traditional concepts and techniques discussed in Management Accounting Fundamentals.

### 200568.1 Contemporary Management Issues

**Credit Points** 10 **Level** 3

#### Prerequisite

[200158.2](#) Business, Society and Policy

#### Equivalent Units

H3740 - Contemporary Management Issues

Contemporary Management Issues (CMI) provides an in-depth analysis of issues confronting managers in a rapidly changing world, including new forms of work; increased diversity in the workplace; organisational dysfunctions; business ethics and corporate social responsibility and environmental sustainability. CMI is designed to foster reflection and critical thinking, which will lead to deeper levels of understanding of the complex role played by managers in contemporary society. The unit is delivered in an engaged mode which means that students are provided with opportunities to interact with employers. This enables them to develop an appreciation of the complexities involved in real world business settings. The experience outside the classroom allows a more effective application of the theories and concepts discussed in the unit.

### 400894.1 Contemporary Youth Health Issues

**Credit Points** 10 **Level** 3

#### Incompatible Units

400795 - Contemporary Youth Health Issues, 400280 - Sexuality, 400791 - Introduction to Drug Use in Society

The unit explores contemporary health issues which relate to young peoples' health and wellbeing through a range of topics and issues that construct young peoples' lives. Students will examine the nature of young people's lives and the biological, psychosocial, sociological, and political environments that significantly impact and influence young peoples lives and health. The nature, extent and social determinants of risk taking will be explored in light of the 'tasks of adolescence'. The unit will further equip students with the skills to seek out appropriate support networks and agencies within the community, and to put into place processes that will assist young people to better deal with these health issues.

### 300009.2 Control Systems

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200238 - Mathematics for Engineers 2 • Ordinary Differential Equations • First order, Second order, and Higher order. • Laplace transforms • Multivariable Calculus • Functions of two or more variables • Double integrals • Triple integrals. Similar to that contained in 200238 - Mathematics for Engineers 2. Students should also have the appropriate background and competence in the safe use of computers, test equipment, components and data sheets.

#### Prerequisite

[300057.1](#) Signals and Systems OR [300480.1](#) Dynamics of Mechanical Systems

This unit introduces the fundamental concepts of automatic control engineering. It covers traditional and contemporary design and analysis techniques; the concepts required to

design continuous time and discrete time controllers. Matlab is utilized considerably.

### 300545.1 Coordination Chemistry

**Credit Points** 10 **Level** 2

#### Prerequisite

**300224.1** Chemistry 1 OR **300554.1** Principles of Chemistry

#### Equivalent Units

300230 - Inorganic Chemistry 2, J2758 - Inorganic Chemistry 2

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Students studying at Parramatta campus should refer to 300230 - Inorganic Chemistry 2. This unit introduces students to a thorough study of coordination chemistry (discussing complexes, ligands, structure, isomerism, stability, reaction mechanisms, oxidation states, elements in the first transition series, and trends in the periodic table). That foundation is then used to study applications of coordination chemistry in biological systems, in medicine and in areas such as radiopharmaceuticals. The unit then moves on to areas of fundamental inorganic chemistry, including bonding, solution chemistry, and solid state chemistry. This unit also introduces many of the laboratory techniques and equipment that are used in synthetic procedures in coordination chemistry.

### 200109.3 Corporate Accounting Systems

**Credit Points** 10 **Level** 3

#### Prerequisite

**200536.1** Intermediate Financial Accounting

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This unit builds on the fundamental knowledge of accounting procedures gained in Intermediate Financial Accounting. It involves the comprehensive study of aspects of corporate accounting and reporting which are regulated by legislation, accounting standards, Australian Securities and Investment Commission and Stock Exchange requirements. This unit is designed to provide students with grounding in the regulation and practice of corporate reporting in Australia. The major orientation is towards the theoretical and practical aspects of corporate reporting, whilst at the same time exploring the reasons for regulatory disclosures.

### 200488.2 Corporate Financial Management

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

HSC Mathematics, introductory economics or microeconomics

#### Prerequisite

**200101.1** Accounting Information for Managers OR **200103.1** Accounting Reports and Decisions

#### Equivalent Units

200050 - Financial Management, 200110 - Corporate Financial Decision Making

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This unit introduces the fundamental concepts of finance theory and the tools of financial decision making in the context of the Australian institutional environment. These concepts relate primarily to the time value of money, risk and return, capital budgeting and capital structure. The unit's purpose is to develop an understanding of the basic practices of financial management from the perspective of a firm (both large and small). Students examine the investment, financing and dividend decisions of corporations.

### 400680.1 Crime and Criminal Justice

**Credit Points** 10 **Level** 1

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This unit provides the social context for the detailed study of criminological theories in Crime and Criminology. The definition of particular social problems as crimes, how crime is measured and explained and who are identified as criminals or victims is not straightforward. This unit challenges conventional criminology that accepts at face value that crime can be defined by criminal law or by a conceptual analysis of the harm done. The unit examines how police, courts and corrections influence processes of criminalisation and victimisation and the societal context in which this occurs.

### 400681.2 Crime and Criminology

**Credit Points** 10 **Level** 1

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The unit introduces students to the major theoretical approaches within criminology, from the eighteenth century criminology of the Enlightenment through nineteenth century criminological positivism to contemporary forms of critical criminological theory. It does this through a careful study of the work of particular thinkers associated with these traditions and the international body of scholarship in the field of criminology. Students will explore a range of issues and apply criminological theory and research in an integrated way while developing their skills at working in groups.

### 300374.2 Crime Scene Investigation

**Credit Points** 10 **Level** 2

#### Prerequisite

**300375.1** Digital Forensic Photography 1

#### Special Requirements

Unit restricted to students enrolled in 3589.1 and 3589.2 Bachelor of Science (Forensic Science).

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Most forensic evidence used in the prosecution of criminal cases is initially established at the crime scene and the reliance of practitioners to recognise, recover, preserve and record this evidence forms a critical function within forensic science and criminal investigation. This unit introduces the learner to a range of crime scene practices that provides the learning with the knowledge and skill to unpack a complex scene with voluminous detail, into a more specifically targeted range of forensic evidence items. This unit will explore aspects of crime scene investigation

including; crime scene processes, recognition of evidence, documentation of crime scenes, evidence detection and enhancement at the scene, maintaining evidence integrity, footwear impression evidence, fingerprinting, blood spatter analysis, toolmarks, hairs and fibres and others. It further introduces professional practices associated with maintaining the evidence integrity and continuity.

### **400816.2 Critical Thinking and Reflective Nursing Practice**

**Credit Points** 10 **Level** 3

#### **Special Requirements**

Students must be enrolled in the Bachelor of Nursing Studies to enrol in this unit.

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This unit promotes an understanding of critical thinking. It enables students to enhance their capacity for reflective reasoning so that they can analyse and evaluate nursing practice issues and situations, and develop logical conclusions about them

### **300616.1 Crop Production**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Basic knowledge of plants.

#### **Equivalent Units**

300451 - Horticulture Production 2, 300329 - Floriculture, 300330 - Fruit Production

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This unit aims to provide students with an understanding of the scientific basis of crop production and the physiological controls on crop yield. It develops the students' practical and technical skills while providing an understanding of scientific basis for environmental modification to improve the quality of crop products. Students will become familiar with the current sources of information available to producers and develop production and management skills through the production of fruits, vegetables, flowers and nursery crops. Students will also gain knowledge on food processing techniques after harvesting.

### **200586.1 Cross Cultural Management**

**Credit Points** 10 **Level** 2

#### **Equivalent Units**

MG206A - Cross Cultural Management

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21st century businesses are looking more and more similar in the way they are designed and operated. Yet to be successful and to gain comparative advantage it is imperative that these businesses manage their workforces differently. Critical to this different way of managing is culture. Culture is the cornerstone that makes people similar, yet different. Taking a multidisciplinary and "hands on" approach, this unit examines the impacts of culture on business practices and management styles.

### **300640.1 Culinary Studies**

**Credit Points** 10 **Level** 3

#### **Equivalent Units**

FS325A - Culinary Studies 3.2

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This unit aims to develop students' skills and knowledge in food preparation and presentation in specific culinary areas, with both theoretical and practical applications. Using a student-centred approach, small group learning, seminars and lectures, students are guided through a pathway of development as autonomous learners through problem-solving activities and experiential techniques. Students integrate and apply to food preparation knowledge and skills from other areas, such as food science principles and nutrition. Creativity and imagination are encouraged when using and preparing food products. Students are encouraged to keep up to date with new food products, trends and methods in the dynamic food industry. Note that Food and Nutrition students should take this unit in Spring session and Hospitality and combined students should take this unit in Autumn session.

### **400866.2 Culture, Diversity and Health**

**Credit Points** 10 **Level** 2

#### **Equivalent Units**

700072 - Culture, Diversity and Health (UWSC)

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This unit introduces skills for understanding and engaging effectively with the culturally and socially diverse world in which we live and work. Indigenous Australia is a major theme and students will gain an appreciation of the achievements and needs of Indigenous Australians. The unit examines cultural awareness more broadly and puts these issues in the context of health professionals working in multi-cultural settings and handling culturally different health philosophies and practices. Cultural diversity is increasingly recognised as a major issue in the delivery of health care and a major determinant of Indigenous health.

### **700072.1 Culture, Diversity and Health (UWSC)**

**Credit Points** 10 **Level** 2

#### **Equivalent Units**

400866 - Culture, Diversity and Health

#### **Special Requirements**

Only UWSCollege students can take this unit unless specific permission has been granted by the School of Biomedical and Health Sciences.

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This unit introduces skills for understanding and engaging effectively with the culturally and socially diverse world in which we live and work. Indigenous Australia is a major theme and students will gain an appreciation of the achievements and needs of Indigenous Australians. The unit examines cultural awareness more broadly and puts these issues in the context of health professionals working in multi-cultural settings and handling culturally different

health philosophies and practices. Cultural diversity is increasingly recognised as a major issue in the delivery of health care and a major determinant of Indigenous health.

### 200036.2 Data Mining and Visualisation

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200192 - Statistics for Science or 200032 - Statistics for Business or 200263 - Biometry

#### Prerequisite

**300104.1** Database Design and Development

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This unit presents data mining as a well structured standard process, namely, the Cross Industry Standard Process for Data Mining (CISP-DM). Further, this unit emphasizes (1) the presentation of data mining as a process, (2) the "White box" approach, emphasizing an understanding of the underlying algorithmic structures, (3) the graphical approach, emphasizing exploratory data analysis, and (4) the logical presentation, flowing naturally from the CRISP-DM standard process and the set of data mining tasks. This unit gives the insight of the data mining algorithms, by using small data sets and then provides examples of the application of the various algorithms on actual large data sets. Finally it provides the hands-on analysis problems, representing an opportunity to apply acquired data mining expertise to solving real problems using large data sets.

### 300010.2 Data Networks

**Credit Points** 10 **Level** 4

#### Prerequisite

**300057.2** Signals and Systems

#### Equivalent Units

84355 - Data Communication & Computer Networks, 89038 - Data Communications & Network Technology

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This unit is concerned with the principles and topics of fundamental importance to data communication, computer communication networks and telecommunications. The lower layers of the OSI reference model are emphasized (hardware, physical layer, data link layer and network layer). Also, it will cover all major network technologies-SONET, ATM, Internet, and Telephony. Essential network engineering topics such as protocol layering, multiple access, switching, scheduling, routing, congestion control, error control, flow control, and network security shall also be included. An engineering approach will be taken to provide an insight into network design.

### 300103.1 Data Structures and Algorithms

**Credit Points** 10 **Level** 2

#### Prerequisite

**300580.1** Programming Fundamentals OR **300027.1** Engineering Computing OR **300155.1** Programming Principles 1 OR **300405.2** Fundamentals of Programming

#### Corequisite

**200025.1** Discrete Mathematics OR **200237.1** Mathematics for Engineers 1

#### Equivalent Units

J2741 - Data Structures & File Organisations, 14906 - Data Structures, 14945 - Data Structures

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This unit introduces students to fundamental data structures and algorithms used in computing. The material covered forms the basis for further studies in programming and software engineering in later units. The unit focuses on the ideas of data abstraction, object-oriented programming, and software reuse. Issues relating to computational complexity of algorithms are addressed throughout the session. Topics covered include: the fundamental abstract data types (lists, stacks, queues, trees, hash tables, graphs); recursion; complexity of algorithms; internal and external sorting and searching algorithms; file structures; and B trees.

### 300104.2 Database Design and Development

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Programming Fundamentals (300580)

#### Incompatible Units

200129 - Database Management System for Business Information Systems.

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The main purpose of this unit is to provide students with an opportunity to gain a basic knowledge of database design and development including data modeling methods, techniques for database design using a set of business rules that are derived from a case study and finally implementation of the database using a commercial relational database management system. The unit also examines a number of important database concepts such as database administration, concurrency, backup and recovery and security. At the same time student learning and intercommunication skills are enhanced by running tutorial presentations and group assignments.

### 700011.1 Database Design and Development (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

300104 - Database Design and Development

#### Special Requirements

Students must be enrolled at UWS College.

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The main purpose of this unit is to provide students with an opportunity to gain a basic knowledge of database design and development including data modeling methods and techniques and database implementation using a database management system.

### 200485.1 Decision Making for Construction Professionals

**Credit Points** 10 **Level** 2

**Prerequisite**

**300674.1** Engineering, Design and Construction Practice

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This unit will provide you with an understanding of decision-making and support the development of critical thinking skills. The skills that are learnt in this unit will be applied in the Construction-in-Practice strand, Major Project in Construction and Honours Thesis.

### 200079.1 Derivatives

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

200052.1 - Introduction to Economic Methods OR 200031.1 - Mathematics for Business 200488.1 - Corporate Financial Management

**Equivalent Units**

61344 - Risk Management, H3686 - Options, Futures and Derivative Products

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This unit provides an introduction to trading and the theory of pricing of options, futures and other derivative products currently used in the domestic and international financial markets.

### 300012.2 Design Management 1: Product Design Audit

**Credit Points** 10 **Level** 2

**Equivalent Units**

10884 - Design Management 1: Corporate Image

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Design Management 1 focuses on the development of the product / service audit process and study of a firm's corporate image, identity, brand, and products as perceived by the target groups it aims to reach. Students will study the approach taken to develop a strategic design management plan that guides the way a firm presents itself to its target audience and differentiates itself against its competition in the targeted markets. Foundation design principles involving the evaluation of two-dimensional and three-dimensional design are explored through a series of firm-level case studies of firms with prominent and commercially successful design management strategies.

### 300013.2 Design Management 2: Corporate Image and Identity

**Credit Points** 10 **Level** 2

**Prerequisite**

**300012.2** Design Management 1: Product Design Audit

**Equivalent Units**

10885 - Design Management 2: Corporate Identity

### Special Requirements

The Company chosen by a student as a case study in 300012 - Design Management 1, on which the assignments are based, should be followed through to 300013 - Design Management 2.

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In Design Management 2 students will develop, based on the Corporate Image Brief and Research established in Semester 1, a methodology and program to study a corporation's approach(es) to communicate with its market audience. The evaluation of the study leads to the formulation of the corporate identity design strategy and brief. The information summarised in the design brief is then used to establish the corporate identity design program, which informs the development of the components of a client company's corporate identity. The company chosen by the students as a case study in Design Management 1, on which the assignments are based, should be followed through to Design Management 2.

### 300014.2 Design Management 3: Organisational Skills for Designers

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Ability to use: e-mail, internet web browser, WebCT or equivalent, word processing program. Knowledge and/or experience in: referencing, essay writing, group work and the successful completion of Level 2 units would be of advantage and will be assumed.

**Equivalent Units**

10886 - Design Management 3B: Professional Practice

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Key learning outcomes include that students: understand manufacturing paradigms and their impact on the product development process and the design process; understand the impact of organisational structures, strategies and processes on the design process; develop and gain experience of using key skills that will enable them to work successfully with various organisational members in the product development process. These skills include teamwork, decision-making and communication, analysis and problem solving. Develop and gain experience of using distance communication and virtual teamwork skills, skills that are becoming increasingly important in new product development.

### 300015.2 Design Management 4: Design Process

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Ability to use e-mail, internet web browser, webCT or equivalent, word processing system. Knowledge and/or experience in: referencing, essay writing, group work and the successful completion of Level 2 units and 300014 Design Management 3 or equivalent would be of advantage and will be assumed.

**Equivalent Units**

10887 - Design Management 4: Corporate Design

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Design Management unit focuses on fundamental issues of design process and design management. It exposes students to the various theories and models underlying trade-offs and choices in design process. Experiential exercises and contemporary case studies are used throughout the unit. Thus, at the conclusion of the unit, students should be able to gain a broad awareness and critical understanding of vital concepts and issues relating to design process; as well as managing intellectual property. This unit is part of a sequence of four units that constitute the sub-major in Design Management and eight units that constitute the major in International Design Management and Innovation Design Management.

### **300478.1 Design of Servo-systems**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Mathematics for Engineers 1 and 2.

#### **Prerequisite**

**300040.1** Mechanics of Materials AND **300480.1** Dynamics of Mechanical Systems

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This unit introduces the student to the flow of fluid in closed conduits, and to the mechanisms of heat and energy transfer; both directly and via thermodynamic cycles. The application of this knowledge to the design of systems, to the enhancement of their function, and to the optimisation of their performance is also studied. The unit includes a review of the generic limitations of energy availability, and the exploration of renewable forms of energy generation and utilisation. Upon completing this unit, students will be able to use the principles of fluid flow, thermodynamics, and heat transfer to design engineering systems.

### **300016.1 Design Science**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Any two units of HSC Mathematics

#### **Equivalent Units**

J1807 - Engineering Science

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An understanding of how the built environment works is essential to designers and construction professionals. This unit provides an introduction to physical units of measure, tolerance, statics, dynamics and optics. It also introduces students to electricity and magnetism as well as the concepts of momentum, energy, work, power and the operation of motors and machine. Students engage with these concepts through a hands-on learning experience including practical projects and live demonstrations.

### **300305.2 Design Studio 1: Themes and Variations**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

It is assumed that students have completed Applied Ergonomics and Industrial Graphics 1.

#### **Prerequisite**

**300462.1** Engineering and Design Concepts

#### **Equivalent Units**

10953 - Design Process 1: The Design Concept, J2815 - Design Principles 2D/3D, J2869 - Design Principles

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In this unit students are given the opportunity to apply their design and communication skills to generate a wide range of concepts in response to a number of design briefs. Students explore concepts according to aesthetic and functional criteria through hand sketching, rendering and model-making.

### **300308.2 Design Studio 2: The Design Proposal**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

300305 - Design Studio 1: Themes & Variations, 300309 - Sustainable Design: Life Cycle Analysis, 300302 - Industrial Graphics 1: Presentation, 300282 - Industrial Graphics 2: Transition

#### **Equivalent Units**

10954 - Design Process 2: The Design Proposal, J2870 - Design Application, J3804 - Design Project 1

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Design Studio 2 will develop the ability of students to advance a design concept up to the point of pre-production. The unit explores the often complex influences on a design proposal - from the methods used to identify the needs of people, future purchase patterns, production limitations to price point analysis. It focuses on the integrative nature of the process of designing.

### **300311.2 Design Studio 3: Product Realisation**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

300308 - Design Studio 2: The Design Proposal, 300309 - Sustainable Design: Life Cycle Analysis, 300306 - Sustainable Design: Sustainable Futures, 300282 - Industrial Graphics 2: Transition, 300310 - Industrial Graphics 3: 3D Solids.

#### **Equivalent Units**

10955 - Design Process 3: Product, J3765 - Advanced Design Application, J3805 - Design Project 2, J3825 - Design Project (Integrated)



In this unit, students respond to a set design brief so that they can develop a more comprehensive understanding of the design process – from initial briefing to product realisation. Students first investigate the task from multiple perspectives then generate a wide range of possible solutions. The most promising concept – the most feasible, innovative and appropriate to the specific user and context – is then refined, developed and professionally communicated using a wide range of design techniques and media.

### **300313.2 Design Studio 4: Simulate to Innovate**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

It is assumed students have completed Industrial Graphics 2 and Industrial Graphics 3 and are proficient in computer solid modelling. Knowledge of plastic manufacturing is also essential.

#### **Prerequisite**

**300311.2** Design Studio 3: Product Realisation

#### **Equivalent Units**

10956 - Design Process 4: The Design Context

Design Studio explores the strategies for Industrial Design within the complex and contradictory context of operating as designers in late-industrial cultures. The complexity of designing in Australia for a global economy with local peculiarities will be studied with a particular emphasis on designing for users who are increasingly difficult to know. These same users are also demanding more protection from goods and services they consume and demonstrate increasing doubts about the claims that advertisers make. These factors are bringing new issues into the Industrial Design context. Product innovation with an emphasis on rapid prototyping will form the basis of assessment in this unit.

### **100947.1 Design Thinking**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

10878 - Design Principles 2D/3D

This unit introduces students to processes of design. It examines how knowledges may be formed through visual design processes and how visual design reveals knowledges. It also introduces students to basic visual literacies, current design applications and production processes.

### **300314.1 Designed Inquiry**

**Credit Points** 10 **Level** 3

This unit instructs students in the practical techniques required for designing, conducting and presenting research, in an action-learning environment. Actual research projects based on design-related issues will be explored. A range of

research methods will be presented and students will be assisted in the strategic selection of appropriate methods in designing their research. This unit provides a forum for students to bring together and present both the design and results of research. Students will have the opportunity to select and explore their own research topics developed in consultation with the lecturer or tutor, design data collection instruments, analyse data and engage in peer discussions about the significance of their findings.

### **300111.1 Developing Web Applications with XML**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

300582-Technologies for Web Applications, 300580-Programming Fundamentals

This third year unit provides a comprehensive coverage of XML, related emerging technologies and their use in web applications. Students will be given opportunities to develop web based information systems which rely upon these technologies. This unit is heavily oriented to practical based work.

### **300723.1 Development Control**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Basic understanding of residential construction.

#### **Equivalent Units**

BG303A - Development Control

#### **Incompatible Units**

200435 - Property Development Controls

In this unit current issues related to development control will be critiqued. These include: planning law as it relates to the development application process; the assessment of applications for approval for development as an integrated process; the evaluation of the impact assessment process; appropriate consideration of urban design, streetscape, heritage and conservation issues; and the evaluation of the impact of parking, traffic, landscape and services in development proposals.

### **200030.1 Differential Equations**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

200189 - Concepts of Mathematics

#### **Incompatible Units**

200238 - Mathematics for Engineers 2

Differential equations arise naturally, both in abstract mathematics and in the study of many phenomena. This unit provides the theory of ordinary differential equations and an introduction to partial differential equations, together with methods of solution. Examples are drawn from a wide

range of biological, chemical, physical and economic applications.

### 300112.1 Digital Communication Technology

**Credit Points** 10 **Level** 2

#### Prerequisite

**300086.1** Applied Data Communications and Networking  
OR **300094.1** Computer Networking Fundamentals

#### Equivalent Units

J3750 - Advanced Data Communications, 14961 - Data Communications 2

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This unit is designed for students majoring in data communications. The unit introduces students to the principles, theories, techniques, and systems used in the vast area of digital communications. Students learn about coding and compression, and their corresponding industry standards. The characteristics and performance of various data communication systems such as analog and digital are also examined.

### 300370.1 Digital Control Systems

**Credit Points** 10 **Level** 4

#### Assumed Knowledge

Prior knowledge assumed: Continuous time control systems, the use of the Laplace transform, ADC and DAC, Z-transform, vector matrix difference equations, state variable representation helpful and familiarity with Matlab or similar software.

#### Equivalent Units

84465 - Real Time Control

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This unit is a first course in discrete, single rate sampled linear control systems and introduces the use of a computer as the main control element in a feedback system and as a data acquisition tool in real time. Methods of analysis and design are examined, using s-domain and state space methods, with an emphasis on the practical aspects of designing and implementing digital control systems. Less emphasis on theoretical issues. Direct design and emulation methods are included. Practical laboratory work is included along with the use of Matlab software tools

### 300375.1 Digital Forensic Photography 1

**Credit Points** 10 **Level** 2

#### Special Requirements

This unit is only available to students who are enrolled in 3589 Bachelor of Science (Forensic Science).

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Documenting perishable and non-perishable forensic evidence is an important function in forensic science. This unit introduces the student to the practice of digital photography for forensic laboratory and crime scene applications. Digital Forensic Photography 1 exclusively uses digital photography technology due to the recent wide spread application of this technology in industry. Students

will gain theoretical understanding of the technology and practical application through established workshops.

### 300376.2 Digital Forensic Photography 2

**Credit Points** 10 **Level** 2

#### Prerequisite

**300375.1** Digital Forensic Photography 1

#### Special Requirements

Unit restricted to students enrolled in 3589.1 and 3589.2 Bachelor of Science (Forensic Science).

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Digital Forensic Photography 2 explores the application of digital forensic photography to preserve and enhance forensic evidence. The unit's focus is mostly on optical and digital enhancement techniques that provide essential and non-destructive methods of enhancing physical evidence. Forensic photography is a critical area within the forensic sciences and an important skill for forensic practitioners. It further provides the learner with the necessary theoretical concepts of photographic science that underpins the conceptual aspects of evidence enhancement. Topics include; optical enhancement of evidence, digital enhancement of evidence, the detection of photographic forgeries, invisible radiation photography, polarising photomicroscopy, photomacrography, photomicroscopy, polarisation photography, photographic science and others.

### 300069.2 Digital Signal Processing

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Student's should be able to apply knowledge from 300005 - Circuit Theory: Employ the basic principles of analysing an AC electric circuit; Apply Kirchoff's Voltage and Current laws and their use in electric circuits; Apply Nodal analysis, mesh analysis and superposition analysis to AC electric circuits; Utilise Laplace Transform and its applications to Electric Circuits; Demonstrate the concept of Bode plot and frequency response; Examine passive and active filters.

#### Prerequisite

**300057.2** Signals and Systems

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This unit is aimed to provide an introduction to fundamental concepts and principles in digital signal processing. It focuses on signal analysis, digital filter design, hardware implementation and applications.

### 300018.1 Digital Systems 1

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Topics from 300021 - Electrical Fundamentals: Understand the basic principles of analysing an electric circuit; Understand Kirchoff's Voltage and Current laws and their use in electric circuits; Understand the concept of operational amplifier and its circuit.

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This unit provides students with a solid background in digital logic design. Students are introduced to the

fundamentals of digital logic with number systems, basic logic devices and Boolean algebra. Analysis and design of combinational and sequential logic circuits is covered in detail. Design with programmable logic devices is introduced.

### 300019.3 Digital Systems 2

**Credit Points** 10 **Level** 3

**Prerequisite**

**300018.1** Digital Systems 1

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This unit covers modern logic design techniques and the process of creating logic circuits and systems from design specifications to implementation. Topics include logic design techniques for combinational and sequential logic circuits; hardware description language (HDL); logic circuit implementation using an HDL; state-of-the-art logic circuit design tools; and programmable logic devices.

### 300702.1 Disaster and Emergency Management

**Credit Points** 10 **Level** 3

**Equivalent Units**

300449 - Environment, Health and Emergency Management

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The unit consists of project based studies that explore how human societies prepare for and respond to disasters and emergencies. The unit uses case studies to investigate the historical practice of risk assessment and prevention strategies for community safety during times of critical incidents, including emergency management strategies for community recovery, public education about critical incidents and how the effects of emergencies can be reduced to assist with community recovery. The unit will facilitate improved understanding by developing scenarios of impending issues such as global pandemics of infectious disease, natural disasters and man made emergencies (terrorism).

### 200025.1 Discrete Mathematics

**Credit Points** 10 **Level** 1

**Assumed Knowledge**

HSC Mathematics or equivalent

**Equivalent Units**

ST107A - Discrete Mathematics, 14349 - Discrete Mathematics

**Incompatible Units**

14950 - Algebra 1A and 1B, 14503 - Maths 3, 14323 - Maths for Computing

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This Level 1 unit introduces set theory, symbolic logic, graph theory and some counting problems. It serves as a grounding for further study in mathematics or computing.

### 300699.1 Discrete Structures and Complexity

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

Basic programming such as that in 300580 - Programming Fundamentals.

**Prerequisite**

**300700.1** Statistical Decision Making

**Incompatible Units**

200025 - Discrete Mathematics

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The fact that computers work at all in the way they do is due to the formal mathematical structure that is used in their design. The same holds for establishing important matters such as the reliability of our computer networks. This unit presents, in their computing context, a range of mathematical concepts that are essential for understanding a number of topics concerning computers: the ways they work, they ways they interact, and the ways we interact with them.

### 300115.1 Distributed Systems and Programming

**Credit Points** 10 **Level** 3

**Prerequisite**

**300167.2** Systems Programming 1 AND **300094.2** Computer Networking Fundamentals OR **300565.1** Computer Networking

**Special Requirements**

Students must pass 300167 Systems Programming 1 and must pass either 300094 Computer Networking Fundamentals or 300565 Computer Networking prior to enrolling in this unit.

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This unit covers concepts and design of, and programming for distributed systems. It builds on basic network communication protocols (specifically IP) to cover client-server programming using both the system level socket interface and remote procedure calls. It also examines large-scale distributed system architectures, particularly those based on distributed objects, and considers the complexities inherent in distributed transactions. Key concepts covered include data and algorithmic distribution, idempotent protocols, stateless and stateful servers, and distributed system transparency. Illustrative case studies are included.

### 300479.1 Drainage Engineering

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

300674 - Engineering Design & Construction Practice and 300027 - Engineering Computing.

**Prerequisite**

**85009.2** Water Engineering OR **300740.1** Water Engineering

### Equivalent Units

85017 - Foundation and Drainage, 85025 - Hydrometeorology

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This unit will introduce the basic concepts of drainage analysis. Basic concepts of hydrology will be introduced. This will be integrated with the hydraulic principles learned in Water Engineering to perform hydrologic analysis of catchments.

### 300546.1 Drug Design and Synthesis

**Credit Points** 10 **Level** 3

#### Prerequisite

**300553.1** Molecules of Life: Synthesis and Reactivity OR **300301.1** Organic Chemistry 2

#### Equivalent Units

300235 - Organic Chemistry 3

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Students studying at Hawkesbury or Parramatta campus should refer to 300235 - Organic Chemistry 3. This unit introduces selected areas of more advanced organic chemistry, targeted largely on the tools to synthesise and identify organic molecules of biological and medicinal interest. The practical skills required are learnt through laboratory exercises which complement the theory.

### E1250.2 Drugs on Line

**Credit Points** 10 **Level** 1

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This unit deals with selected issues in drug use, misuse and abuse. An introductory section discusses mechanisms of drug action in the body and their likely effects. Some topical areas include recreational drugs, drugs in sport, vitamins and herbal supplements, oral contraceptives, antidepressants and weight management therapeutic agents.

### 300480.1 Dynamics of Mechanical Systems

**Credit Points** 10 **Level** 3

#### Prerequisite

**300035.1** Kinematics and Kinetics of Machines AND **300040.1** Mechanics of Materials

#### Equivalent Units

300020 - Dynamics and Mechanical Systems

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This unit provides the essential background to understand the behaviour of engineering systems subject to vibration and analyse hydraulic systems for generation and/or application of fluid power.

### 200120.1 E-Business Fundamentals and Systems

**Credit Points** 10 **Level** 2

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Developments in information systems, particularly those associated with the Internet, have created new opportunities for businesses. Organisations can better manage their internal operations and obtain competitive advantages such as breaking into new markets or offering enhanced levels of service by exploiting these systems. As a consequence, the term 'e-business' (electronic business) has arisen. It refers to activities such as buying and selling, servicing customers and collaborating with business partners, as well as conducting business transactions within an organisation, where these are computer-based or use digital communications. This unit introduces students to the concept of e-business (and its subset, electronic commerce or e-commerce) and shows how this is impacting on the ways businesses are conducted. The unit examines major examples of the types of systems supporting e-business, employing, where appropriate, case studies drawn from business, government, industry and society. It considers the characteristics of these systems, how they are utilised, the opportunities they create, the practical limitations they face, current developments and future trends. The unit particularly looks at their business, legal, ethical and social impacts and implications, both at national and international level.

### 300634.1 Ecology

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Knowledge of first-year university biology equivalent to satisfactory completion of 300221 - Biology 1 and 300222 - Biology 2.

#### Equivalent Units

EY210A - Ecology 2.1

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We live in a society where environmental and ecological problems dominate public discourse. Reference is often made to ecology; terms and ideas that came originally from ecology are used in public discussions, and appear in legislation. This unit will introduce students to ecology: what is studied in ecology, how it is studied, what are the strengths and weaknesses or limitations of ecology. The scope of current ecological thinking will be covered, from the scale of individual organisms, through populations, and up to communities and ecosystems. Methods of study will be highlighted; the practical component of the course will introduce the techniques of conducting basic ecological investigations.

### 300619.1 Ecology of Production

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Basic knowledge of plants, animals, soils and climate would be an advantage.

#### Equivalent Units

300526 - Ecosystems and Agriculture, EY103A - Ecosystems and Agriculture

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Students will study key processes that drive agricultural production (energetics and nutrient cycling) and the

importance of maintaining natural vegetation, within-agroecosystem biodiversity and ecological processes to obtain sustainable production benefits. Students will create an inventory of natural resources on the Hawkesbury Campus, which will be analysed to determine production capabilities and environmental limitations. Students will gain a basic understanding of selected ecological issues in Australian agriculture, and of current strategies and initiatives to address these issues, including management of feral plants and animals, use of genetically modified organisms, and management of greenhouse gas emissions, carbon cycling and carbon credits.

### 200053.2 Economic Modelling

**Credit Points** 10 **Level** 3

#### Prerequisite

[200052.1](#) Introduction to Economic Methods OR [200032.1](#) Statistics for Business

This unit builds on concepts explored in Introduction to Economic Methods. The unit broadens the application of the stochastic linear model in econometrics, exploring its use in the estimation of economic models and in the testing of economic hypotheses associated with these models. The emphasis is on learning by doing in small group workshops.

### 200537.2 Economics and Finance Engagement Project

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students need to have completed at least four semesters of a course, key program or major run by the School of Economics and Finance.

#### Special Requirements

Must have achieved at least 150 credit points within the key programs of Economics and Finance, Applied Finance, International Trade and Finance or Applied Economics of course 2739 Bachelor of Business and Commerce OR must have achieved at least 150 credit points within the key programs of Applied Finance or Applied Economics of courses 3659 Bachelor of Science/Bachelor of Business and Commerce and 3655 Bachelor of Information and Communications Technology/Bachelor of Business and Commerce OR must have achieved at least 150 credit points within the course 2504 Bachelor of Economics OR the course 2526 Bachelor of Economics/Bachelor of Laws.

This unit will provide students with exposure to problems with which economists and finance professionals are confronted in their daily work. They will be confronted with the multi-dimensional nature of the issues addressed by economists and finance professionals in real-life. Students will need to consider the nature of the problems as well as how realistic the solutions they are proposing are, and will learn how to systematically reflect on their contribution to the industry or community setting with which they engage.

### 101263.1 Education and Transformation

**Credit Points** 10 **Level** 2

The unit provides opportunities for students to examine theories and practices associated with Transformative Learning (TL), within oneself and society, and its potential role for the development of professional educators, change agents and leaders in society. TL is learning that is liberating, emancipatory, empowering, profound, deep, and life changing. It occurs through critical reflection on experience, subsequent testing through discourse, and also through intuitive and affective processes. This unit enables students to design and facilitate life-affirming and transformative learning experiences in others.

### 101663.1 Education for Sustainability

**Credit Points** 10 **Level** 2

Sustainable learning requires students to appreciate key ecological issues and to reflect upon their place in contemporary teaching and learning. These ecological issues suggest the need for ongoing reflection upon subject matter in all discipline alongside reflection upon the ways in which learning relationships are imagined and enacted. Here personal sustainability, the sustainable school and the sustainable society are subject matter alongside social-ecological relationships and the learning systems that underpin them. This unit serves as an introduction to these matters and a provocation to develop a personal relationship to key issues in the area.

### 101661.1 Education in a Cosmopolitan Society

**Credit Points** 10 **Level** 3

This unit responds to the question of what it might mean to educate "world teachers" for cosmopolitan classrooms and schools. For some time multicultural education as policy and practice has dominated schooling in Australia. In globalizing times there has been a shift to considering alternatives and one of these is cosmopolitanism. The unit examines the thesis that cosmopolitanism as a philosophy already underpins western education. The central component of this ideal is the facilitation of reason. In the light of this philosophy, the unit explores arguments about inclusion, examines NSW curricula and pedagogical frameworks.

### 300567.1 e-Health

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students who have worked in the Health sector, or who have gained a broad understanding of Health system and uses of ICT therein may be exempted from the prerequisite unit.

#### Prerequisite

[300566.1](#) Introduction to Health Informatics

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This unit exposes students to the processes and techniques of the development of e-Health applications. It extends the students knowledge of Health Informatics by introducing concepts relating to electronic communications within the Health Industry. Areas include the Electronic Health Record Standards, Security, Privacy and Trust together with TeleHealth and TeleMedicine approaches, methodologies, tools and techniques.

### 300070.2 Electrical Drives

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Electric Circuits and Electrical Machines

#### Prerequisite

**300071.1** Electrical Machines 1

#### Corequisite

**300005.1** Circuit Theory

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The unit aims to introduce the study of electrical machines and drives. The subject covers various types of electrical motors and drive systems, their applications and control. The unit covers various types of the speed control, starting and braking systems and the dynamics of different electrical drives.

### 300021.1 Electrical Fundamentals

**Credit Points** 10 **Level** 1

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The objective of this unit is to provide an introduction to fundamental electromagnetism and electric circuit principles. Discussion is restricted to DC, although first-order systems are presented and second order systems introduced in preparation for on-going development. Basic definitions of charge, current, potential difference/relative potential, power, and the electric circuit as a complete path are presented, together with the basic laws - Ohm's Law and Kirchoff's nodal and loop laws. Examples from different engineering disciplines are related to circuit's laws. Basic nodal and mesh analysis are presented together with Thevenin and Norton circuit equivalents, real versus ideal current and voltage sources and the maximum power transfer principle. The operational amplifier as a circuit element is introduced. Energy storage elements (capacitors and inductors) are discussed leading into first-order systems and their natural responses and time-constants. Several basic electromagnetic concepts related to electric and magnetic flux and induced voltage are also discussed.

### 700024.1 Electrical Fundamentals (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

300021 - Electrical Fundamentals

#### Special Requirements

Students must be enrolled at UWS College.

The objective of this unit is to provide the student's first introduction to fundamental electromagnetism and electric circuit principles. Discussion is restricted to DC, although first-order systems are discussed and second order systems introduced as a pointer to on-going development. Basic definitions of charge, current, potential difference/relative potential, power, and the electric circuit as a complete path are presented, together with the basic laws - Ohm's Law and Kirchoff's nodal and loop laws. Examples from different engineering disciplines are related to circuit's laws. Basic nodal and mesh analysis are presented together with Thevenin and Norton circuit equivalents, real versus ideal current and voltage sources and the maximum power transfer principle. The operational amplifier as a circuit element is introduced. Energy storage elements (capacitors and inductors) are discussed leading into first-order systems and their natural responses and time-constants. Several basic electromagnetic concepts related to electric and magnetic flux and induced voltage are also discussed.

### 300071.1 Electrical Machines 1

**Credit Points** 10 **Level** 3

#### Prerequisite

**300052.1** Power and Machines

#### Equivalent Units

89010 - Electrical Machines, Electrical Machines 1 (unit codes 84742, 81441, 84140, 84232, 84240, 84243), Electrical Machines 2 (unit codes 84272, 84872, 84280)

.....

This unit introduces the fundamental principles of electrical machines: DC generators and motors, induction motors and synchronous machines. The unit also introduces various special purpose electrical machines, such as permanent magnet machines, step motors and reluctance machines.

### 300024.1 Electronic Systems Design

**Credit Points** 10 **Level** 3

#### Prerequisite

**300069.1** Digital Signal Processing AND **300025.1** Electronics AND **300076.1** Microprocessor Systems

.....

This unit is concerned with the processes involved in the design and production of complete electronic systems. The product development cycle is considered from concept to market and commercialisation. The design of a large electronic system is undertaken as a group project. Production processes explored are printed circuit board (PCB) design and computer aided design (CAD) tools, and PCB manufacture and assembly. Management of the processes are studied including the application of total quality management (TQM) and just-in time management (JIT).

### 300024.2 Electronic Systems Design

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

300075 - Instrumentation and Measurement, and 300069 - Digital Signal Processing

**Prerequisite**

**300025.2** Electronics AND **300076.1** Microprocessor Systems

.....

This unit is concerned with the processes involved in the design and production of complete electronic systems. The product development cycle is considered from concept to market and commercialisation. The design of a large electronic system is undertaken as a group project. Production processes explored are printed circuit board (PCB) design and computer aided design (CAD) tools, and PCB manufacture and assembly. Management of the processes are studied including the application of total quality management (TQM) and just-in time management (JIT).

### 300025.2 Electronics

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

Topics associated with the unit 300464 - Physics and Materials: Vibrations and wave phenomena; Photoelectric effect, atomic structure and periodic table; Electricity and magnetism.

**Prerequisite**

**300021.1** Electrical Fundamentals

**Special Requirements**

Students should have a sound understanding of: The basic principles of analysing an electric circuit; Kirchhoff's Voltage and Current laws and their use in electric circuits; Nodal analysis, mesh analysis and superposition analysis in DC electric circuits; Thevenin and Norton equivalent and their use in electric circuits; The storage elements capacitor and inductor and understand their performance in first and second order circuits.

.....

This unit further develops skills in the analysis, design, practical implementation and testing of the main analogue electronic circuits. Topics covered are: semiconductor diodes and their applications, Bipolar Junction Transistors (BJT), Field Effect Transistors (FET), analysis of BJT and FET, design of discrete operational amplifiers, and operational amplifier characteristics and circuit configurations.

### 300584.1 Emerging Trends in Information Systems

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Systems Analysis and Design; Computer Networking; Database Design and Development; Web Application Development

.....

This unit provides a means for students to explore the changing nature of information systems in organisations. Specifically, the role that emerging technologies play in both the design and development of information systems is critically examined. Students will be able to research and assess new technologies, as well as develop and implement effective strategies for achieving change in information systems based on the feasibility of the introduction of the technologies.

### 200610.1 Employee Training and Development

**Credit Points** 10 **Level** 2

**Prerequisite**

**200300.1** Managing People at Work

**Equivalent Units**

61422 - Employee Training and Development

.....

This unit explores such questions as: Training -- what is it!! How is it linked to strategic development!! It explores education versus training versus development; managing the training department, upper management involvement, career development; cost-effectiveness of training and development; training and development needs -- how people learn, implications for training and development of staff, models and roles for training; needs analysis, objective setting, and the implications of politics, culture and government; curriculum -- methods content, people, sequencing of curriculum; the advantages and disadvantages of various training methods; measurement of success philosophies, instruments of measurement and post-training measurement.

### 300658.1 Endocrinology and Metabolism

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

Chemical bonding, including covalent, hydrogen and ionic bonds and hydrophobic interactions; properties of water, acids, bases and buffers; structure of common functional groups; stereoisomerism; principles of chemical reactions.

**Prerequisite**

**300224.1** Chemistry 1 OR **300225.1** Chemistry 2 AND **300221.1** Biology 1

**Equivalent Units**

300227 - General Biochemistry, BC201A - Biochemistry 2.1

**Incompatible Units**

300219 - Biochemistry 1, 300220 - Biochemistry 2, 300548 - Human Metabolism and Disease, 300555 - Proteins and Genes

.....

The overall aim of this Problem Based Learning unit is to develop greater understanding of the molecular events coordinating the function of living cells within organisms. This Biochemistry unit also demonstrates the relevance of endocrine and metabolic factors that underpin a range of applied sciences, including medicine, food science,

pharmaceuticals, nutrition, genetic engineering, health, hybridoma technology, enzyme technology, toxicology and the biological sciences in general.

### 300026.2 Energy Systems

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Basic knowledge of power frequency devices and systems

#### Prerequisite

**300052.1** Power and Machines AND **300025.2** Electronics

.....

The unit introduces the global energy picture of electric energy systems, including a look at alternative energy sources where time permits. It deals with mainly power systems on a macroscopic scale and with power electronics to a lesser extent and on a smaller scale. Basic processes of energy generation, distribution and conversion are presented, along with the use of semiconductor power switching devices.

### 300462.1 Engineering and Design Concepts

**Credit Points** 10 **Level** 1

#### Equivalent Units

300011 - Design Issues and Principles, J1803 - Impact of Design and Technology, J1757 - Design Issues, J1758 - Engineering Design

.....

This unit equips students with the fundamental skills that will enable them to use creative design and engineering approaches to solve challenging problems and to understand the design process. Students will be exposed to 2D and 3D visualisation techniques, will learn how to interpret abstract information, and will work on practical projects in an interdisciplinary context. The aim is to provide a common first-year subject that is thematic, rather than discipline-centred and presents students with foundation concepts in engineering and industrial design.

### 700021.1 Engineering and Design Concepts (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

300462 - Engineering and Design Concepts

#### Special Requirements

Students must be enrolled at UWS College, except under specific circumstances approved by UWS.

.....

This unit equips students with the fundamental skills that will enable them to use creative design and engineering approaches to solve challenging problems and to understand the design process. Students will be exposed to 2D and 3D visualisation techniques, will learn how to interpret abstract information, and will work on practical projects in an interdisciplinary context.

### 300027.1 Engineering Computing

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Basic knowledge in use of computers and Windows operating system

.....

Students are introduced to the techniques of data manipulation and presentation using the common functions of a spreadsheet facility. The unit also aims to instil sound principles of program design that can be utilised in many units throughout the student's course. The basic elements and structures of a high level language are taught. Students are exposed to many engineering problems and are encouraged to implement solutions using an algorithmic approach.

### 700018.1 Engineering Computing (UWSC)

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Basic knowledge in use of computers and Windows operating system

#### Equivalent Units

300027 - Engineering Computing

#### Special Requirements

Students must be enrolled at UWS College.

.....

Students are introduced to the techniques of data manipulation and presentation using the common functions of a spreadsheet facility. The unit also aims to instill sound principles of program design that can be utilized in many units throughout the students' course. The basic elements and structures of a high level language are taught. Students are exposed to many engineering problems and are encouraged to implement solutions using an algorithmic approach.

### 700038.1 Engineering Design and Construction Practice (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

300034 - Introduction to Professional Practice, 300461- Engineering and Industrial Design Practice

#### Special Requirements

Students must be enrolled at UWS College

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This unit aims to engender in participants an understanding of the many facets of professional practice that can be pursued as an Engineer or Designer. Communication, teamwork and problem solving skills will be fostered through a series of lectures, tutorials and laboratory classes. Case studies and assessment tasks aim to develop for the students their own personal ethos for practice, study and lifelong learning in line with the graduate outcomes desired by UWS.



### 300481.1 Engineering Electromagnetics

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

300021 - Electrical Fundamentals

#### Prerequisite

**300464.1** Physics and Materials AND **200238.1** Mathematics for Engineers 2

#### Equivalent Units

300022 - Electromagnetics, 300073 - Electromagnetic Compatibility

.....

This unit introduces Maxwell's equations in integral and differential form and their application to basic theory and application of electromagnetic structures, wave propagation, guides waves, antennas and electromagnetic compatibility.

### 300482.1 Engineering Geology and Concrete Materials

**Credit Points** 10 **Level** 1

#### Equivalent Units

85002 - Engineering Geophysics, 300039 - Mechanics and Materials

.....

Students are introduced to the principles of Civil and Environmental Engineering Chemistry, Civil and Environmental Engineering Geology, and Concrete Materials. The students are exposed to real world engineering problems requiring knowledge of Civil and Environmental Engineering Chemistry, Civil and Environmental Engineering Geology and Concrete Materials. The knowledge gained from this unit will be directly applicable to other units of Civil and Environmental Engineering key programs.

### 300483.1 Engineering Project

**Credit Points** 20 **Level** 4

#### Prerequisite

**300053.1** Professional Practice

#### Corequisite

**81999.1** Industrial Experience (Engineering)

#### Equivalent Units

85018 - Civil & Environmental Engineering Project

#### Incompatible Units

300484 - Engineering Thesis

#### Special Requirements

Students will need to have completed at least 240 credit points of study so that they have a sufficiently solid grasp of their particular major field of engineering. Must have completed and/or be co-enrolled in 300741 Industrial Experience (Engineering). Cannot co-enrol in 300484 Engineering Thesis.

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This is a multi-disciplinary research project aimed at encouraging students to participate in solving multi-disciplinary problems. Where possible these will be real-world problems for engineering companies and/or local councils in Western Sydney.

### 300029.2 Engineering Visualization

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

C++ Programming and 3-D Geometry

#### Prerequisite

**300027.1** Engineering Computing

#### Equivalent Units

80151 - Computer Graphics

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This unit is aimed to provide a comprehensive introduction to fundamental concepts and algorithms in engineering visualization. Topics covered include visualization hardware, scan conversion of geometric primitives, 2D and 3D transformations, 3D viewing and projection, hidden surface removal, solid modeling, illumination models and image manipulation.

### 300674.1 Engineering, Design and Construction Practice

**Credit Points** 10 **Level** 1

#### Equivalent Units

300461 Engineering and Industrial Design Practice; 300034 Introduction to Professional Practice

#### Special Requirements

3621 Bachelor of Engineering students must be enrolled in a Key Program.

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This unit encourages students to explore the professional responsibilities and challenges faced by Engineers, Designers and Building professionals. Students are introduced to emerging issues and approaches to sustainability and the complex nature of the design problems they will encounter in professional practice. Students engage in a semester-long research and problem solving task that addresses environmental and social sustainability imperatives and fosters fundamental research, design and communication skills. Special emphasis is placed on lifelong learning, academic literacy and professional skills including information literacy, project management, and teamwork which equip students for subsequent academic and professional contexts.

### 300117.2 Enterprise Database

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

General understanding of database design and development processes and techniques. Familiarity with at least one programming language.

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The emphasis of this unit is to expose students to the process and techniques of the development of enterprise databases. This unit extends students' basic knowledge of database systems through analysis of suitable strategies for record storage, primary file organisation and database indexing techniques, transaction recovery and concurrency control strategies, general security and integrity considerations, understanding of emerging technologies in distributed databases, object-oriented databases and the world wide web.

### **200614.1 Enterprise Industrial Relations**

**Credit Points** 10 **Level** 2

#### **Prerequisite**

**200300.1** Managing People at Work

#### **Equivalent Units**

61432 - Enterprise Industrial Relations

.....

This unit looks at workplace reform and restructuring -- the devolution approach to industrial relations management, workplace reform, organisation and behaviour, the role of workplace committees, trade unions at the enterprise level, shop-floor and industry unionism; the enterprise bargaining process -- overall framework definitions, dimensions and scope; strengths and weaknesses; the processes -- negotiation, psychological, sociological and economic approaches, stages; impact of enterprise bargaining, workplace flexibility, efficiency, remuneration practices and employee satisfaction; grievance handling and grievance procedures; differences with other forms of negotiation, formal or informal; consultation and participation; issues involved, differences with negotiation; impact of changes in wage determination on workplace, particularly the work choices changes and current and future strategic and legislative directions in enterprise bargaining and workplace agreements.

### **200154.2 Entrepreneurial Management and Innovation**

**Credit Points** 10 **Level** 2

#### **Corequisite**

**200571.1** Management Dynamics

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This unit examines the theory, practice and nature of entrepreneurship, as a virtual but often neglected and misunderstood mode of management. A basic premise underlying this unit is that all business entities require enterprising management to enhance their survival ability. This proposition is relevant to new and older, small and large organisations. Additionally, contemporary management practice requires the modern manager to be creative in a learning context and the ways in which these creative environments are reached through entrepreneurship are explored.

### **300362.1 Environment and Health**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

A basic grounding in academic skilling including experiential and problem-based learning; a basic awareness and understanding of contemporary environmental and public health issues

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This unit explores the holistic and socio-ecological nature of human health and its inextricable linkages with the socio-cultural and physical environment. In particular students are challenged to identify the underlying causes of traditional and contemporary environmental health issues and to explore the changing nature of environmental health, its professional practice and associated policy and the changing roles and responsibilities of stakeholders in government, business and industry. Students select from a range of health promotion and community education models in order to design and evaluate community intervention strategies to address selected environmental health issues.

### **101344.1 Environmental Area Mapping**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Students should be familiar with basic concepts pertaining to development and the environment.

#### **Equivalent Units**

DN208A - Environmental Area Mapping

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The unit describes mapping of natural/cultural patterns in the landscape that have meaning with respect to land use. The unit provides instruction on map-making, spatial aspects of the natural environment and GIS concepts and applications in environmental area mapping. This unit involves the preparation of a map base and database for land use planning with the aim of subdividing a landscape into natural use regions and describing attributes of each region.

### **300607.1 Environmental Biology**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Sound knowledge of biology and microbiology equivalent to undergraduate Level 2 units.

#### **Equivalent Units**

14403 - Environmental Biology

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This unit builds on the basic ecology taught in Biology 2 and will provide students with a sound understanding of basic ecological principles and theories focussing on population and community ecology of terrestrial ecosystems. Starting with how populations grow and the structure of terrestrial ecological communities, the unit goes on to consider how communities change with time and as a result of natural disturbance, along with ways in which

interactions between organisms influence the structure of natural populations and communities. Having established how populations and communities change naturally, the consequences of disturbance on ecosystems will be considered, with emphasis on effects at the community and population levels.

### 300647.1 Environmental Biotechnology

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Sound knowledge of undergraduate Level 2 microbiology and biochemistry. Microbiology laboratory skills.

#### Equivalent Units

MI303A - Environmental Biotechnology (V1)

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This unit focuses on microbial processes in the environment and illustrates how these processes may be employed in the control of pollution problems, pests and diseases, and in the recovery of minerals and fuel from the environment, including: microbial interactions in the environment; model ecosystems in the study of microbial environments; the role of biofilms in biofouling; micro-organisms in the removal of contaminants in the environment; microbial control of plant, pests and diseases; microbial systems in mineral and fuel recovery; strain construction in environmental biotechnology; ethics and the release of genetically engineered micro-organisms.

### 300737.1 Environmental Engineering

**Credit Points** 10 **Level** 2

#### Prerequisite

**200237.1** Mathematics for Engineers 1 AND **300482.1** Engineering Geology and Concrete Materials

#### Equivalent Units

85021 - Environmental Engineering

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This unit outlines the essential issues of the environment that a civil and environmental engineer will address as a personal and professional contributor to the development of Australia. It has a bias towards water-related environmental issues.

### 300614.1 Environmental Geochemistry

**Credit Points** 10 **Level** 3

#### Prerequisite

**300224.1** Chemistry 1 AND **300225.1** Chemistry 2

#### Equivalent Units

14525 - Environmental Geochemistry

.....

This unit covers composition of ocean, ground and surface waters and their interactions with the atmosphere, rocks, soils, sediments and man-made pollutants; transfer of dissolved material between environments and detection and control of toxic waste materials; environmental quality criteria, field assessment and sampling and modelling of selected environmental systems.

### 300629.1 Environmental Planning

**Credit Points** 10 **Level** 3

#### Equivalent Units

EH324A - Environmental Planning

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This unit is an introduction to environmental planning for “non-planners”. It is particularly targeted at those who will work with Environmental Planners within a local and state government context. This unit will provide the student with a brief introduction to the ways that the environmental planning system can be used to protect the natural environment and/or encourage sustainable development practices. There is a particular focus on setting goals for environmental protection and then looking at ways in which the current planning regulations can be used to assist with achieving these goals. Current metropolitan planning and strategy will be examined including the Metropolitan Strategy for Sydney and subordinate Subregional Strategies.

### 300630.1 Environmental Regulations

**Credit Points** 10 **Level** 3

#### Equivalent Units

EH325A - Environmental Regulations

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This unit aims to provide students with a broad understanding of the current environmental regulations available to environment protection and planning authorities at the State and Local Government level to protect and manage the environment. It is a suitable subject for students entering Government or industry in environmental management, health and planning roles. This unit will focus on the environmental management opportunities provided by the Local Government Act, Protection of the Environment Operations Act, and Environmental Planning and Assessment Act. Commonwealth Legislation including the Environment Protection and Biodiversity Conservation Act will also be examined.

### 300284.2 Environmental Risk Management

**Credit Points** 10 **Level** 3

#### Equivalent Units

EH309A - Environmental Management 1

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This unit aims to examine the world of environmental management, introducing students to environmental management systems concepts, as well as practical operational tools for doing. Students are introduced to the processes of Environmental Impact Assessment and Environmental Auditing; the tools and methods required for assessment, and their role in the review and processing of an EIS/EA. This unit further develops the students applied approach to solving real world problems.

### **300626.1 Epidemiology**

**Credit Points** 10 **Level** 2

#### **Equivalent Units**

EH214A - Epidemiology

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Epidemiology is the study of the distribution and determinants of health related states in populations for the management of health problems. Epidemiology is not limited to the study of epidemics but is a method for measuring and managing physical, mental and social health in the living, working and recreational environments. The unit introduces a range of approaches for identifying and understanding risk factors for human health and disease, and guides the student in designing an investigation protocol aimed at assessing a specific health state within the student's own particular field of interest. The unit thus addresses a range of vocational needs while introducing the epidemiological method for risk assessment and research.

### **400168.1 Ergonomics and Work Occupations**

**Credit Points** 10 **Level** 3

#### **Equivalent Units**

E2044 - Ergonomics 1, E3025 - Ergonomics 2

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In 2013 this unit will be replaced by 400926 - Ergonomics and Work Occupations. The productivity role is a key aspect of adult life for most people. Occupational therapists and other professionals play a major role in assisting clients who have had their productivity role affected in some way. This unit explores the importance of productivity for adults, in particular those engaged in paid employment. The focus of this unit is the rehabilitation of the injured worker within the context of the OHS legislation and the WorkCover case management system. In addition, this unit will explore vocational counselling and rehabilitation for clients with psychosocial, cognitive and physical disabilities.

### **400926.1 Ergonomics and Work Occupations**

**Credit Points** 10 **Level** 7

#### **Assumed Knowledge**

Human anatomy, functional anatomy.

#### **Special Requirements**

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

.....

The productivity role is a key aspect of adult life for most people. Occupational therapists play a major role in assisting clients who have had their productivity role affected in some way. This unit explores the importance of productivity for adults, in particular those engaged in paid employment. The focus of this unit is the rehabilitation of

the injured worker within the context of the OH&S legislation and the WorkCover case management system. In addition, this unit will explore vocational counselling and rehabilitation for clients with psychosocial, cognitive and physical disabilities.

### **200468.1 Estimating 1**

**Credit Points** 10 **Level** 2

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To provide an understanding of factors that affect the cost of buildings; introduce costing techniques for new and existing buildings and provide students with the skills necessary to prepare builder's estimates.

### **300726.1 Estimating 2**

**Credit Points** 10 **Level** 4

#### **Assumed Knowledge**

Building construction including residential, light industrial and small commercial as covered in the subjects Building 1 and Building 2 and building measurement as covered in Building Quantities and Estimating as covered in Estimating 1.

#### **Equivalent Units**

BG412A - Estimating 2

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The aim of this unit is to give students a hands-on experience of the tendering process for construction professionals. Students undertake a team research project to determine the optimum parameters for a civil/building infrastructure estimation.

### **400249.1 Ethical and Legal Issues in Health Care**

**Credit Points** 10 **Level** 3

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This unit enables students to explore and develop an understanding of the ethical and legal issues important within contemporary health care. Through the use of case studies students will analyse profound ethical and legal challenges facing current health care that are equally important to health professionals, consumers and society generally. Additionally, students studying to work within health care, including as complementary health practitioners will develop a comprehensive understanding of the requirements for ensuring that their practice conforms to legal doctrines and ethical standards.

### **400893.1 Ethical Issues in Sports and Athletics**

**Credit Points** 10 **Level** 3

#### **Prerequisite**

**300361.1** Introduction to Human Biology OR **400868.1** Human Anatomy and Physiology 1 AND **400880.1** Fundamentals of Exercise Science AND **400892.1** Nutrition, Physical Activity, Fitness and Health

**Special Requirements**

This unit is only available to students enrolled in course 4659 - Bachelor of Health Science (PDHPE).

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This unit examines the growing importance of the study of ethics and sports. Such study not only includes the increasing incidence of the abuse of nutritional and pharmacological ergogenic aids, but also address such local and global socio-economic and cultural issues as inequalities in opportunity for sport participation and excellence, professional athlete challenges to the Olympic movement, age appropriateness of youth talent identification and specialized training, etc.

**300746.1 Evidence and Crime Scene Management**

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

Student must first complete a minimum of 60 CP's in their enrolled course.

**Incompatible Units**

300374 - Crime Scene Investigation

**Special Requirements**

Students enrolled in 3589 Bachelor of Science (Forensic Science) are not eligible to take this unit as an elective.

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Evidence and Crime Scene Management is a unit designed to provide students with an understanding and knowledge of critical principles associated with the management of evidence and sites considered as crime scenes. The unit is particularly designed for students wishing to enter professional domains involving; policing, nursing, animal welfare, workplace investigators, health inspectors, OH&S officers, fire investigation, council and park rangers, social welfare, fraud and insurance investigation and others where the collection of evidence is a component of professional practice within the discipline. The unit covers topics such as; recognition of various evidence, the recording and documentation of evidence, crime scene or site photography, managing scenes, CCTV as evidence, maintaining evidence integrity, sexual assault evidence, the reporting and presentation of evidence in court and others.

**400817.2 Evidence Based Nursing Practice**

**Credit Points** 10 **Level** 3

**Incompatible Units**

400755 - Evidence Based Practice 1, 400765 - Evidence Based Practice 2

**Special Requirements**

Students must be enrolled in the Bachelor of Nursing Studies.

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This unit explores concepts related to Evidence-Based Nursing which will further develop student understanding of the significance of scholarship, research and the research processes and how these may inform professional nursing knowledge and practice This unit consolidates and assists

student's synthesis of the major methodological approaches to support evidence-based practice, the process of research/inquiry, and their application in the development of a defensible and justifiable nursing research project

**400755.2 Evidence-Based Nursing 1**

**Credit Points** 10 **Level** 2

**Equivalent Units**

400057 Nursing Context 4

**Special Requirements**

Students must be enrolled in Bachelor of Nursing programs.

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This unit explores concepts related to 400755 Evidence Based Nursing, which will further develop student understanding of the significance of scholarship, research and the research processes and how these may inform professional nursing knowledge and practice.

**400824.2 Evidence-Based Nursing 1 (Advanced)**

**Credit Points** 10 **Level** 2

**Incompatible Units**

400055 - Nursing in Context 4, 400755 - Evidence-Based Nursing 1 (EBN1)

**Special Requirements**

This unit is only available to students enrolled in course 4648 - Bachelor of Nursing (Advanced)

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This unit explores and critically applies the concepts related to Evidence-Based Nursing which will further develop student understanding of the significance of scholarship, research and the research processes and how these may inform professional nursing knowledge and practice. The unit will enable the student to discuss research related topics, applying them to nursing practice.

**400765.2 Evidence-Based Nursing 2**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Knowledge and content related to 400755 - Evidence Based Nursing 1.

**Prerequisite**

**400755.1** Evidence-Based Nursing 1

**Equivalent Units**

400060 - Nursing Context 5

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This unit consolidates and assists student's synthesis of the major methodological approaches to support evidence-based practice, the process of research/inquiry and their application in the development of a defensible and justifiable nursing research project.

### **400827.2 Evidence-Based Nursing 2 (Advanced)**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Knowledge and content related to Evidence-Based Nursing 1 (Advanced) (EBN1-Adv).

#### **Prerequisite**

**400824.1** Evidence-Based Nursing 1 (Advanced)

#### **Incompatible Units**

400765 - Evidence-Based Nursing 2 (EBN2) or equivalent unit

#### **Special Requirements**

This unit is only available to students enrolled in course 4648 - Bachelor of Nursing (Advanced). Students must maintain a GPA of 5.5 or greater.

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This unit consolidates and assists student's synthesis of the major methodological approaches to support evidence-based practice, the process of research/inquiry, and their application in the development of a defensible and justifiable nursing research project.

### **400865.1 Evidence-Based Practice**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Knowledge and skills of Foundations of Research & Evidence-based Practice and Research Methods (Qualitative and Quantitative).

#### **Prerequisite**

**400864.1** Research Methods (Quantitative and Qualitative)

#### **Equivalent Units**

400154 - Integrating Evidence into Practice

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In this unit, students incorporate previous research and biostatistics knowledge to develop new skills for using evidence to inform all aspects of their professional practice. Evidence-based practice uses an enquiry led approach to manage expanding and uncertain knowledge by formulating answerable questions, effectively searching literature, critically appraising evidence validity and results, and to assess its significance in clinical practice and healthcare decision-making.

### **400883.1 Exercise Bioenergetics**

**Credit Points** 10 **Level** 2

#### **Prerequisite**

**400880.1** Fundamentals of Exercise Science

#### **Equivalent Units**

400325 - Bioenergetics of Exercise

#### **Special Requirements**

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science).

.....

This unit investigates exercise metabolism in an integrated fashion. Covering: energy pathways; metabolic control; metabolism, oxygen consumption and respiratory quotient relationships; metabolic responses to acute and chronic exercise; pathway contributions to exercise; metabolic limitations to exercise; metabolic contributions to fatigue; metabolic acidosis, cellular and systemic implications of metabolic thresholds, conditions that can alter cellular metabolism (eg. altitude, heat stress, anaemia, ischemia, ergogenic aids). Skeletal muscle metabolism is the primary focus, liver and adipose tissue metabolism are also considered as are anabolic pathways. Students will be exposed to basic biochemical assays of interest to the exercise physiologist.

### **400902.1 Exercise in Musculo-Skeletal Rehabilitation**

**Credit Points** 10 **Level** 3

#### **Prerequisite**

**400326.1** Exercise Prescription for General Populations AND **400885.1** Sport and Exercise Physiology

#### **Equivalent Units**

400327 - Exercise in Musculoskeletal Injury Rehabilitation

#### **Incompatible Units**

400329 - Sports Physiology

#### **Special Requirements**

This unit is only available to students enrolled in courses 4658 - Bachelor of Health Science (Sport and Exercise Science). To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

.....

This unit focuses on the role of exercise in the functional rehabilitation of musculoskeletal injuries including work and sporting injuries. It covers injury and re-injury prevention strategies; mechanisms of injury; patho-physiology of injury and repair process; design and evaluation of rehabilitation exercise programs; how the exercise program functions in concert with other methods of injury treatment and management; important pharmacological, communication, psychosocial and cultural considerations; the role of the exercise physiologist in the rehabilitation team; the effects of nervous system disorders and injury on skeletal muscle control, injury and rehabilitation are also considered.

### **400884.1 Exercise Nutrition, Body Composition and Weight Control**

**Credit Points** 10 **Level** 2

#### **Prerequisite**

**400880.1** Fundamentals of Exercise Science AND **400881.1** Functional Anatomy

#### **Special Requirements**

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science). To undertake this unit, students must comply with

the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; possess a current WorkCover Authority approved First Aid Certificate.

.....

This unit provides students with an understanding of the interdependent areas of nutrition, body composition and body weight control within the context of sport, physical activity, and exercise. Nutritional needs and recommendations for all levels and types of physical activity are covered along with the links between nutrition and health, body composition, control of body weight and composition. Students will develop skills in nutritional analysis, body composition assessment and the development of exercise programmes for weight control. Students will use these skills and knowledge in the individualisation of advice on exercise nutrition and body composition control.

### 400326.2 Exercise Prescription for General Populations

**Credit Points** 10 **Level** 2

#### Prerequisite

**400323.1** Physiology of Exercise AND **400322.1** Sociological Aspects of Sport and Exercise AND **400324.1** Foundations of Exercise Prescription

#### Special Requirements

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Persons Declaration

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The exercise prescription area is designed to give students an understanding of and experience in exercise prescription and fitness program construction for the general population of all ages and both genders, including pre exercise screening and fitness testing. It will focus on the development of general health related fitness programs which improve aerobic and anaerobic fitness, flexibility, muscular strength and endurance, including resistance training. Students will design, implement and evaluate exercise programs with individual clients.

### 300638.1 Experimental Foods

**Credit Points** 10 **Level** 3

#### Equivalent Units

FS321A - Experimental Foods

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This unit aims to extend students' knowledge of food preparation, basic food science and principles, the interaction of ingredients with one another and the added effects of physical procedures on the end product. Students develop advanced scientific methodologies to give reproducibility. This is a recommended unit for those intending to advance in the areas of recipe development and new product development.

### 200589.1 Export Strategy and Applications

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Principles of international business including the dynamics of foreign business markets, international marketing and research methods, comparative global economics, international corporate finance and strategy. The basics of economics, accounting, law, statistics and business communications are also assumed.

#### Prerequisite

**200591.1** Introduction to International Business

#### Equivalent Units

61126 - International Business Project 2

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Internationalisation has become a strategic necessity for many firms wishing to survive and grow in today's increasingly competitive domestic economy. Globalisation in its many forms is a powerful driver of change. 'Export Strategy & Applications' will give students the practical skills needed to manage the day to day international trading activities of any company. This unit examines how and why exporting firms select and plan their entry into foreign markets, the management of intermediaries in the distribution channel, ways of promoting goods and services overseas, and the methods of trade finance, insurance and logistics that companies use on a daily basis as they pursue success internationally. This unit provides students with those essential skills sought by any employer company operating in international markets.

### 300507.1 Extended Computing Project 1

**Credit Points** 20 **Level** 3

#### Incompatible Units

300097 - Computing Project 1

#### Special Requirements

All students must have completed 160 credit points, including an Analysis and Design unit, a Programming unit and a Database unit. Students must have passed two units from the following: 300104 Database Design and Development OR 300131 Introduction to Analysis and Design OR 300404 Formal Software Engineering. Plus one unit from the following: 300156 Programming Principles 2 OR 300167 Systems Programming 1.

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This unit is the culmination and application of knowledge a student will have gained as part of their studies to date. The projects are undertaken within a team environment and are to provide solutions for real computing problems sourced from main ICT vendors, governmental departments and other relevant businesses. The problems will apply to a wide range of fields including but not limited to: computer science, computer forensics, e-Business, information systems, games and editors, e-Health, e-Government and e-Voting, biomedical applications, e-Learning and PDA, mobile and wireless technologies, latest technologies and service-oriented architectures (SOA). The group will follow established software engineering methodology in all stages of the design and implementation of project, including

elements of project management, version control and required documentation. The focus of the unit is the delivery of a software product of a marketable quality, including complete technical documentation and user manuals.

### **300508.1 Extended Computing Project 2**

**Credit Points** 20 **Level** 3

#### **Prerequisite**

**300507.1** Extended Computing Project 1

#### **Incompatible Units**

300098 - Computing Project 2

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Extended Computing Project 2 builds on the experience gained in Extended Computing Project 1 (ECP1), which is its prerequisite unit. As in ECP1, the projects are undertaken within a team environment. This unit will maintain the range and scope of ECP1, but it will allow the students to further refine the projects undertaken as well as add to them the elements of research and innovation. Note: For those degrees where 300098 Computing Project 2 is a core unit, students will be able to complete the new extended unit as an alternative. Both units will be mutually exclusive, i.e. do not count for credit with one another.

### **300415.1 Fabrication of Nanostructured Devices**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Chemistry 1 and Chemistry 2. Biology 1 and Nanotechnology 2. Applied Instrumentation in Nanotechnology. Organic Chemistry 2

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This unit deals with methods of synthesising and assembling nanostructures (eg rotaxanes and catenanes) and spectroscopic techniques used to characterise their composition and structure. The students will learn about the functional groups and their applications such as wiring molecular components to a frame. These molecules will act as moving components in nanomachines, molecular switches, prodders, chemical rotors, paddles, gears, molecular brakes and molecular shuttles. The movements are controlled and driven by pH of the medium, introduction of metal ions, light and electron potential. Case studies on evolution of nanodevices from concept to commercialisation will also be pursued in this unit.

### **400760.2 Family Health Care: Child and Adolescent Nursing**

**Credit Points** 10 **Level** 2

#### **Incompatible Units**

400408 - Child and Family Health, 400643 - Child and Family Health Practice

#### **Special Requirements**

Students must be enrolled in the Bachelor of Nursing or the Bachelor of Early Childhood Studies (Child and Family).

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This unit explores physical, social, political and community issues which impact on the health of children, adolescents and families. The knowledge gained will be appropriate for working with children and families within a hospital or community setting. The promotion of health and prevention of illness underpins this unit.

### **400763.2 Family Health Care: Chronicity and Palliative Care Nursing**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Completion of all Year 1 and Year 2 Nursing units

#### **Prerequisite**

**400753.1** Medical-Surgical Nursing 1 AND **400757.1** Medical-Surgical Nursing 2

#### **Equivalent Units**

400065 - Nursing Therapeutics 10

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This unit engages students in the assessment, planning, implementation and evaluation of professional nursing care for those individuals and their families living with a chronic illness and those dying from a life threatening illness.

### **400756.2 Family Health Care: Health Issues and Australian Indigenous People**

**Credit Points** 10 **Level** 2

#### **Special Requirements**

Students must be enrolled in the Bachelor of Nursing or the Bachelor of Nursing (Graduate Entry).

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This unit provides the student with opportunities to investigate and discuss health issues as they relate to Aboriginal and Torres Strait Islander Peoples.

### **400761.2 Family Health Care: High Acuity Nursing**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Completion of all Year One and Year Two Nursing units.

#### **Prerequisite**

**400753.1** Medical-Surgical Nursing 1 AND **400757.1** Medical-Surgical Nursing 2

#### **Equivalent Units**

400062 - Nursing Therapeutics 9

#### **Special Requirements**

Special Requirements are those stipulated by the NSW Health and UWS. At present these include: Prohibited Employment Declaration (PED), Criminal Record Check (CRC), Adult Health Immunisation and Workcover accredited Senior First Aid Certificate.

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This unit will elaborate and consolidate mechanisms of health breakdown and complex nursing concepts and



professional nursing practices that promote, maintain and support health and wellness. The focus is on providing professional nursing care of people who are experiencing acute, profound physiological, psychosocial and spiritual health breakdown.

### **400767.2 Family Health Care: Older Adult Nursing**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Knowledge and skill gained in Years 1 and 2 of a nursing degree.

#### **Prerequisite**

**400753.1** Medical-Surgical Nursing 1 AND **400757.1** Medical-Surgical Nursing 2

#### **Equivalent Units**

400644 - Gerontic Practice

#### **Special Requirements**

Special Requirements are those stipulated by the NSW Health and UWS. At present these include: Prohibited Employment Declaration (PED), Criminal Record Check (CRC), Adult Health Immunisation and Workcover accredited Senior First Aid Certificate.

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The health and wellbeing of older people reflect their genetic inheritance, the environment, lifestyle choices and a complex set of developmental experiences upon which individuals, groups and socio-political influences have impinged. Nevertheless, being or becoming 'old' is only one part of a person's life experience. Thus, in order to understand 'being old', we need to have knowledge of such influences and experiences. By promoting the health and therefore the potential of people, nurses have the opportunity to be in the forefront of health care. This opportunity places nurses in a position to intervene therapeutically in the lives and upon the lifestyles of older people by working with individuals and groups to facilitate healthy aging and by promoting positive attitudes towards ageing and older people.

### **400855.1 Family Health Care:Chronicity and Palliative Care Nursing (Advanced)**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Completion of all Year 1 and Year 2 Nursing units.  
Completion of all Year 2 Bachelor of Nursing (Advanced) units.

#### **Prerequisite**

**400753.1** Medical-Surgical Nursing 1 AND **400825.1** Medical Surgical Nursing 2 (Advanced)

#### **Incompatible Units**

400763 - Family Health Care: Chronicity and Palliative Care Nursing

#### **Special Requirements**

Restrictions on clinical practicum placements students must be enrolled in the Bachelor of Nursing (Advanced) and meet special requirements for safety and professional

issues when dealing with the public. Special Requirements are those stipulated by the NSW Health and UWS. At present these include: Prohibited Employment Declaration (PED), Criminal Record Check (CRC), Adult Health Immunisation and Workcover accredited Senior First Aid Certificate.

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This unit engages students in advanced assessment, planning, implementation and evaluation of professional nursing care for those individuals and their families living with a chronic illness and those dying from a life threatening illness. The unit will enable the student to collaboratively work with medical students to apply nursing skills and critical thinking skills to the challenges of patients with chronic and life threatening illnesses. The unit will enable the student to undertake an advanced health assessment , apply critical thinking skills in nursing practice and to understand the impact of chronic and life threatening illness on the nurse, client and their family.

### **400854.2 Family Health Care:Health Issues and Australian Indigenous People (Advanced)**

**Credit Points** 10 **Level** 2

#### **Incompatible Units**

400756 - Family Health Care: Health Issues and Australian Indigenous People

#### **Special Requirements**

Restrictions on clinical practicum placements students must be enrolled in the Bachelor of Nursing (Advanced) and meet special requirements for safety and professional issues when dealing with the public. Special Requirements are those stipulated by the NSW Health and UWS. At present these include: • Prohibited Persons Employment Declaration (PPED) • Criminal Record Check (CRC) • Adult Health Immunisation • Workcover accredited Senior First Aid Certificate

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This unit version replaces version 1 from 2010. This unit provides the student with opportunities to investigate and discuss health issues as they relate to Aboriginal and Torres Strait Islander Peoples. Further, this unit will enable the student to understand the role of the nurse in health promotion programs for Indigenous and/or Torres Strait Island people.

### **300504.1 Fermentation Science**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Basic sciences with a sound knowledge of microbiology

#### **Prerequisite**

**300300.1** Microbiology 1 OR **300321.1** Microbiology 2

#### **Equivalent Units**

MI304A - Fermentation Practicum

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Fermentation forms an essential component of most biotechnological processes. From the standpoint of biotechnology, it is used to describe any process for the

production of a product/service by the culture of microorganisms. This unit will cover the principles, applications, current status and new developments in fermentation science. It will provide an understanding of the different stages involved in a fermentation process, starting from the isolation of a desired organism through to the recovery of a product. The different modes of fermentation will also be dealt with. The applications will focus on commercial fermentations.

### 300659.1 Field Project 1

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Progression requirements met for Bachelor of Natural Science undergraduate Level 1 and Level 2 units.

#### Equivalent Units

AG301A - Agricultural Systems Project, 300420 - Animal Systems Project, 300286 - Environmental Practice 1

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This unit requires students to initiate a major project with clients from industry, research organizations or public utilities associated with the professional practice domains of the natural sciences. The project work includes a number of activities (eg developing project proposal and methodology etc) negotiated with the client and will draw together all of the previous learning in the B. Nat Sci./BSc. The project will entail interdependent relationships with the client, staff supervisor and other resource people and will involve the full range of project management skills. Students will be required to demonstrate their capacity to implement the project by production of a literature review and detailed project proposal. This subject prepares students for 300660 Field Project 2 which focuses on students putting their knowledge into action in a professional setting.

### 300660.1 Field Project 2

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Progression requirements met for Bachelor of Natural Science undergraduate level 1 and level 2 units.

#### Prerequisite

**300659.1** Field Project 1

#### Equivalent Units

AG301A - Agricultural Systems Project, 300420 - Animal Systems Project, 300286 - Environmental Practice 1

.....

This unit requires students to undertake a major project with clients from industry, research organizations or public utilities associated with the professional practice domains of the natural sciences. The project work includes a number of activities developed in 300659 Field Project 1. The project will entail interdependent relationships with the client, staff supervisor and other resource people and will involve the full range of project management skills. Students will be required to demonstrate their capacity to implement the project by production of a major report and seminar. The unit places a heavy emphasis on continued development of professional competency in preparation for students to enter the workforce.

### 200111.1 Financial Accounting Applications

**Credit Points** 10 **Level** 1

#### Prerequisite

**200101.1** Accounting Information for Managers OR **200103.1** Accounting Reports and Decisions

#### Equivalent Units

AC105A - Finance and Accounting, AC103A - Introductory Financial Accounting, H2818 - Financial and Management Accounting II, 61111 - Introductory Financial Accounting

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This unit gives students the practical skills necessary to analyse the accounting transactions of an entity and then be able to measure and record these transactions in a systematic manner for the preparation of accounting reports to external users.

### 200059.1 Financial Economics

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200052 - Introduction to Economic Methods (or equivalent).

#### Prerequisite

**200046.1** Microeconomics AND **200488.1** Corporate Financial Management

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This unit provides students with a unifying theoretical perspective on the most important concepts in the field of finance. The presentation is rigorous and students develop their ability to critically evaluate the principal theoretical results in the finance literature.

### 200048.1 Financial Institutions and Markets

**Credit Points** 10 **Level** 1

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The investment, financing and risk management decisions that all firms make are implemented by creating and trading financial instruments in financial markets, often with the involvement of a variety of institutions. Using the Australian financial system as an illustration, this unit introduces students to the theory and functions of financial intermediaries and the operation of financial systems. Students also develop an understanding of the role and functions of markets in equities, debt, foreign exchange, options and futures, and theories of interest rate determination and the term structure of interest rates.

### 300648.1 Food and Pharmaceutical Biotechnology

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Sound knowledge of microbiology, biochemistry and basic biotechnology. Laboratory skills in microbiology and biochemistry.

#### Equivalent Units

MI305A - Food and Pharmaceutical Biotechnology

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This unit provides an understanding of the principles and applications of biotechnology specifically related to the fields of foods and pharmaceuticals, and shows how the concepts in biotechnology are used in these fields. It also gives an overview of the current status of biotechnology in these areas.

### **300636.1 Food Processing and Analysis**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Knowledge equivalent to successful completion of 300498 - Food Science 1 and 300499 - Food Science 2.

#### **Equivalent Units**

FS215A - Food Science and Technology 2.2

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This subject is aimed at developing an understanding of the processing of food, in particular the chemical, physical, functional and processing requirements of properties of cereal, meat and dairy foods. Aspects of food additives and modifying agents and their functions in processed food will also be covered. Basic concepts of chemical and physical analysis of foods, construction of nutrient panels, and methods for sensory analysis of foods. These concepts will be related to food manufacturing requirements and processes.

### **300637.1 Food Product Development Practicum**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Knowledge gained from previous units studied, particularly Food Science principles, Nutrition, Food Science and Technology, Food Engineering, Chemistry, Physics and Microbiology.

#### **Equivalent Units**

FS304A - Food Product Development Practicum 3.1

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This unit aims to allow students to work in a product development team as in industry. The entire process of product development includes: idea generation; collating market, technical and consumer information; consumer surveying to establishing need/desire for a new product; development processing, testing and evaluation, packaging; promotion and marketing. Students will develop a specialised knowledge of the total product development system with ability to design, conduct and analyse consumer surveys; develop product formulations and recipes with evaluation of sensory properties, nutritional composition and other functional attributes; design, organise and analyse sensory/acceptance/ performance during the development of the product.

### **300701.1 Food Quality Assurance**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Knowledge of food preservation, elementary HACCP.

#### **Equivalent Units**

300500 - Quality Assurance and Food Safety, FS326A - Food Science and Technology Practicum 3.2

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The goal of this unit is to integrate previous studies in food processing and food safety to develop an understanding of food quality assurance, good manufacturing practices and quality management systems as they are applied to the control and management of food production. Food laws, regulations and codes at State, National and International levels are covered. The unit includes aspects of elementary toxicology and risk analysis. The unit also includes a practical exercise of developing a HACCP plan for a food manufacturing process, and the implementation of quality management systems such as ISO 22000 to a food process.

### **300639.1 Food Safety**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Students are expected to have some basic knowledge of microbiology and chemistry.

#### **Equivalent Units**

FS323A - Food Safety A

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Food safety is rapidly evolving with the emergence of new food-borne diseases, changing patterns of disease, evolving approaches to risk analysis (based upon a solid scientific foundation and international harmonisation) and an emerging requirement that food producers, processors, handlers and consumers take shared responsibility for the safety of food within their care. The overall purpose of this unit is to equip students with the necessary skills to identify, evaluate and control food-borne hazards, and to enable those completing the unit to better protect the safety and quality of the food supply. This can be achieved by employing knowledge of regulatory requirements; food contamination; food spoilage agents and hazards; principles of good hygienic practice and preservation in food production, preparation and distribution; and other key elements of food safety.

### **300498.1 Food Science 1**

**Credit Points** 10 **Level** 1

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This unit will introduce students to food quality and safety, selected nutritional topics, food studies, as well as food tradition and culture. Students will gain an appreciation of food composition and how it affects spoilage and food quality. They will be introduced to the prerequisite program (PRP) as used as part of HACCP. Understanding of the cultural significance of food, of eating, looking widely at society and the attitudes of, and circumstances which surround, its consumption.

### 300499.1 Food Science 2

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Basic knowledge of food composition.

#### **Equivalent Units**

FS109A - Food Science & Technology Practicum 1.2

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This unit will introduce students to food components (water, proteins, lipids and carbohydrates) and their importance to quality and nutrition. Chemical and physical methods of food preservation will be covered, as well as unit operations (concentration drying, freezing and heat treatment). Students will undertake a literature based HACCP exercise.

### 300377.1 Forensic Analysis of Physical Evidence

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Successful completion of at least one first year undergraduate chemistry unit.

#### **Special Requirements**

Students must be enrolled in 3589 Bachelor of Science (Forensic Science).

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'Physical Evidence' is tangible evidence left at crime scenes and/or found on suspects, which is in some way related to a criminal incident and links or eliminates suspects to these activities. Examples of physical evidence include; glass fragments, hairs and fibres, paint chips, fingerprints, footwear impressions (footprints), biological material (blood, semen etc), narcotics, toolmarks, tape comparison, explosive residue, GSR (gun shot residue) and others. This unit explores the processes required for the analysis of physical evidence and combines analytical and physical comparative examination methodologies. Students will use these methods to examine; the chemical composition of trace evidence and identify unique physico-chemical markers, the detection of chemical residues and biological material, physical comparison of suspect and exemplar items such as footwear impressions and toolmarks left at the crime scene, and the comparison of paint chips, glass fragments, hairs and fibres. Students will explore these methodologies using practical case studies and will be required to present their evidence/findings at the completion of the unit.

### 300493.1 Forensic and Environmental Analysis

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Knowledge of general chemistry equivalent to satisfactory completion of Chemistry 1 and Chemistry 2.

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This unit extends the student's knowledge and understanding of analytical instrumentation that is relevant to forensic investigations and analysis in the environmental

and food sciences. It will provide an understanding of the chemical and physical principles underlying the utilisation of instrumentation in chemical analysis. Topics include principles of spectroscopic techniques separation methods; sample collection and storage; presumptive testing; an extended range of modern chemical instrumentation including gas and liquid chromatography; atomic spectroscopy; mass spectroscopy; x-ray methods and spectroscopic methods.

### 300378.1 Forensic Archaeology

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Knowledge of general aspects of recording and crime scene documentation, 300375 Digital Forensic Photography 1, 300374 Crime Scene Analysis and 300377 Forensic Analysis of Physical Evidence.

#### **Special Requirements**

Students must be enrolled in 3589 Bachelor of Science (Forensic Science).

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This unit provides an understanding of the processes of locating, recovering and undertaking scientific examination of material remains as part of a forensic investigation. The unit will place particular emphasis on the decay processes affecting such material recovered from buried environments and the importance of scientific excavation and recovery in any investigative study undertaken on the material. Students will investigate a number of case studies of the successful use of forensic archaeology, as well as learning the dangers that can befall an investigation that does not take sufficient account of diagenetic changes affecting material remains once buried.

### 300494.1 Forensic Chemistry

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Knowledge of general and analytical chemistry equivalent to satisfactory completion of Chemistry 1, Chemistry 2 and a second year analytical chemistry unit.

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This unit extends the student's knowledge and understanding of chemical topics that are relevant to forensic investigations and provides a deeper understanding of the underlying chemical and physical principles. Topics are taught in the context of the correct principles and procedures for collecting and conserving evidence and the safe handling of chemical substances. Topics include an extended range of modern chemical instrumentation; the chemistry and analysis of various classes of drugs; clandestine drug laboratories; fire, arson and accelerants; explosions and explosives; chemical and biological warfare agents.

### 300654.1 Forensic Science

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Basic academic skills, including the ability to write essays in English at a level appropriate to a first-year undergraduate student.

#### Equivalent Units

SC103A - Forensic Science

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This unit aims to give students a basic understanding of scientific methodology as it applies to the collection, analysis and interpretation of forensic evidence. Students are introduced to a range of analytical methods that are used with various types of forensic evidence, and these are discussed in relation to case studies. The role of human factors is discussed, together with the importance of critically evaluating forensic evidence and the means by which it was obtained.

### 300121.1 Formal Languages and Automata

**Credit Points** 10 **Level** 3

#### Prerequisite

**200025.1** Discrete Mathematics

#### Equivalent Units

14948 - Formal Languages and Automata, 14909 - Formal Languages and Automata

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Three abstract models of computation are studied in this unit. The first is the finite automaton, together with regular languages and regular expressions. The second is the pushdown automaton, together with the associated languages and grammars. The third is the Turing machine. This allows study of the power of computers in general and their limitations, in particular situations: it is shown that there are problems for which there is no algorithmic solution. This unit explores the application of formal languages in the design of compilers and text processors.

### 300404.1 Formal Software Engineering

**Credit Points** 10 **Level** 3

#### Prerequisite

**200025.1** Discrete Mathematics AND **300103.1** Data Structures and Algorithms

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This unit is concerned with the design, development and post-delivery maintenance of software systems. The unit pays special attention to requirements engineering, formal specification techniques and design methodologies. The B-method is used to produce consistent, re-usable specifications and develop code that is both efficient and correct.

### 300485.1 Foundation Engineering

**Credit Points** 10 **Level** 3

#### Prerequisite

**85012.1** Soil Engineering

#### Equivalent Units

85017 - Foundation and Drainage

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This unit will present the application of principles of soil mechanics to the solution of foundation and geotechnical problems including the evaluation of allowable bearing capacity of shallow and pile foundations, the stability of earth retaining structures and stability of slopes.

### 400861.1 Foundations of Medicine 1

**Credit Points** 80 **Level** 1

#### Assumed Knowledge

Year 12 Chemistry.

#### Special Requirements

Students will have completed a Prohibited Employment Declaration, undergone state and national Criminal Record Check, have completed a WorkCover accredited Senior First Aid Certificate and have an up to date Adult Vaccination Record. Students must also sign a declaration that they understand and comply with: - Infectious Diseases Policy - Health Records and Information Privacy Act (HRIPA), 2002 - UWS' submitting their details to the NSW Medical Board

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Students must be enrolled in 4641 Bachelor of Medicine, Bachelor of Surgery. The major objectives are to gain an integrated understanding of the structure and function of the human body. This will be addressed at the levels of organ systems, tissues, cells and molecules. The scientific basis of the following topics will be discussed: whole body organisation including basic anatomy, roles of the major organ systems, functional organisation of cells and their specific organelles, characteristics of specialised cells, structure-function characteristics of major biological molecules including carbohydrates, lipids, proteins, enzymes and DNA, the biochemical basis of complex processes such as homeostasis, reproduction and inheritance, growth and development, defence against infectious agents, pathological changes, ageing and death. The course then examines nutrition and metabolism before exploring the structure, function and pathology of the gastrointestinal system (including liver), cardiovascular system and respiratory system. The students will also explore the complexity of medical practice and areas from doctor/patient interaction to an examination of the health care system. A particular focus will be the communities that make up Greater Western Sydney. Topics covered include: communication skills, patient history and examination, ethics, psychosocial aspects of medicine, impacts of gender, culture and deprivation on health and medical care, professionalism, population health and evidence based medicine.

### **400862.1 Foundations of Medicine 2**

**Credit Points** 80 **Level** 2

#### **Prerequisite**

**400861.1** Foundations of Medicine 1

#### **Equivalent Units**

400739 - Scientific Basis of Medicine 2, 400740 - Health Practice 2

#### **Special Requirements**

Students will have completed a Prohibited Employment Declaration, undergone state and national Criminal Record Check, have completed a WorkCover accredited Senior First Aid Certificate and have an up to date Adult Vaccination Record. Students must also sign a declaration that they understand and comply with: - Infectious Diseases Policy - Health Records and Information Privacy Act (HRIPA), 2002 - UWS' submitting their details to the NSW Medical Board

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Students must be enrolled in 4641 Bachelor of Medicine, Bachelor of Surgery. The major objectives are to gain an integrated understanding of the structure and function of the human body. This will be addressed at the levels of organ systems, tissues, cells and molecules. The scientific basis of the following topics will be discussed: renal system, musculoskeletal system, neuroscience, reproduction and development, endocrinology, infectious disease and cancer. The students will continue their exploration of the complexity of medical practice and areas from doctor/patient interaction to an examination of the health care system. A particular focus will be the communities that make up Greater Western Sydney. Topics covered include: communication skills, patient history and examination, ethics, psychosocial aspects of medicine, impacts of gender, culture and deprivation on health and medical care, professionalism, population health and evidence based medicine.

### **400863.1 Foundations of Research and Evidence-Based Practice**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

400137 - Introduction to Research for Health Sciences

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This unit will consider the reasons and roles of evidence-based practice and research, and introduce students to their language and core concepts. Skills will be developed for asking clinical or professional healthcare questions and to translate these into search strategies for finding evidence. To make sense of that evidence, students will be introduced to quantitative and qualitative research methods, types of data, how data is described and how biostatistics is used to provide meaning to research data.

### **700064.1 Foundations of Research and Evidence-Based Practice (UWSC)**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

400863 - Foundations of Research and Evidence-Based Practice

#### **Special Requirements**

This unit is only available to UWS College students.

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This unit will consider the reasons and roles of evidence-based practice and research, and introduce students to their language and core concepts. Skills will be developed for asking clinical or professional healthcare questions and to translate these into search strategies for finding evidence. To make sense of that evidence, students will be introduced to quantitative and qualitative research methods, types of data, how data is described and how biostatistics is used to provide meaning to research data.

### **300606.1 Foundations of Statistical Modelling and Decision Making**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

200192 - Statistics for Science, or 200032 - Statistics for Business or 200263 - Biometry

#### **Equivalent Units**

J2781 - Statistical Theory, 200034 - Statistical Theory

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This Level 2 unit completes an introduction to the basic principles and concepts of statistics. There are two strands to the subject: distribution theory and statistical inference. The aim of the unit is to present a solid foundation in statistical theory and to provide an understanding of the relevance and importance of the theory in solving practical problems in the real world. The theoretical basis of the dual arms of classical statistical inference (estimation and hypothesis testing) is discussed relating the probabilistic half of the course to the final objective - inference.

### **400962.1 Foundations of Wellbeing**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

100663 - Foundations of Wellbeing

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Whereas health is commonly understood in terms of objective signs and symptoms (or their absence), wellbeing emphasizes subjective experience in the context of social and environmental factors that may support or impede a personal sense of wellbeing. This unit approaches wellbeing through a self-investigatory and reflective model that seeks to integrate systemic analysis of the individual, social, emotional, environmental and spiritual aspects of health and wellbeing in a personally meaningful way. Consideration of how issues of social justice and equity have differential impacts on both individuals and

communities, and develop frameworks for taking personal and social action to enhance wellbeing.

### 400734.1 Functional Analysis

**Credit Points** 10 **Level** 2

#### Special Requirements

This is a specialist professional unit for occupational therapy practice so is not suited to students from other programs. Enrolment is restricted to students enrolled in 4520 - Bachelor of Applied Science (Occupational Therapy) and 4521 - Bachelor of Applied Science (Honours) Occupational Therapy.

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In 2011 this unit is being replaced by 400908 - People, Environment and Occupations. The ability to analyse human movement and occupations is essential for occupational therapy practice. In this unit, students will be introduced to the principles of biomechanics and kinesiology necessary for the understanding and analysis of human movement, functional activities and occupations. Students will demonstrate the ability to set goals, describe appropriate interventions and outcome measures to use with clients.

### 400881.1 Functional Anatomy

**Credit Points** 10 **Level** 1

#### Prerequisite

**400868.1** Human Anatomy and Physiology 1

#### Equivalent Units

400134 - Human Medical Sciences 3

#### Incompatible Units

300319 - Introduction to Human Anatomy and Histology, 300320 - Introduction to Human Physiology, 400256 - Human Medical Sciences 2

#### Special Requirements

This unit is only available to students enrolled in courses 4658 - Bachelor of Health Science (Sport and Exercise Science), 4662 - Bachelor of Health Science/Master of Physiotherapy, 4663 - Bachelor of Health Science/Master of Occupational Therapy and 4668 - Bachelor of Health Science (Honours)/Master of Physiotherapy.

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This unit covers in depth the functional anatomy of the musculoskeletal system. Special attention is given to the relationship between form and function, the terminology used to describe human movement and thorough knowledge of the bony landmarks, joints, muscle attachments, innervation, blood supply along with detailed actions of specific muscles and muscle groups. Emphasis is on a practical functional context with the relevance to clinical applications such as surface and imaging anatomy, and the anatomical basis of common injuries. Learning experience intends to stimulate proactive deep approach in learning anatomy motivated by the outcomes driven from specialist work within the Health professions.

### 400880.1 Fundamentals of Exercise Science

**Credit Points** 10 **Level** 1

#### Equivalent Units

400802 - Professional Practice of Sport Exercise Science

#### Special Requirements

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science) or 4659 - Bachelor of Health Science (Personal Development, Health and Physical Education).

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This unit is designed to provide fundamental basic science and sport and exercise science content, with the intent to prepare the students for the more advanced scientific applications to the study and research of the sport and exercise sciences. Students will be exposed to computer software applications to aid data processing used in the sport and exercise sciences, with special applications to fields such as biomechanics, exercise physiology, motor learning, skill acquisition and sport psychology. In addition, students will be exposed at the introductory level to principles of cycle ergometry, treadmill exercise, and resistance training.

### 700073.1 Fundamentals of Exercise Science (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

400880 - Fundamentals of Exercise Science

#### Special Requirements

Only UWSCollege students in the Diploma of Health Science (PDHPE stream) can take this unit unless specific permission has been granted by the School of Biomedical and Health Sciences.

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This unit is designed to provide fundamental basic science and sport and exercise science content, with the intent to prepare the students for the more advanced scientific applications to the study and research of the sport and exercise sciences. Students will be exposed to computer software applications to aid data processing used in the sport and exercise sciences, with special applications to fields such as biomechanics, exercise physiology, motor learning, skill acquisition and sport psychology. In addition, students will be exposed at the introductory level to principles of cycle ergometry, treadmill exercise, and resistance training.

### 200191.3 Fundamentals of Mathematics

**Credit Points** 10 **Level** 1

#### Incompatible Units

200195 - Mathematical Methods A; 200196 - Mathematical Methods B; 14505 Engineering Mathematics 1; 200031 - Mathematics for Business; 200237 - Mathematics for Engineers 1; 200189 - Concepts of Mathematics; 300672 - Mathematics 1A; Mathematics 1B

### Special Requirements

Permission required for students enrolled in course code 3562 Bachelor of Science (Advanced).

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This unit is designed to assist in the transition from secondary school mathematics to university first year level mathematics, and gradually bring students to the required standard. It provides a sound foundation in basic mathematical tools in the areas of algebra, trigonometry, probability and calculus, which are particularly relevant to first year mathematics and statistics core subjects. The algebra section revises basic arithmetic manipulation before introducing functions, polynomial, logarithmic and exponential functions, solving equations, matrix manipulation and applications. The probability section covers basic concepts of probability, including permutations, combinations and probability calculations. The trigonometry section introduces the concept of angles, trigonometric functions and their fundamental identities. The calculus section includes limits, differentiation, maximum and minimum values, graphing and integration. These mathematical methods and simple concepts are illustrated using practical examples derived from many different subject areas. Students entering without assumed knowledge of HSC Mathematics are advised to take this unit as an elective.

### 300463.1 Fundamentals of Mechanics

**Credit Points** 10 **Level** 1

#### Equivalent Units

300063 - Statics and Materials

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This unit deals with the action and interaction of forces, moments and couples in two and three dimensions, on machine elements and simple structures. It examines the equilibrium of single bodies, of multi-body structures and of mechanisms. It then covers the dynamics of a particle. A systematic approach to solving practical engineering design problems is provided. The unit makes extensive use of vector algebra.

### 700023.1 Fundamentals of Mechanics (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

300463 - Fundamentals of Mechanics.

#### Special Requirements

Students must be enrolled at UWS College.

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This unit deals with the action and interaction of forces, moments and couples in two and three dimensions, on machine elements and simple structures. It examines the equilibrium of single bodies, of multi-body structures and of mechanisms. It then covers the dynamics of a particle. A systematic approach to solving practical engineering design problems is provided. The unit makes extensive use of vector algebra.

### 300491.1 Games Technology

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

A basic understanding of the principles of programming equivalent to Programming Principles 1.

#### Incompatible Units

300162 - Client Server Applications

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This unit provides an introduction to the game industry as well as introducing students to the techniques of game design and construction. Students will be exposed to the history of game development and the key aspects of different genres of computer games.

### 300492.1 Games Theory and Design

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Understanding of programming concepts and details of programming in C++, knowledge of systems analysis methods including object orientated analysis and design.

#### Prerequisite

**300491.1** Games Technology

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This unit provides students with an in-depth understanding of the development and structure of games engines. It provides students with a unifying overview of the many modules that are incorporated in a games engine as well as a detailed examination of game-play and engine programming.

### 300227.1 General Biochemistry

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Chemical bonding, including covalent, hydrogen and ionic bonds and hydrophobic interactions; properties of water, acids, bases and buffers; structure of common functional groups; stereoisomerism; principles of chemical reactions.

#### Prerequisite

**300224.1** Chemistry 1 OR **300225.1** Chemistry 2

#### Equivalent Units

BC201A - Biochemistry 2.1

#### Incompatible Units

300219 - Biochemistry 1, 300220 - Biochemistry 2, 300548 - Human Metabolism and Disease, 300555 - Proteins and Genes

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This unit builds on previous knowledge gained in Level 1 Chemistry and Biological Sciences. The overall aim of this unit is to demonstrate how understanding of the molecular basis of living cells is relevant to an understanding of a range of applied sciences, including medicine, food science, pharmaceuticals, nutrition, genetic engineering, health, hybridoma technology, horticulture enzyme



technology, toxicology and the biological sciences in general. The major themes of the unit include the structure, nature, properties and function of important classes of biological molecules such as proteins, nucleic acids, sugars and fats in living systems: plants, animals and bacteria.

### 300331.2 General Microbiology

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

A knowledge of introductory biology, especially an understanding of the diversity of living organisms and basic concepts of cell structure and function is essential for students undertaking this unit. The unit assumes that students are familiar with basic biological laboratory techniques such as use of the light microscope. This is taught in Biology 1.

#### Prerequisite

**300221.1** Biology 1 OR **300222.1** Biology 2 OR **300543.1** Cell Biology OR **BI107A.1** Biological Sciences 1.1 (X) OR **300539.1** Biodiversity

#### Corequisite

**BI107A.1** Biological Sciences 1.1 (X)

#### Incompatible Units

300300 - Microbiology 1, MI104A - Microbiology 1.1

#### Special Requirements

Only students in courses 3569 - Bachelor of Applied Science (Environmental Health) and 405A - Bachelor of Applied Science (Environmental Health) may use BI107A - Biological Sciences 1.1 (X) as a co-requisite.

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This is a unit in general microbiology designed for students in Applied Science and Natural Science degrees. It builds on students' existing knowledge of cell biology and biodiversity, and provides an overview of the nature of micro-organisms and their significance. The unit emphasises the role of micro-organisms in environments such as water, soil, animals and plants, as well as in foods, industry and waste treatment. The unit focuses on the applications of microbiological concepts in these applied areas.

### 300623.1 Genetics

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Sound knowledge of undergraduate Level 1 biology.

#### Equivalent Units

BI201A - Genetics 2.2

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The scientific study of heredity is called genetics. This unit is designed to introduce the student to a wide range of genetic concepts. To begin, the principles of heredity will be introduced. The student will investigate the nature and organisation of heredity; the various levels and mechanisms of expression of inheritance, the basis of variation within populations; and the genetic basis of biological evolution. Modern genetics underlies such diverse fields of study as biotechnology, agriculture, plant

and animal breeding, biodiversity and ecosystem management, and accordingly the unit will include a series of case studies that demonstrate the importance and diversity of genetics as a discipline.

### BI201A.1 Genetics 2.2

**Credit Points** 10 **Level** 2

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In 2009 this unit replaced by 300623 - Genetics. The scientific study of heredity is called genetics and this unit is designed to introduce the student to a wide range of genetic concepts. To begin, the principles of heredity will be introduced. The student will investigate the nature and organisation of heredity; the various levels and mechanisms of expression of inheritance, the basis of variation within populations and the genetic basis of biological evolution. Modern genetics underlies such diverse fields of study as biotechnology, agriculture, plant and animal breeding, biodiversity and ecosystem management and accordingly, the unit will include a series of case studies that demonstrate the importance and diversity of genetics as a discipline.

### 300612.1 Geochemical Systems

**Credit Points** 10 **Level** 2

#### Prerequisite

**300224.1** Chemistry 1 AND **300225.1** Chemistry 2

#### Equivalent Units

14510 - Geochemical Systems

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This unit covers selected topics taken from the following list: limits of chemical conditions in the natural environment (redox, pH, concentrations); mobilisation and transport of selected elements in primary and secondary environments – aqueous and supercritical fluids, gases; complexing and ion-pairing phenomena; metal ions buffers in geochemical cycles – adsorption, co-precipitation, mineral formation; dispersion of elements in the weathering environment.

### 200667.1 Global Enterprise Resource Planning

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students are expected to have gained an introductory level of knowledge in operations and supply chain management.

#### Equivalent Units

200476 - Materials Management And Distribution (ERP), 200552 - Global Materials Management and Distribution (ERP)

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Global Enterprise Resource Planning (ERP) provides students with the knowledge and skills required in understanding broader concepts of managing within ERP system environments. Students are introduced to data, organisational structure, logistics and supply chain related processes and the role of enablers in understanding global logistics operations. Global ERP equips the students with basic decision-making tools, techniques and concepts. It

also illustrates how technology can be utilised to better manage logistics across global supply chain with emphasis on the effective use of data and information, coordination and integration of cross functional activities and processes towards achieving best practice performance levels.

### **200588.1 Global Operations and Logistics Management**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Students are expected to have gained an introductory level of knowledge in operations and supply chain management.

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Global Operations and Logistics Management is an expansive unit designed for students interested in the organisational processes undertaken in providing products and services to customers. A range of tactical and strategic considerations are investigated to help students understand the role of global operations and logistics within an organisational context. The unit covers internal activities of manufacturing and service organisations. A range of quantitative tools and techniques that support managerial decision making involving trade-offs, priorities and choices are introduced. While the latest trends in logistics and operations management are also reviewed.

### **200677.2 Global Supply Chain Management**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

200555 - Global Warehousing and Transport Management, 200642 - Global Logistics and Supply Chain Management, 200477 - Warehousing and Transport Management

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This contemporary unit focuses on the importance of supply chain management in the success and profitability of organisations. Supply chain management is defined theoretically and practically, with critical issues in designing a global supply chain network discussed. Several case studies enabling students to understand issues within supply chain management are discussed throughout, covering areas such as collaboration, transport, warehousing and the various relationships within the supply chain.

### **200533.1 Globalisation and Asia**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

200525 - Principles of Economics

#### **Equivalent Units**

200067 - Asian Economies

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This unit aims to examine the role of the diverse economies of East Asia, Southeast Asia, and South Asia in the Global economy, and the complex economic, historical, political, social and cultural factors which have influenced and continue to shape the transformation of these economies. The unit will evaluate alternative development paradigms in light of the experience of these economies. The discussion

will be cast within the wider debate about the role of foreign trade and investment flows. The unit will take the political economy approach to understanding both the transformation of these economies and their role in the Global Economy.

### **200541.1 Globalisation and Trade**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

200525 - Principles of Economics

#### **Equivalent Units**

200071 - International Trade Theory and Policy

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This unit introduces students to the history and analytical methods of international trade theories and their applications. The theories are applied to contemporary issues in their institutional settings, in particular to: growth and development; economic integration and trading blocs; and the transformation of formerly planned economies as participants in global market structures.

### **200532.1 Government and the Economy**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

200525 - Principles of Economics, 200549 - The Australian Macroeconomy

#### **Equivalent Units**

200063 - Public Finance

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This unit focuses on the nature of state activity in the economy. The unit introduces students to different analytical approaches to the economic role of the state and considers their practical implications for economic policy analysis.

### **300729.1 Graphic Communication and Design**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

BG105A - Graphic Design and Communication

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This unit is designed to provide students with the knowledge and skills necessary to develop graphic communication, basic CAD skills and elementary design skills suitable for application within the building industry. Content: This unit provides students with an introduction to elements of graphic communication skills necessary to comprehend various building types in plan, section, elevation, isometric and perspective views. The unit also introduces students to basic CAD (Computer Aided Design and Drafting) concepts and skills. Students will also be required to develop appropriate analytical and problem solving skills in dealing with a realistic building project.

### 300467.1 Green Chemistry 1

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

This unit requires the basic grounding in the inorganic, physical and organic components of the first year Chemistry unit.

#### Prerequisite

**300224.1** Chemistry 1 OR **300469.1** Introductory Chemistry AND **85024.1** Introduction to Environmental Chemistry OR **300225.1** Chemistry 2

Green Chemistry is a new field that seeks to reduce the environmental consequences of chemical industry. It includes modifying engineering practices, the development of new catalytic processes, modification of existing chemical processes and bioremediation. The emphasis is on atom economy and the reduction of chemical resource and energy consumption at the source rather than subsequent pollution remediation. The practice of green chemistry as applied to aspects of analytical, biological, inorganic, organic and polymer chemistry in real-world cases will be investigated.

### 300468.1 Green Chemistry 2

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Completion of Year 1 chemistry and Analytical Chemistry 2. Some knowledge of environmental issues is desirable.

This unit covers measurement of water quality, water pollution, classification of water pollutants, water and waste water treatments, alkalinity and carbonate equilibria, complexation in natural waters, atmospheric chemistry and monitoring, environmental sampling, sample preservation and storage, soil and sediment chemistry, solid waste chemistry and approaches for prevention of pollution. This unit complements Green Chemistry 1, but does not follow directly on from it.

### 400896.1 Gymnastics and Dance

**Credit Points** 10 **Level** 3

#### Incompatible Units

100671 - Human Movement 5, 100672 - Introduction to Dance

Students will actively engage in a variety of dance styles and gymnastics movement experiences to develop their own composition and skill competencies and examine the elements of movement and composition that underpin these forms of physical activity. Development of student ability to plan and implement quality-learning experiences that will enhance enjoyment of these forms of physical activities will be an integral component of this subject.

### 400275.1 Health Planning Project

**Credit Points** 10 **Level** 3

#### Prerequisite

**400273.1** Health Politics, Policy and Planning

This unit applies the theoretical concepts introduced in the unit, Health Politics, Policy and Planning namely the conduct of a health review, needs analysis, priority determination, and strategic planning. The emphasis is on group experiential learning, developing analytical skills required for comprehensive assessment, planning, implementation and evaluation of health plans. The topics are selected from current health priority issues and represent a realistic exercise. Students, functioning as a working party, develop knowledge and skills in negotiation, group work, committee structure and functioning, consultation and research processes, planning process and report writing.

### 400966.1 Health Politics, Policy and Planning

**Credit Points** 10 **Level** 2

#### Equivalent Units

400273 - Health Politics, Policy and Planning

#### Special Requirements

Criminal Record Check and NSW Health Immunisations

The Australian health care system is highly complex, consisting of inter-related sub-systems and is influenced by the broader socio-political environment. It is essential that health professionals understand and consider the economic, political and social context within which health policy and planning occur, so that strategies and policies are developed which are economically and politically viable, as well as socially acceptable and responsive to the actual needs of the community. This unit aims to develop an understanding of the policy making and planning processes within this broad context and to introduce the theory and skills related to such activities.

### 400738.1 Health Practice 1

**Credit Points** 20 **Level** 1

#### Corequisite

**400737.1** Scientific Basis of Medicine 1

#### Special Requirements

Students must be enrolled in the course 4641 Bachelor of Medicine, Bachelor of Surgery. Students must have completed a Prohibited Employment Declaration; undergone a Criminal Record Check; have completed a WorkCover accredited Senior First Aid Certificate; and have an up to date Adult Vaccination Record. Students must also sign a declaration that they understand and comply with Infectious Diseases Policy, Health Records and Information Privacy Act (HRIPA) 2002; and UWS' submitting their details to the NSW Medical Board.

The corequisite for this unit is 400737 Scientific Basis of Medicine 1. Both units must be completed successfully in the same year, in order for you to progress to the next year of the course. If one unit is failed or if both are failed, you must repeat both together in your next year of enrolment. The practice of medicine occurs within a psychological, social and cultural context. Health Practice 1 explores the complexity of medical practice and covers areas from doctor/patient interaction to an examination of the health care system. A particular focus will be the communities that make up Greater Western Sydney. Topics covered include: Communication skills; Patient history and examination; Ethics; Psychosocial aspects of medicine; Impacts of gender, culture and deprivation on health and medical care; Professionalism; and Population health.

### **400784.1 Health Promotion Practice 1**

**Credit Points** 10 **Level** 3

**Prerequisite**

**400271.1** Introduction to Health Promotion

**Equivalent Units**

400274 - Advanced Health Promotion Practice

**Special Requirements**

Criminal Record Check and NSW Health Immunisations

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This unit builds on the knowledge gained in Essentials of Health Promotion. It provides the opportunity to apply health promotion theory to practical projects in the field related to current population health priorities, through 140 hours placement experience. It examines a range of political, social and economic issues and the way in which they impact on current health promotion practice. Working intersectorally, building capacity and applying best practice guidelines in the implementation of quality health promotion interventions is examined.

### **400784.2 Health Promotion Practice 1**

**Credit Points** 10 **Level** 3

**Prerequisite**

**400867.1** Approaches to Health Promotion

**Special Requirements**

Criminal Record Check and NSW Health Immunisations

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This unit version will commence from 2012. This unit builds on the knowledge gained in Approaches to Health Promotion. It provides the opportunity to apply health promotion theory to practical projects in the field related to current population health priorities, through 120 hours service learning experience. It is concerned with developing knowledge and skills related to needs analysis, prioritising, and awareness of core values and principles associated with health promotion practice.

### **400785.1 Health Promotion Practice 2**

**Credit Points** 10 **Level** 3

**Prerequisite**

**400271.1** Introduction to Health Promotion AND **400274.1** Advanced Health Promotion Practice

**Equivalent Units**

400274 - Advanced Health Promotion

**Special Requirements**

Criminal Record Check and NSW Health Immunisations

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This unit builds on the knowledge gained in Health Promotion Practice through web based teaching and 140 hours placement in the field. It provides the opportunity to develop higher order health promotion skills with practical projects in the field related to current population health priorities. It also examines community development strategies, capacity building approaches, social marketing and media through involvement in an extended placement. Furthermore, students gain project management skills.

### **400785.2 Health Promotion Practice 2**

**Credit Points** 10 **Level** 3

**Prerequisite**

**400867.1** Approaches to Health Promotion OR **400784.2** Health Promotion Practice 1

**Equivalent Units**

400276 - Community Development and Health

**Special Requirements**

Criminal Record Check and NSW Health Immunisations

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This unit version will commence from 2012. This unit builds on the knowledge gained in Health Promotion Practice 1 through continuing with phases necessary for project design and management health promotion. It provides the opportunity to apply health promotion theory to practical projects in the field related to current population health priorities, through 120 hours service learning experience. It is concerned with developing knowledge and skills related to implementation and evaluation of health promotion projects, showing awareness of core values and principles necessary for effective health promotion practice.

### **400279.2 Health Services Financial Management**

**Credit Points** 10 **Level** 3

**Prerequisite**

**400277.2** Health Services Management

**Special Requirements**

Restricted to 4545 students only, Criminal Record Check and NSW Health Immunisations

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The Australian health care system must account for use of resources, and ensure their equitable and efficient use.

Increasingly devolution of management function to cost centre level in health care organisations is occurring. Managers must consider the financial implications of clinical decisions, understand and act on accounting information. They are held responsible for the financial outcomes of their activities. This unit develops a basic knowledge of accounting principles, health services funding arrangements, government reforms, financial reporting, preparation of budgets, business cases and economic appraisals. There are 140 hours of placement in the field working with health managers on financial issues.

### 400277.2 Health Services Management

**Credit Points** 10 **Level** 2

The health workplace is a complex and sophisticated environment that can be understood in many different ways and mean different things to different members of an organisation. Assumptions about organisational structure and action are based on one's conceptualisations and beliefs about the nature and goals of an organisation. This unit aims to develop an understanding of organisational theory and its application to management practice and organizational analysis in the health arena.

### 400787.1 Health Services Management Practice

**Credit Points** 10 **Level** 3

#### Prerequisite

[400277.2](#) Health Services Management

#### Equivalent Units

400278 - Health Services Management 2

#### Special Requirements

Criminal Records Check and NSW Health Immunisations. Restricted to 4545 - Bachelor of Health Science students only.

The unit begins with an overview of the complexity and variability of health services and provides an understanding of component organisations, federal and state policy issues and environmental factors including the role of the private sector and non-government organisations. The changing role of the health services manager and competencies required for effective managing are examined. Influences on organisations are reviewed, including structures, culture, power and politics. Various management functions are explored through 140 hours of placement e.g. strategic planning, performance management, people management including workplace relations, conflict resolution, resource management (financial and asset), risk management, OH&S and quality assurance.

### 400788.1 Health Services Workforce Management

**Credit Points** 10 **Level** 3

#### Prerequisite

[400277.1](#) Health Services Management 1

#### Special Requirements

Criminal Records Check and NSW Health Immunisations

This is a flexible learning unit looking at HRM as a strategic activity of health organisations especially as workforce shortages pose significant challenges to the health and aged care sectors. The workforce, with appropriate knowledge and expertise, is essential to the efficient and effective delivery of quality health services. Successful organisations shape their workforce to anticipate current and future business directions and goals. Workforce planning is a crucial element of this approach and its success.

### 300704.1 Healthy Built Environments

**Credit Points** 10 **Level** 2

#### Equivalent Units

300448 - Housing for Public Health

This unit aims to introduce students to the influence of the built environment on human health outcomes. Key topic areas of investigation will include healthy housing design and construction; physical activity, obesity and the built environment; the built environment and access to fresh food; housing affordability; and crime prevention through urban design. Sustainable design and planning principles are examined and in particular the contribution that environmental planning makes towards the promotion of human health and well being.

### 400872.1 Honours Research Design and Methodology

**Credit Points** 20 **Level** 4

#### Assumed Knowledge

Students need to have completed at least one unit in research methodology in an undergraduate degree program.

#### Equivalent Units

400471 - Exercise & Health Science Research & Practice, 400472 - Exercise & Health Science Honours Seminar

Students will build upon the skills and knowledge of research, evaluation and scholarly enquiry gained in units completed in the undergraduate program. The unit aims to explore: the nature of research and experience of researching in health related areas, as well as technical skills of data collection, management, analysis and interpretation in health practice. A major outcome of the unit is the development of a formal project proposal for conducting the student's thesis inquiry. Ethical issues and aspects such as human rights and ethics clearances, confidentiality and respect for participants in research projects and the obligations placed on researchers will be covered. This unit will also provide students with a professional forum in which to discuss and present major aspects of their research project.

### 400959.1 Honours Research Project 1

**Credit Points** 0 **Level** 5

**Prerequisite**

**400810.2** Integrated Clinical Rotations 1

**Corequisite**

**400811.1** Integrated Clinical Rotations 2

**Special Requirements**

Students must be enrolled in 4641 - Bachelor of Medicine, Bachelor of Surgery.

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Students studying 4641, Bachelor of Medicine Bachelor of Surgery are offered an embedded Honours program. The program runs over Years 4 & 5 and this Unit is undertaken in conjunction with Integrated Clinical Rotations 2 (400811) in 2H Session 2010. The Honours Research Project 1 consists of approximately 100 hours work. The main objectives are to give students a heightened awareness and knowledge of the principles and methodology of medical research, and an enhanced ability to critically evaluate scientific literature. The research component will be assessed by an Honours dissertation to be submitted by the end of the following year. The award of MBBS Honours will require satisfactory completion of this unit plus Honours Research Project 2 and the appropriate GPA across the MBBS course.

### 400960.1 Honours Research Project 2

**Credit Points** 0 **Level** 5

**Prerequisite**

**400811.1** Integrated Clinical Rotations 2 AND **400959.1** Honours Research Project 1

**Corequisite**

**400812.1** Integrated Clinical Rotations 3

**Special Requirements**

Students must be enrolled in 4641 - Bachelor of Medicine, Bachelor of Surgery.

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Students studying 4641, Bachelor of Medicine Bachelor of Surgery are offered an embedded Honours program. The program runs over Years 4 & 5 and this Unit is undertaken in conjunction with Integrated Clinical Rotations 3 (400812) from 2011. The Honours Research Project 2 consists of approximately 100 hours work. The main objectives are to give students a heightened awareness and knowledge of the principles and methodology of medical research, and an enhanced ability to critically evaluate scientific literature. The research component will be assessed by an Honours dissertation to be submitted by the end of this year. The award of MBBS Honours will require satisfactory completion of this unit plus Honours Research Project 1 and the appropriate GPA across the MBBS course. (see UWS Policy).

### 300675.1 Honours Thesis

**Credit Points** 40 **Level** 5

**Prerequisite**

**300053.2** Professional Practice

**Corequisite**

**81999.1** Industrial Experience (Engineering)

**Equivalent Units**

300484 - Engineering Thesis, 300036 - Major Investigation and Report 1, 300037 - Major Investigation and Report 2

**Incompatible Units**

300483 - Engineering Project, 300668 - Advanced Engineering Thesis

**Special Requirements**

This unit will be only offered to Bachelor of Engineering and Bachelor of Construction Management Honours level students. 3621 - Bachelor of Engineering students must be enrolled in a Key Program. Students should have achieved at least 240 credit points and must have a course Grade Point Average greater than or equal to 5.0.

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This unit provides honours level students with the opportunity to undertake research on a specialist topic within their Key Program of undergraduate study.

### 400898.1 Honours Thesis in Health Science A

**Credit Points** 20 **Level** 4

**Incompatible Units**

400558/400559/400560 - Honours Thesis in Health Science/F-T/P-T year 1/P-T year 2;  
400477/400478/400479/400480 - Sport & Exercise Science Thesis A/B/C/D

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This unit is the culmination of studies for students who have completed an undergraduate degree in Health Science and provides substantial training in research. Under staff supervision, students choose the particular topic for their research, design their own programme of research, perform the research and analyse the results. The culmination of this process is the production of a thesis in which students describe the rationale for their topic, their research programme, ethical issues, results, and their conclusions.

### 400899.1 Honours Thesis in Health Science B

**Credit Points** 40 **Level** 4

**Incompatible Units**

400558/400559/400560 - Honours Thesis in Health Science/F-T/P-T year 1/P-T year 2;  
400477/400478/400479/400480 - Sport & Exercise Science Thesis A/B/C/D

.....

This unit is the culmination of studies for students who have completed an undergraduate degree in Health Science and

provides substantial training in research. Under staff supervision, students choose the particular topic for their research, design their own programme of research, perform the research and analyse the results. The culmination of this process is the production of a thesis in which students describe the rationale for their topic, their research programme, ethical issues, results, and their conclusions.

**400900.1 Honours Thesis in Health Science C**

**Credit Points** 20 **Level** 4

**Incompatible Units**

400558/400559/400560 - Honours Thesis in Health Science/F-T/P-T year 1/P-T year 2;  
400477/400478/400479/400480 - Sport & Exercise Science Thesis A/B/C/D

.....

This unit is the culmination of studies for students who have completed an undergraduate degree in Health Science and provides substantial training in research. Under staff supervision, students choose the particular topic for their research, design their own programme of research, perform the research and analyse the results. The culmination of this process is the production of a thesis in which students describe the rationale for their topic, their research programme, ethical issues, results, and their conclusions.

**400901.1 Honours Thesis in Health Science D**

**Credit Points** 20 **Level** 4

**Incompatible Units**

400558/400559/400560 - Honours Thesis in Health Science/F-T/P-T year 1/P-T year 2;  
400477/400478/400479/400480 - Sport & Exercise Science Thesis A/B/C/D

.....

This unit is the culmination of studies for students who have completed an undergraduate degree in Health Science and provides substantial training in research. Under staff supervision, students choose the particular topic for their research, design their own programme of research, perform the research and analyse the results. The culmination of this process is the production of a thesis in which students describe the rationale for their topic, their research programme, ethical issues, results, and their conclusions.

**200708.1 Hospitality Industry**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Basic knowledge of hospitality is assumed for this unit

**Equivalent Units**

200562 - Hospitality Markets, MK301A - Hospitality Marketing

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With focus on the experiential nature of hospitality products, the unit canvasses a contemporary selection of specialised food services, lodging and other hospitality businesses, including resorts, cruise ships and registered clubs. The

unit develops students understanding of the micro and macro environments of such businesses, with concentration on the factors influencing business development. There is also consideration of the design, development and commercial viability of such products, especially in the context of consumer expectations.

**200561.2 Hospitality Management Applied Project**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Advanced unit - students are expected to have gained an introductory level of knowledge in hospitality management.

**Prerequisite**

**200707.1** Service Industry Studies

**Equivalent Units**

200140 - Tourism and Hospitality Research Project

**Incompatible Units**

200580 - Sport Management Applied Project

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Hospitality Management Applied Project provides students a unique opportunity to integrate knowledge gained from operational and theoretical perspectives of hospitality studies into application in an engaged research project in hospitality. Students will engage in comprehensive projects which bring together real world industry problems and hospitality theory. The outcome from this unit will be the production of a report and presentation which may involve industry partner.

**200584.2 Hospitality Management Operations**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Advanced unit, students are expected to have gained an introductory level of knowledge in hospitality management.

**Equivalent Units**

HS206A - Hospitality Management Operations

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Hospitality Management Operations emphasises the role of operations management in the hospitality sector, especially as an element of corporate strategy. The unit demonstrates how operations management is related to, and aligned with, the other functional areas of a hospitality organisation. The field of study includes revenue management in the hospitality industry, as well as variety of qualitative and quantitative techniques to enable students to analyse problems in hospitality operations.

**400868.1 Human Anatomy and Physiology 1**

**Credit Points** 10 **Level** 1

**Incompatible Units**

300361 - Introduction to Human Biology, 300319 - Introduction to Human Anatomy and Histology, 300320 - Introduction to Human Physiology, 400130 - Human Medical Sciences 1, 400256 - Human Medical Sciences 2

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This is the first of two units covering systematic anatomy and physiology at an introductory level. This unit is designed to provide students especially those in applied health science programs with an overview of body systems and their functions to ensure a suitable basis for their future studies. The unit studies the basic concepts of biochemistry and histology, general anatomy and physiology of the major body systems such as central and peripheral nervous systems, integumentary system, musculoskeletal system (bones, muscles and joints), special senses and endocrine system. Emphasis will be placed on the interconnection and relationship between structure and function at every level of organisation.

### **400869.1 Human Anatomy and Physiology 2**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

400868 - Human Anatomy and Physiology 1

#### **Prerequisite**

**400868.1** Human Anatomy and Physiology 1

#### **Incompatible Units**

14466 - Human Biology 2, 300319 - Introduction to Human Anatomy and Histology, 300320 - Introduction to Human Physiology, 400256 - Human Medical Sciences 2, 400130 - Human Medical Sciences 1

.....

This is the second of two units covering systematic anatomy and physiology at an introductory level. This unit is designed to provide students especially those in applied health science programs with an overview of body systems and their functions to ensure a suitable basis for their future studies. The unit studies the general anatomy and physiology of the major body systems such as cardiovascular, respiratory, digestive, urinary, reproductive and lymphatic system/immunity, body fluids & acid-base balance and metabolism. Emphasis will be placed on the interconnection and relationship between structure and function at every level of organisation.

### **300426.1 Human Animal Interactions**

**Credit Points** 10 **Level** 1

#### **Special Requirements**

Students must be enrolled in 3592 - Bachelor of Animal Science, 3637 - Bachelor of Natural Science or 3640 - Bachelor of Science.

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This unit introduces students to the relationships between humans and animals. It deals with domestication, the role of animals for companionship and as workers, the traditional role of animals in agriculture and their increasingly recognised aesthetic and therapeutic role. Project work is developed by negotiation with lecturers to assist student learning. Students are expected to undertake a reading program from prescribed texts to supplement the lecture series.

### **300547.1 Human Genetics**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Structure of basic biomolecules, cell structure, knowledge of chromosomes and role in mitosis and meiosis. Structure of DNA and processes of replication, transcription and translation, Mendelian genetics.

#### **Prerequisite**

**300543.1** Cell Biology OR **300221.1** Biology 1

#### **Incompatible Units**

BI210A - Genetics 2.2

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This unit will provide a sound knowledge of the genetic basis of disease and genetic problems of human development. Students will learn basic genetic principles as they study examples of genetic problems in human health and disease. Topics include Mendelian and multifactorial genetics, autosomal and X-chromosomal abnormalities, population genetics, oncogenetics, and the use of DNA technologies in gene mapping, disease diagnosis, screening and therapy. The focus will be on cytogenetics since molecular genetics will be covered in other units.

### **400130.1 Human Medical Sciences 1**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

E1231 - Human Biology

#### **Incompatible Units**

E1241 - Human Medical Sciences 1

#### **Special Requirements**

Students who have successfully completed both Human Medical Sciences 1 AND Human Medical Sciences 2 are eligible for advanced standing in only 400868 - Human Anatomy and Physiology 1. Students who have completed EITHER Human Medical Sciences 1 OR Human Medical Sciences 2 must apply for a rule waiver to enrol in 400868 - Human Anatomy and Physiology 1 to complete course requirements.

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The unit studies the basic concepts of biochemistry and histology, general anatomy, and physiology of the major body systems. This unit is designed to provide students especially applied health science students with an overview of body systems and their functions to ensure a suitable basis for their future studies of regional anatomy, clinical neurosciences, microbiology, pharmacology, pathology and other clinical sciences.

### **400134.1 Human Medical Sciences 3**

**Credit Points** 10 **Level** 1

#### **Prerequisite**

**400130.1** Human Medical Sciences 1

#### **Equivalent Units**

E1237 - Human Biology 2, 400881 - Functional Anatomy



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In 2010 this unit will be replaced by 400881 - Functional Anatomy. This unit is intended to provide students with an in depth and clinical study of those human medical sciences which underpin specific intervention principles and procedures to be taught in the professional units. Primary contact health care providers have professional requirements that cover a broad spectrum of diagnostic, medical and physical practices. In order to ensure a suitable basis for later practice of osteopathy, podiatry, and occupational therapy, students require a detailed knowledge and understanding of anatomy and physiology with emphasis on musculoskeletal system, innervation and blood supply of relevant body structures.

### 300548.1 Human Metabolism and Disease

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Knowledge of protein structure and function, gene expression, principles of enzyme catalysis, including the structure of enzymatic active sites and catalytic mechanisms, knowledge of eukaryotic intracellular compartments and their broad function.

#### Prerequisite

**300555.1** Proteins and Genes OR **300219.1** Biochemistry 1

#### Equivalent Units

14427 - Biochemistry 2, 14440 - Biochemistry 2, 300220 - Biochemistry 2, J2821 - Biochemistry of Metabolism

#### Incompatible Units

300227 - General Biochemistry, BC202A - Biochemistry 2.2

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Students studying at Hawkesbury or Parramatta campus should refer to 300220 - Biochemistry 2. Understanding human metabolism at a molecular level underpins our understanding of human health and metabolic diseases, such as diabetes and obesity. Kinetics and regulation of enzymes will be studied as a preliminary to learning how metabolic pathways work. The central pathways of energy metabolism, their control and inter-relationships will be analysed in detail, including carbohydrate and fat metabolism; ATP synthesis involving electron transport and ATP synthase; and nitrogen metabolism, including aspects of amino acid degradation and urea synthesis. Emphasis will be placed on enzyme and hormonal regulations, the roles of different tissues in metabolic homeostasis; and the consequences for human health when enzymes or their regulations are defective.

### 300549.1 Human Molecular Biology

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Knowledge of DNA, gene and chromosome structure in eukaryotes; the basic events in eukaryotic transcription, including the structure and role of eukaryotic RNA polymerase; post-transcriptional events in eukaryotes and their purpose; the basic events in eukaryotic translation; protein structure and conformation, and the importance of post-translational modifications for protein function.

#### Prerequisite

**300555.1** Proteins and Genes OR **300219.1** Biochemistry 1

#### Equivalent Units

14439 - Cell and Molecular Biology, 300234 - Molecular Biology, BI305A Molecular Biology, J3678 - Molecular Genetics

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Students studying at Hawkesbury or Parramatta campus should refer to 300234 - Molecular Biology. This unit concentrates on the Molecular Biology of eukaryotic cells (human) and studies gene regulation at an advanced level, leading into the processes and practical applications of DNA technology. Students gain a thorough grounding in major techniques involved in gene cloning, such as DNA manipulation using restriction enzymes, PCR, DNA fingerprinting. Cloning vectors, DNA libraries, genetic engineering in different types of eukaryotic cells and organisms and are studied. Students are introduced to functional genomics, bioinformatics and issues in biosafety and ethics relating to gene technology.

### 300228.1 Human Nutrition

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Biology 1 and 2 or equivalents, General Biochemistry or equivalent.

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This unit covers basic principles of human nutrition, including the function of nutrients in prevention and treatment of disease. The unit also covers anti-nutritional factors in foods, functional foods, non-nutrient compounds and their interaction with nutrients, effects of processing on nutrients, nutrient fortification, nutrient labelling of food, and methods for dietary assessment of individuals.

### 300620.1 Human Physiology 1

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

This unit relies upon knowledge gained from previous units studied, particularly First-Year Biology and Chemistry.

#### Equivalent Units

BC206A - Human Physiology 2.2; 300320 - Introduction to Human Physiology

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This unit aims to provide the student with an understanding of the physiological mechanisms which operate to maintain homeostasis. The structure and normal functioning of some of the major body systems are examined, as well as certain disturbances to normal functioning caused by disease processes or environmental factors.

### 300622.1 Human Physiology 2

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Demonstrated sound understanding of undergraduate Level 1 biology and Level 2 physiological systems of the human body.

#### Equivalent Units

BC306A - Human Physiology 3.1, 300326 - Topics in Physiology

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This unit emphasises detailed functional aspects of the nervous system, particularly sensory (vision, hearing, taste, smell) and skeletal systems and their physiological responses via neural pathways to external stimuli. Underpinning these broader concepts is a detailed examination of electrophysiology i.e. ion channel structure and function, membrane potential, neurotransmitters and neurotransmission.

### BC306A.1 Human Physiology 3.1

**Credit Points** 10 **Level** 3

#### Equivalent Units

300326 - Topics in Physiology, 300622 - Human Physiology 2

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In 2010 this unit replaced by 300622 - Human Physiology 2. This unit complements the Level 2 unit, Human Physiology 2.2, and provides the student with a deeper and broader understanding of the physiological systems. The nervous system, including the senses of taste and smell, and muscle physiology are studied in depth.

### 200740.1 Human Resource and Industrial Relations Strategy

**Credit Points** 10 **Level** 3

#### Prerequisite

**200300.1** Managing People at Work

#### Incompatible Units

200618 - Human Resource Strategy, 200615 - Industrial Relations Strategy

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This unit analyses the human resource and industrial relations strategies of the major employment relations stakeholders. While the principal focus is on the organisational level of analysis and on the strategic interventions introduced by management, the unit also analyses the strategic roles of government, trade unions, and employer associations. It covers the development of human resource management and industrial relations as a professional field, the relationship between business strategies and HR/IR strategies, stakeholders and strategic choice, ethics and professional standards, strategic HR/IR interventions; evaluation of strategy.

### 200381.3 Human Resources Development Seminar

**Credit Points** 10 **Level** 3

#### Prerequisite

**200300.1** Managing People at Work

#### Equivalent Units

200575 - Process and Evaluation in Employment Relations

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This unit uses engaged learning to allow students to apply knowledge and develop skills developed in the Human Resource Development and Organisational Development Key Program. Student will participate in consultancy teams that will undertake empirical research and problem diagnosis and solution for a specified project, normally for a real-world organisation, which may include commercial firms, not-for-profit organisations and community/public organisations. Projects will be reported upon and presented to clients from the organisation. Project topics may include training needs analysis, HRD evaluation, a change management project, employee attitude or organisational climate surveys, employee well-being and health promotion, work/life balance initiatives, etc.

### 300570.2 Human-Computer Interaction

**Credit Points** 10 **Level** 3

#### Equivalent Units

300160 - Software Interface Design

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A key component to the discipline of Information Systems is the understanding and the advocacy of the user in the development of IT applications and systems. IT graduates must develop a mind-set that recognizes the importance of users and organizational contexts. They must employ user-centered methodologies in the development, evaluation, and deployment of IT applications and systems. This unit examines human-computer interaction in order to develop and evaluate software, websites and information systems that not only look professional but are usable, functional and accessible.

### 300136.3 I.T. Support Practicum

**Credit Points** 10 **Level** 3

#### Prerequisite

**300150.1** PC Workshop AND **300138.1** LAN Workshop OR **300576.1** Networking Workshop

#### Special Requirements

Students can only enrol in this unit in their final session of study. The unit is restricted to students undertaking the Bachelor of Technology (IT Support), the Bachelor of Computing, the Bachelor of Computer Science, the Bachelor of Information Technology, the Bachelor of Mathematics and Information Technology or the Bachelor of Information and Communications Technology.

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This unit provides students real-world experience in the area of Information Technology (IT) support. Students are

located with industry partners in the Greater Western Sydney region in IT support positions for 10 hours per week over a 12 week period. In addition, students receive instruction and tuition in aspects of professional practice such as code of ethics.

### 300229.1 Immunology

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Microbiology 1, Biochemistry 1

#### Incompatible Units

300223 - Cell Signalling and Molecular Immunology,  
300552 - Molecular Biology of the Immune System

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This unit aims to provide students with an understanding of the concepts of: self and non-self as it applies to the functioning of the immune system; the divisions of innate and specific immunity and their role(s) in determining the outcome of an immune assault; and the immune system in health and disease.

### 300631.1 Indigenous Landscape

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Basic geographical concepts.

#### Special Requirements

National Parks and Wildlife Service (NPWS) Protected Heritage Laws; Custodian-restricted access on to traditional Aboriginal lands.

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This unit aims to integrate traditional Aboriginal ways of knowing landscape into the undergraduate key program in Nature Conservation. Specifically, the unit incorporates UWS generic Indigenous core curriculum content that acknowledges and values pre-colonial Australian history and landuse practice. Content includes traditional land management, protected area management, co-management, introduction to Native Title, Indigenous vs statute law, sustainable landuse, cultural heritage and heritage landscapes. The unit aims to equip students to address issues of dispossession and disadvantage brought about by the destruction and disruption of ecological integrity.

### 300773.1 Industrial Design Project (Commencement)

**Credit Points** 30 **Level** 5

#### Assumed Knowledge

Knowledge related to the successful completion of year 3 Industrial Design or equivalent (e.g. Design & Technology) is assumed. Ability to use: E-mail, Internet Web Browser, WebCT or equivalent, Word processing program, CAD software, Workshop machinery (e.g. mill, lathe, sander, rapid prototyping machine). Knowledge and/or experience in: Referencing, Lab/Workshop O&HS, Report writing, Essay writing, Process Diary, Group work, Research Methods for Industrial Designers, Project Management, Ethical Research Approval Process.

#### Prerequisite

**300313.1** Design Studio 4: Simulate to Innovate AND **300314.1** Designed Inquiry

#### Equivalent Units

85032 - Industrial Design Project (Commencement)

### 85032.2 Industrial Design Project (Commencement)

**Credit Points** 30 **Level** 5

#### Assumed Knowledge

Knowledge related to the successful completion of Year 3 Industrial Design or equivalent (eg Design & Technology) is assumed. Ability to use: e-mail, internet web browser, WebCT or equivalent, word processing program, CAD software and workshop machinery (eg mill, lathe, sander, rapid prototyping machine). Knowledge and/or experience in: referencing, lab/workshops O&HS, report writing, essay writing, process diary, group work, research methods for Industrial Designers, project management and ethical research approval process.

#### Prerequisite

**300313.2** Design Studio 4: Simulate to Innovate AND **300314.1** Designed Inquiry

#### Corequisite

**10915.1** Industrial Experience

#### Special Requirements

Successful completion of 240 credit points including the core units in course code 350 - Bachelor of Design and Technology.

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In 2010 this unit replaced by 300773 - Industrial Design Project (Commencement). The Industrial Design Honours Program provides students with an opportunity to apply their industrial design skills to an in-depth year long design research project. In Industrial Design Major Project (Commencement), Honours candidates develop a research plan and methodology that yield design opportunities for conceptual development and resolution (to be carried out in Industrial Design Major Project Completion). In Commencement, candidates produce a comprehensive research design (and seek ethics approval as needed), literature review, preliminary concept explorations and a detailed industrial design brief.

### 85033.2 Industrial Design Project (Completion)

**Credit Points** 40 **Level** 5

#### Assumed Knowledge

Knowledge related to the successful completion of Year 3 Industrial Design is assumed and successful completion of Industrial Design Project (Commencement) and its associated co-requisite units.

#### Prerequisite

**85032.1** Industrial Design Project (Commencement)

### Equivalent Units

85033 - Industrial Design Project (Completion)

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In 2010 this unit replaced by 300774 - Industrial Design Project (Completion). The Industrial Design Honours Program provides students with an opportunity to apply their industrial design skills to an in-depth year long design research project. In Industrial Design Major Project (Completion), Honours candidates respond to the research findings and design brief that they produced in Autumn semester. They undertake detailed design development to resolve and communicate a final design solution, which is publicly exhibited at the end of the year. Their design and research communications present a strong argument for the final design and demonstrate the honours' candidates capacity to undertake postgraduate design research and to join professional design practice.

### 300774.1 Industrial Design Project (Completion)

**Credit Points** 40 **Level** 5

#### Assumed Knowledge

Knowledge related to the successful completion of year 3 Industrial Design is assumed and successful completion of Industrial Design Project Commencement and Industrial Design Project Commencement's co-requisite units.

#### Prerequisite

**300773.1** Industrial Design Project (Commencement)

#### Equivalent Units

85033 - Industrial Design Project (Completion)

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The Industrial Design Honours Program provides students with an opportunity to apply their industrial design skills to an in-depth year long design research project. In Industrial Design Major Project (Completion), Honours candidates respond to the research findings and design brief that they produced in Autumn semester. They undertake detailed design development to resolve and communicate a final design solution, which is publicly exhibited at the end of the year. Their design and research communications present a strong argument for the final design and demonstrate the honours' candidates capacity to undertake postgraduate design research and to join professional design practice.

### 300775.1 Industrial Experience

**Credit Points** 0 **Level** 3

#### Assumed Knowledge

Successful completion of 160 credit points in either course 3502 - Bachelor of Design and Technology or 3503 - Bachelor of Industrial Design or 3504 - Bachelor of Industrial Design Engineering.

#### Equivalent Units

10915 - Industrial Experience

#### Special Requirements

Must be enrolled in 3502 Bachelor of Design and Technology or 3503 Bachelor of Industrial Design.

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Students will gain real-life experience in developing new products or services within a company or organisation and be exposed to some of the decision-making processes that affect the development process of consumer products or services. This is whilst experiencing the multidisciplinary nature of the interaction of all those involved in the product development process from the conception of the idea to the introduction of a new product or service to market. Students use this opportunity to test the validity of the concepts studied in various course units to date in a real life situation and develop a sense of a company's "culture".

### 10915.2 Industrial Experience

**Credit Points** 0 **Level** 3

#### Assumed Knowledge

Successful completion of 160 credit points in either course 3502 - Bachelor of Design and Technology or 3503 - Bachelor of Industrial Design or 3504 - Bachelor of Industrial Design Engineering.

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In 2010 this unit replaced by 300775 - Industrial Experience. Students will gain real-life experience in developing new products within a company or organisation and be exposed to some of the decision-making processes that affect the development process of industrially produced products whilst experiencing the multidisciplinary nature of the interaction of all those involved in the product development process from the conception of the idea to the introduction of a new product to the market place. Students use this opportunity to test the validity of the concepts studied in various course units to date in a real life situation and develop a sense of a company's "culture".

### 300741.1 Industrial Experience (Engineering)

**Credit Points** 0 **Level** 3

#### Assumed Knowledge

A broad background knowledge in the relevant Engineering discipline (ie., equivalent to that obtained after completing 3 years of the Engineering program)

#### Equivalent Units

81999 - Industrial Experience (Engineering)

#### Special Requirements

Successful completion of 240 credit points.

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Students will undertake 12 weeks fulltime (37.5 hours per week) employment (or equivalent) to obtain relevant workplace experience in Engineering under the supervision of professional engineers in one company or more.

### 300302.1 Industrial Graphics 1: Presentation

**Credit Points** 10 **Level** 1

#### Equivalent Units

J3764 - Industrial Graphics (Presentation)

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The presentation and promotion of designs in the form of 2D graphics is a necessary component of the overall design process. The ability to apply a wide range of both manual and computer based processes in the production of these graphical images and presentations is essential. The objective of this subject is to introduce students to the industry standard software and hardware employed to generate this type of material, and more importantly this unit exposes students to the techniques used by professionals who currently work in this area of the design community. Industrial Graphics 1 Presentation is part of a sequence of five units that constitute the sub-major in Industrial Graphics and eight units that constitute the major in Interactive Industrial Graphics.

### 300282.1 Industrial Graphics 2: Transition

**Credit Points** 10 **Level** 2

#### Equivalent Units

J1756 - Industrial Graphics (2D Drawing), J1759 - Industrial Graphics (Transition), 10940 - Technical Presentation 2

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Engineering drawing is the formal graphical communication language used by professionals engaged in design, manufacture and management of manufactured items. This language provides the facility to describe and document three dimensional objects or concepts in two dimensions using linework, characters and symbols. This language is based on guidelines provided by Standards Australia and is compatible with a range of international drawing standards. The aim of this unit is to examine in detail the language and tools used to generate engineering drawings and to provide students with practical skills that will allow them to communicate with other professionals using this language.

### 300310.2 Industrial Graphics 3: 3D Solids

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

300282 Industrial Graphics 2 - Transition. Students from within the ID and Design & Technology degree courses should have completed this core unit before attempting Industrial Graphics 3. Students taking this as an elective from outside of the ID and Design & Technology courses should note that knowledge from this unit will be assumed.

#### Equivalent Units

10962 - Industrial Design Communication 2: 3D Kinetic, J2814 - Industrial Graphics (3D Modelling)

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The documentation of design concepts in the form of three dimensional (3D) computer models provides data that can be applied in a wide variety of ways to facilitate the understanding and production of parts and assemblies. The objective of this unit is to introduce students to the industry standard software and hardware employed to generate these models, via a "hands on" approach to creating 3D data. In addition to this, students will be provided with the background history related to computer modelling in general and Feature Based Solids Modelling in particular. Issues such as data transfer, rapid prototyping, computer numerical control (CNC) machining and visualisation will also be discussed.

### 300312.2 Industrial Graphics 4: Surface

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

It is assumed that students attempting IG4: Surface will be familiar with and capable at 3D solids modelling as delivered in 300310 (IG3: 3D Solids) and graphic design/ illustration and page layout as delivered in 300302 (IG1: Presentation). Students from within the ID and Design & Technology degree courses should have completed these core units before attempting IG4: Surface. Students taking this as an elective from outside of the ID and Design & Technology degree courses should note that these skills will be assumed.

#### Equivalent Units

10963 - Industrial Design Communication 3: Materials and Properties, J2868 - Industrial Graphics (Surface)

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Starting with a sketch, drawing, physical model, or only an idea, having the ability to accurately model your designs ready for rendering, animation, drafting, engineering, analysis and manufacturing is an essential skill set for designers in all disciplines. The ability to generate 3 dimensional data and in particular, free-form 3D data within a computer and display that data in a range of formats provides a powerful design, visualisation and analysis tool. This unit introduces students to the fundamentals of 3D Wireframe, NURBS Surface and Boundary Representation (Brep) Solids Modelling and then focuses on the tools and processes available for producing a range of image types from these 3D models.

### 300315.1 Industrial Graphics 5: Integrated

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students require computer and hand rendering capabilities along with graphic computer presentation skills. Knowledge of consumer markets and manufacturing is also essential.

#### Prerequisite

**300302.1** Industrial Graphics 1: Presentation AND **300310.1** Industrial Graphics 3: 3D Solids AND **300312.1** Industrial Graphics 4: Surface

#### Equivalent Units

J3824 - Industrial Graphics (Integration)

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The ability to draw on a broad range of industrial graphics skills and techniques and to apply them appropriately to design projects is a cornerstone of the modern design process. It is the aim of this unit to synthesise the components of the industrial graphics strand and provide a single project with a range of components to which these skills can be applied and evaluated. The lecture component of this unit will provide the forum for introducing and demonstrating the latest techniques and technologies in this field while the practical sessions will provide the students with the opportunity to apply their skills.

### 300724.1 Industry Based Learning

**Credit Points** 0 **Level** 5

#### Equivalent Units

BG311A - Industry Based Learning

#### Special Requirements

This unit is only available to students enrolled in course 2607 - Bachelor of Construction Management.

Students are required to undertake 1200 hours industry based experience as required by course and professional accreditation bodies.

### 200531.1 Industry Economics and Markets

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

This unit requires an elementary knowledge of microeconomic principles.

#### Prerequisite

**200525.1** Principles of Economics OR **200076.1** Introductory Economics OR **200046.1** Microeconomics

#### Equivalent Units

200058 - Industry Economics and Policy

The first part of this unit develops an understanding of the relationships between industry structure, the conduct of firms, and market performance. Alternative theories of the firm and strategic market behaviour are considered. The unit then examines the characteristics and operation of particular markets, including public goods and utilities, human resources, and natural and environmental resources. The analysis developed in the unit is used to provide insights into applied policy areas such as competition policy, regulation of public enterprises, microeconomic reform and industry policy.

### 300128.2 Information Security

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Basic understanding of data structures, number theory and probability theory. Basic programming skills in C or java, etc.

#### Prerequisite

**200025.1** Discrete Mathematics OR **200031.1** Mathematics for Business OR **200190.1** Finite Mathematics AND **300103.1** Data Structures and Algorithms OR **300156.1** Programming Principles 2 OR **300125.1** Fundamentals of Computer Science

#### Special Requirements

Students need to undertake one pre-requisite unit from the following three units: 200025 - Discrete Mathematics, 200031 - Mathematics for Business, 200190 - Finite Mathematics AND one pre-requisite from the following three units: 300103 - Data Structures and Algorithms, 300156 - Programming Principles 2, 300125 - Fundamentals of Computer Science

This unit is concerned with the protection and privacy of information in computer systems. The focus of the course is primarily on introducing basic concepts in computer and information security and then using this knowledge as the vehicle to study the design and implementation of secure computer and network systems. This unit also provides students with practical experience with security programming. In more specific terms, the unit is intended to provide the following: basic concepts of conventional and public key encryption; number theory and its application in public key encryption and signatures; protocols used in secure computer systems.

### 300572.1 Information Systems Deployment and Management

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

- A general understanding of various Information Systems in the eBusiness environment - Familiarity with information system development processes

#### Prerequisite

**300585.1** Systems Analysis and Design AND **300580.1** Programming Fundamentals

#### Equivalent Units

300272 - Enterprise Information Management

This unit provides a detailed overview of system implementation stages taking into the consideration steps necessary to place the newly developed system into production, educate consumers and system users, confirm accuracy of data needed for the system's accurate functionality and assure that all business functions that interact with the system are performing properly. In addition, this unit aims to portray how project management skills are crucial in timely production and delivery of the final product. At the completion of the successful deployment system is usually transitioned to system support and maintenance therefore the overview of the transition process is also portrayed.

### CP308A.1 Information Systems Ethics and Law

**Credit Points** 10 **Level** 3

#### Special Requirements

Students enrolled in course 2502 - Bachelor of Laws (Non graduate entry) must obtain permission to enrol in this unit.

This unit aims to provide students with an appreciation of the ethical and legal issues surrounding the use of information systems, particularly the internet. It examines the regulatory framework to facilitate an understanding of the legal boundaries within which e-commerce may operate. Matters including the abuse of computers, the privacy of computerised data and electronic communications are critically analysed to reveal a variety of issues which are legally significant.

### 300573.1 Information Systems in Context

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

2 Unit Mathematics and 2 Unit English (General)

#### Incompatible Units

200128 - Introduction to Information Systems

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This unit aims to give students the ability to recognise and expound about business information systems with regard to type, function, and purpose, and the frameworks within which these systems are used. Topics in this unit include computing fundamentals; computer hardware and software; computers and society; use of business application packages – spreadsheets, word processing, database, graphics; organisational information systems; information systems development and acquisition; data and knowledge management; electronic commerce, internets, extranets; networking; enterprise-wide information systems; the internet and information systems security; privacy, ethics and computer crime.

### 70000.1 Information Systems in Context (UWSC)

**Credit Points** 10 **Level** 1

#### Incompatible Units

200128 - Introduction to Information Systems.

#### Special Requirements

Students must be enrolled at UWS College.

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This unit aims to give students the ability to recognise and expound about business information systems with regard to type, function, and purpose, and the frameworks within which these systems are used. Topics in this unit include computing fundamentals; computer hardware and software; computers and society; use of business application packages – spreadsheets, word processing, database, graphics; organisational information systems; information systems development and acquisition; data and knowledge management; electronic commerce, internets, extranets; networking; enterprise-wide information systems; the internet and information systems security; privacy, ethics and computer crime.

### 300486.1 Infrastructure Engineering

**Credit Points** 10 **Level** 2

#### Prerequisite

**85003.1** Surveying for Engineers OR **300738.1** Surveying for Engineers

#### Equivalent Units

85007 - Civil & Environmental Engineering Construction, 85008 - Engineering Urban Environments, 300296 - Road & Traffic Engineering

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This unit will provide students with material to assist them with Civil Engineering Construction and Urban

Development / Town Planning projects. The unit looks at local, regional and international as well as specific project-related infrastructure issues.

### 400286.1 Injury Prevention

**Credit Points** 10 **Level** 3

#### Prerequisite

**400782.1** Essentials of Health Promotion

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Injury Prevention is a National Health Priority. Injury is the preferred term rather than 'accident' with its connotations of inevitability and lack of apparent cause, to allow development of inter-disciplinary prevention initiatives. A systematic scientific approach to injury research and prevention is in evidence for road and occupational safety, backed by well resourced implementation structures. Other settings/sectors include sport, recreation, falls, firearms, farm, product and water safety, which are also seeing the benefits of injury prevention principles, which include health promotion issue analysis and strategic hierarchical implementation strategies using the 4Es of education, enforcement, engineering and environment.

### 400286.2 Injury Prevention

**Credit Points** 10 **Level** 3

#### Prerequisite

**400867.1** Approaches to Health Promotion

#### Special Requirements

Criminal Record Check and NSW Health Immunisations

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This unit version will commence from 2011. Injury Prevention is a National Health Priority. Injury is the preferred term rather than 'accident' with its connotations of inevitability and lack of apparent cause, to allow development of inter-disciplinary prevention initiatives. A systematic scientific approach to injury research and prevention is in evidence for road and occupational safety, backed by well resourced implementation structures. Other settings/sectors include sport, recreation, falls, firearms, farm, product and water safety, which are also seeing the benefits of injury prevention principles, which include health promotion issue analysis and strategic hierarchical implementation strategies using the 4Es of education, enforcement, engineering and environment.

### 200163.1 Innovation and Product Development

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Assumed understanding of business management fundamentals in the context of an enterprise's competitive activities in the marketplace.

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Innovation is an imperative for the competitiveness of enterprises. This unit gives students an understanding of innovation and product development as management processes within an enterprise that provide impetus for their continuing competitiveness. Studies have shown that the

development of new products has a greater leverage on a company's profits than any other growth strategy, including acquisition. This unit also gives students insight into how the process of innovation can be enhanced within enterprises. It also examines various processes adopted by enterprises for undertaking new product development, and how product development can be a means of achieving growth for a firm.

### 300230.1 Inorganic Chemistry 2

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

A demonstrated understanding of and competence with basic chemical principles including SI units, chemical symbols, formulas and equation, nomenclature, stoichiometry, the mole concept, bonding, molecular shape and polarity, states and properties of matter, thermodynamics, equilibria, acids and bases, pH and electrochemistry, to a standard equivalent to that presented in Chemistry 1 (or equivalent). An understanding of basic organic chemistry, particularly functional groups, their structures and properties, will be advantageous.

#### Prerequisite

**300224.1** Chemistry 1 OR **300554.1** Principles of Chemistry

#### Equivalent Units

14247 - Inorganic and Analytical Chemistry, 300545 - Coordination Chemistry, CH206A - Chemistry 2.2, J2758 - Inorganic Chemistry 2

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Students studying at Campbelltown campus should refer to 300545 - Coordination Chemistry. This unit develops students' knowledge and comprehension of fundamental inorganic chemistry. A detailed introduction to co-ordination chemistry, discussing ligands, geometry, isomerism and oxidation states is provided, with particular emphasis on elements in the first transition series. Bonding in inorganic chemistry, solution chemistry, solid state chemistry, descriptive chemistry of representative main-group elements, and trends in the periodic table are also covered. Bioinorganic chemistry and some environmental aspects of inorganic chemistry are introduced. This unit also introduces students to many of the laboratory techniques and equipment that are used in this discipline.

### 300231.1 Inorganic Chemistry 3

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

A demonstrated understanding of and competence with the principles of inorganic chemistry, including bonding and structure, coordination chemistry, bioinorganic chemistry and laboratory techniques, to a standard equivalent to that presented in Inorganic Chemistry 2 (or equivalent).

#### Prerequisite

**300230.1** Inorganic Chemistry 2

#### Equivalent Units

J3668 - Inorganic Chemistry 3

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Students studying at Campbelltown campus should refer to 300538 - Advanced Inorganic Chemistry. This unit is built on the foundations laid in the unit 300230 - Inorganic Chemistry 2/300545 - Coordination Chemistry. Initially, this unit focuses on the nature of structure and bonding in inorganic chemistry. The spectroscopic and magnetic properties of inorganic compounds are evaluated as a consequence of the concepts of structure and bonding. Kinetics and mechanism of inorganic reactions are examined, and the important area of organo-transition metal chemistry is introduced. Laboratory sessions emphasise experimental design and planning by students, while introducing important techniques such as anaerobic synthesis. Students become familiar with inorganic chemistry literature and begin to appreciate recent work in this field. The laboratory component focuses on a variety of advanced techniques such as anaerobic syntheses and instrumental techniques of characterisation such as NMR, IR and electronic spectra. As well as requiring core studies, this unit recognises the diversity of inorganic chemistry by allowing students to specialise in certain advanced topics. Students select two out of five advanced topics: characterisation of inorganic compounds; selected descriptive inorganic chemistry; bioinorganic chemistry; aqueous chemistry of cations and metallic oxyanions; inorganic materials chemistry.

### 300075.3 Instrumentation and Measurement

**Credit Points** 10 **Level** 3

#### Prerequisite

**300005.1** Circuit Theory

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This unit covers all topics associated with the measurement of physical quantities and the instrumentation required to accurately present this information to a controller. Transducers used to measure common physical quantities are presented in detail, while instrumentation includes a detailed analysis of zero-span circuits, Wheatstone bridges, instrumentation amplifiers, isolation amplifiers, voltage-to-current and voltage-to-frequency modules used for faithful signal transmission, digital-to-analog and analog-to-digital circuits. The application of these modules in modern measurement equipment – multimeters, digital CROs and PLC/PC interfacing modules is discussed.

### 400810.2 Integrated Clinical Rotations 1

**Credit Points** 80 **Level** 3

#### Prerequisite

**400862.1** Foundations of Medicine 2

#### Special Requirements

Students must have completed a Prohibited Persons Employment Declaration, undergone a Criminal Record Check, have completed a WorkCover accredited Senior First Aid Certificate and have an up to date Adult Vaccination Record. Students must also sign a declaration that they understand and comply with: - Infectious Diseases Policy - Health Records and Information Privacy Act (HRIPA), 2002 - UWS' submitting their details to the NSW Medical Board This is carried out at enrolment to the course.

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ICR1 is the first major clinical year of the MB BS program. It consists of 12 weeks in each of Surgery, Medicine and Community based health care. There will also be 3 Conference weeks where all students will be based on the Campbelltown campus. Surgery and medicine rotations will be at Campbelltown, Blacktown and Mt Druitt hospitals. In each rotation students will spend 6 weeks in each of two sub-specialities. The Community rotations will involve general practice, aboriginal medical services and other community based aspects of the health care system. Students will also undertake 3 online learning modules. Students will also undertake two assignments in Evidence-based Practice.

### 400811.1 Integrated Clinical Rotations 2

**Credit Points** 80 **Level** 4

**Prerequisite**

**400810.1** Integrated Clinical Rotations 1

**Special Requirements**

Students must be enrolled in 4641 Bachelor of Medicine, Bachelor of Surgery. Students will have achieved all following special requirements in the preceding years of the course: Criminal record check; Immunisations required by Health Service; Registration with Medical Board NSW; Child protection check. Immunisation status will be reviewed prior to the start of Year 3.

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ICR2 is the second major clinical year of the MB BS program. It consists of 10 weeks in each of Paediatrics, Obstetrics & Gynaecology and Psychiatry and five weeks in each of Oncology and Palliative Care and Community based Research project. There will also be three Conference weeks where all students will be based on the Campbelltown campus. Students will be based at a number of appropriate hospitals throughout Sydney. Students will also undertake three online learning modules (Scientific Streams). Students will also undertake a reflective portfolio.

### 400812.1 Integrated Clinical Rotations 3

**Credit Points** 80 **Level** 4

**Prerequisite**

**400811.1** Integrated Clinical Rotations 2

**Special Requirements**

This unit is only available to students enrolled in 4641- Bachelor of Medicine, Bachelor of Surgery. Students will have achieved all following special requirements in the preceding years of the course. 1. Criminal record check, 2. Immunisations required by Health Service, 3. Registration with Medical Board NSW, 4. Child protection check. Immunisation status will be reviewed prior to the start of Year 3.

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ICR3 is the third major clinical year of the MB BS program. It consists of five weeks in each of Medicine x2, Surgery x2, General Practice, Indigenous Health and ICU, ED and Anaesthetics. There will also be four Conference weeks where all students will be based on the Campbelltown campus. Students will be based at a number of appropriate hospitals throughout Sydney. Students will also undertake

four online learning modules (Scientific Streams). Students will also undertake a reflective portfolio.

### 300661.1 Integrated Science 1

**Credit Points** 10 **Level** 1

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Integrated Science is a revolutionary new introductory science unit which breaks the barriers and creates connections between the traditional Science disciplines. The content is based on hot topics in Science, which are important for our future and life on earth. Such problems often span the discipline areas and include physics, chemistry, biology and maths. The modularised structure of the content allows students to complete authentic problem-based learning modules, in an on-line environment. Problem solving and communication are assessed and stressed over rote learning and regurgitation of facts. Close contact between students, peers and academics is a major feature of this unit.

### 400154.1 Integrating Evidence into Practice

**Credit Points** 10 **Level** 5

**Equivalent Units**

400865 - Evidence Based Practice

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In 2012 this unit will be replaced by 400865 - Evidence Based Practice. Research should be an important component of all health professionals' practice. This unit prepares students to graduate as evidence-based professionals and competent research consumers, by advancing skills learned in earlier research units. The early stages of the unit will build on students' previous study of research methods. Searching for, appraising, and summarising research in a relevant clinical area will be used to illustrate the process of evidence-based practice, and will provide a context for the further study of the technical principles of research. Barriers to the implementation of research in practice, policy-making, and health care planning will be explored.

### 300368.1 Intelligent Systems

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Basic understanding of data structures and algorithms and basic programming skills in Pascal C/C++ or Java etc.

**Prerequisite**

**200025.1** Discrete Mathematics

**Equivalent Units**

300087 - Artificial Intelligence, 300137 - Knowledge Based Systems

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This unit provides basic studies in the major areas of artificial intelligence: search, knowledge representation, logic programming, machine learning and knowledge based systems, agent planning and learning. The first part of this unit will focus on the foundation of artificial intelligence: search algorithms and their implementations, game playing, logics and knowledge representation, and

inference in reasoning systems. The second part will cover the principles of knowledge based systems (intelligent systems), planning, and machine learning.

### 100789.2 Interactive Design I

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Computer literacy including working in a networked environment on a Macintosh computer; management, transportation and storage of digital information and digital production processes such as scanning, pdf production and cd creation. Skills in design principles: layout, colour and typography. Literacy with image manipulation software - e.g. Photoshop or Fireworks

#### Prerequisite

**300302.1** Industrial Graphics 1: Presentation

#### Equivalent Units

100778 - Designing Multimedia

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This unit focuses on design methodology for the development and delivery of contemporary interactive media applications. Particular concepts addressed will also include conceptual integration and convergence of various media forms, screen design, navigational hierarchy and structures, and designing engaging interactive interfaces. General principles of interface, interaction design and information architecture will be introduced, alongside basic principles of digital media production.

### 100949.2 Interactive Design II

**Credit Points** 10 **Level** 2

#### Prerequisite

**100789.1** Interactive Design I

#### Equivalent Units

100799 - Online Design

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This unit focuses on interactive design from an experience design perspective. Approaches utilising current digital technologies for advanced interactive design are explored. Students will design and produce interactive products and examine and critique current content and trends within these technologies. The focus of the unit is communication and experience design, rather than technical implementation. Interactive design examples are examined from the context of shifting production languages, convergent technologies and the design professional contexts.

### 200536.1 Intermediate Financial Accounting

**Credit Points** 10 **Level** 2

#### Prerequisite

**200111.1** Financial Accounting Applications

#### Equivalent Units

200112 - Financial Accounting Issues, 61112 - The Anatomy of Financial Accounting

#### Incompatible Units

AC304A - Advanced Financial Accounting, H3327 - Financial Accounting 3

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This unit extends the knowledge and understanding of financial accounting through the application of problem solving to selected entities drawing upon accounting theory and critical analysis.

### 200595.2 International Business Finance

**Credit Points** 10 **Level** 3

#### Equivalent Units

61124 - International Business Finance

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The unit is designed to provide students with an overview of the economic, political and institutional environment in which international business is conducted. Particular attention is given to the historical development of the international monetary system, the transnational corporation and the impact of globalization upon international financial transactions and international business practices.

### 200590.1 International Business Project

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

This is a capstone International Business unit. It is assumed that students have basic international business knowledge and research skills.

#### Prerequisite

**200591.1** Introduction to International Business

#### Equivalent Units

61125 - International Business Project 1

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This is a capstone unit in International Business. The aim of the unit is to give students a real-life action learning project in which they undertake an international business strategic planning and analysis exercise for a client organisation. This project usually involves students working in small teams for a client organisation under the direct supervision of the lecturer.

### 200626.1 International Business Strategy

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

An understanding of the basic principles of marketing and international business.

#### Prerequisite

**200083.1** Marketing Principles AND **200591.1** Introduction to International Business

#### Equivalent Units

61119 - International Business Strategy

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In an environment where operating internationally is becoming the norm rather than the exception, firms are faced with ever increasing complexity when formulating their business strategy. This requires an understanding of how firms become and remain international, the basic modes of international involvement, the practice of multinational management and how firms can establish a balance between the sometimes conflicting demands of headquarters, the subsidiary and the governments of all the countries where the multinational enterprise operates. This unit will cover these issues and will deal with both large and small companies that must be global to survive.

### 200055.3 International Finance

**Credit Points** 10 **Level** 3

#### Prerequisite

**200488.1** Corporate Financial Management AND **200525.1** Principles of Economics

The study of international finance from the vantage point of a multinational enterprise provides students with a global insight into international trade for both manufactured and financial products. The unit recognises the increasing importance of global integration of money and capital markets - a trend that is creating expanded opportunities for both investors and organisations that need to raise capital. The recognition and management of risks associated with international operations are explored including cost of capital and financial structure, international financial markets crisis, international financial management, international monetary system, international diversification, foreign exchange risk management including the use of futures and options, foreign investment analysis, determination of exchange rates, balance of payments analysis, international debt crisis and country risk analysis.

### 200621.2 International Human Resource Management

**Credit Points** 10 **Level** 3

#### Prerequisite

**200300.1** Managing People at Work

#### Equivalent Units

61472 - International Human Resource Management

This unit covers concepts of international human resource management (HRM). It examines the internationalisation of firms, a range of comparative systems and structures of employment relations internationally, global stakeholders, human rights, and strategic management of global organisations. It includes analysis of issues including recruitment, training, management of expatriates, pay, and the impact of society, politics, economics and culture of host countries on human resource strategies.

### 61671.1 International Management

**Credit Points** 10 **Level** 3

#### Prerequisite

**200571.1** Management Dynamics OR **MG102A.2** Management Foundations OR **61611.1** Management Studies OR **H1727.1** Business Management

#### Equivalent Units

200623 - International Management

In 2008 this unit replaced by 200623 - International Management. In an era of ever increasing globalisation, it is essential that students of management are aware of salient global factors and issues that determine the process of applying management concepts and techniques in a multinational environment. This unit provides this knowledge through an examination of topics such as: the nature of international management and emergence of the global economy; determinants of the international competitiveness of nations, agencies and firms (with a focus on the Australian Situation); the cultural/political/economic/financial dimensions of the international management environment; international law; dimensions of international business strategy; the internationalisation of the firm, and organisation and control of international operations.

### 200094.1 International Marketing

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Marketing principles including consumer/buyer behavioural concepts, business market dynamics, marketing research methods, marketing communications, channel management and distribution, brand and product management, competitive strategy and quantitative methods in marketing. The basics of economics, finance and accounting, statistics and general communications are also assumed.

#### Prerequisite

**200083.1** Marketing Principles

Marketing internationally has become a necessity for many firms that wish to survive and grow in today's dynamic and increasingly linked world economy. Globalisation in its many forms is a powerful driver of change. 'International Marketing' is concerned with understanding and successfully managing the different international economic, cultural, political and legal environments as they affect the marketing activities of companies. This unit will examine the role of marketing research, international finance, overseas market entry and expansion strategies and the marketing mix in international markets. This unit provides students with a sound theoretical basis and, particularly, a practical understanding of how companies operate in international markets.

### 200374.2 International Marketing Research

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

An understanding of the basic principles of marketing, international business and statistics

#### Prerequisite

**200083.1** Marketing Principles AND **200032.1** Statistics for Business AND **200591.1** Introduction to International Business

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This unit aims to provide students with tools to undertake and critically evaluate simple international marketing research projects. It covers basic marketing research concepts and statistical techniques with emphasis on the impact of the international environment in conducting both primary and secondary data research.

### 300130.1 Internet Programming

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Basic knowledge on internet browsing and any object-oriented programming language.

#### Prerequisite

**300027.1** Engineering Computing OR **300147.1** Object Oriented Programming OR **300156.1** Programming Principles 2 OR **300581.1** Programming Techniques

#### Equivalent Units

300246 - Internet Computing, 14020 - Object Oriented/Internet Programming

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This unit offers students basic concepts and latest technologies of internet programming and web-based application development. Utilising one of the popular internet programming languages, such as Java, it aims to develop the programming skills and methodologies required for both client-side and server-side programming as well as general purpose programming. The range of topics covered by the unit includes HTML, XML, Java applets, desktop application in Java, servlets, JavaServer Pages and JDBC.

### 300574.1 Internet Structures and Web Servers

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Fundamentals of computer networking and basic knowledge of web technology

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This unit seeks to develop an understanding of the structures of the Internet and the organization of the World Wide Web, and the basic skills in setting-up and maintaining Web servers, proxy servers, email servers, and Internet firewalls.

### 300752.1 Introduction to Anatomy and Histology

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

School level Biology

#### Equivalent Units

E1231 - Human Biology 1, 300319 - Introduction to Anatomy and Histology

#### Incompatible Units

400130 - Human Medical Sciences 1, 400256 - Human Medical Sciences 2, 400134 - Human Medical Sciences 3

#### Special Requirements

Students must be enrolled in course 0J142, 3577, 3517, 3589 or 3657 to enrol in this unit. Students undertaking UT001 or UT002 UniTrack may enrol with permission of the unit co-ordinator.

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This unit provides a basic understanding of human anatomy and histology. It undertakes this by utilising a systems approach (as against a regional approach), emphasising the special relationship between form and function at every level of tissue organisation.

### 300560.1 Introduction to Animal Science

**Credit Points** 10 **Level** 1

#### Equivalent Units

AG111A - Introduction to Equine Studies

#### Special Requirements

All activities in the unit involving live animals must be approved by the UWS Animal Care and Ethics Committee. All activities in the unit involving the use of animal specimens must be approved by the UWS Institutional Biosafety and Radiation Safety Committee.

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The aim of the unit is to give students an introduction to different areas of study within Animal Science. This unit gives the basic skills and knowledge base for further development in the program. The unit will include a balance of theoretical and practical work in the areas of classification, behaviour and handling, structure and locomotion, basic health care, feeding, reproduction and growth and development.

### 400882.1 Introduction to Biomechanics

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

It is assumed that students have knowledge of structural and functional anatomy of the human body. Students also need to be able to apply basic concepts in maths and physics.

#### Equivalent Units

400139 - Biomechanics & Kinesiology

### Special Requirements

This unit is only available to students enrolled in courses 4658 - Bachelor of Health Science (Sport and Exercise Science), 4661 - Bachelor of Health Science/Master of Podiatric Medicine and 4662 - Bachelor of Health Science/Master of Physiotherapy.

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The study of biomechanics, the science that examines the forces acting upon a structure and the effects of these forces, is essential for understanding how the human body moves during daily activities, exercise and sport. It is also important when considering where problems may arise with human movement, such as with disease processes, over exercising and injury and postural pathology. This unit is designed to introduce the student to biomechanics by studying: the mechanical principles of human movement: balance and equilibrium: mechanical factors involved in tissue type and motion; and the analysis of human movement.

### 300503.1 Introduction to Biotechnology

**Credit Points** 10 **Level** 1

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This unit will provide a basic understanding of the techniques, achievements and issues associated with biotechnology and will serve as an introduction to higher level units that students will take later in their study program. The unit will cover developments in biotechnology from both historical and contemporary perspectives as they apply to medicine, to the pharmaceutical, veterinary and agricultural industries and how biotechnology can be applied to environmental issues. Students will gain knowledge of genes, genetics, genetic manipulation and how these techniques are applied in scientific and industrial contexts.

### 200184.2 Introduction to Business Law

**Credit Points** 10 **Level** 1

#### Corequisite

**200336.1** Business Academic Skills

#### Equivalent Units

LW110A - Business Law, F1011 - The Australian Legal System, F1012 - Introduction to Business Law, 61511 - Introduction to Legal Principles

#### Special Requirements

External offerings for this unit are only available to students who are enrolled in a Property course or Property key program. Students in courses 2739 Bachelor of Business and Commerce and 2741 Bachelor of Business and Commerce (Advanced Business Leadership) must complete the co-requisite - 200336 - Business Academic Skills.

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This is an introductory law unit designed to introduce the fundamentals of law in a commercial context. The unit introduces students to the basic principles of law and the legal system as well as examining some of the major areas of law that impact on commercial dealings. This unit

examines the structure of the legal system, the way law is made and legal problem solving. The main areas of law covered include contracts, torts, consumer protection and agency

### 700004.1 Introduction to Business Law (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

200184 - Introduction to Business Law

#### Special Requirements

Students must be enrolled at UWS College.

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This is an introductory law unit designed to introduce the fundamentals of law in a commercial context. The unit introduces students to the basic principles of law and the legal system as well as examining some of the major areas of law that impact on commercial dealings. This unit examines the structure of the legal system, the way law is made, and legal problem solving. The main areas of law covered include contracts, torts consumer protection and agency.

### 300232.1 Introduction to Earth Sciences

**Credit Points** 10 **Level** 1

#### Equivalent Units

14511 - Geology 1

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This unit covers the nature of the earth's surface and physical processes operating on it; properties and behaviour of the crust of the earth; mineral products, especially energy, metals and water; maps and geologic structures; and minerals, rocks, fossils. Two one-day field excursions are undertaken.

### 85024.1 Introduction to Environmental Chemistry

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

It is assumed that you have successfully completed 300469 Introductory Chemistry

#### Prerequisite

**14401.1** Civil and Environmental Engineering Chemistry

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This unit has been designed for students who are interested in environmental science. Some topics to be covered in this unit include water hardness, purification of water and degradation of common plastics which are of significant interest to environmental scientists. Specific topics on Environmental Chemistry including the environmental chemistry of oxygen, sulphur, water, carbon, nitrogen are dealt with throughout the semester.

### **400750.2 Introduction to Health Breakdown**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Content equivalent to 400746 - Understanding Good Health

#### **Equivalent Units**

400051 - Nursing Science 4

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This unit introduces students to the concepts and mechanisms of health breakdown and their application to professional nursing practice.

### **300566.1 Introduction to Health Informatics**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Familiarity with use of common business software eg. Spreadsheets and database

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This unit introduces key concepts and skills required in the emerging Health Informatics domain including: Australian and International healthcare data representation and interchange standards; health care data modelling including patient journey modelling; overview of health information systems with a focus on decision support and clinical systems; telehealth and communication technologies; and electronic health records.

### **300361.2 Introduction to Human Biology**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

400130 - Human Medical Sciences 1, 25009 - Physical and Biological Sciences 1, E1231 - Human Biology 1

#### **Special Requirements**

Closed footwear is required in the workshops.

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This unit gives a basic understanding of the human body and introduces the scientific and medical terminology used for anatomy, physiology and biochemistry. It deals with gross structure and microscopic structure of the human body. It also examines microbial organisms, their classification, how they differ from eukaryotic cells and how our body defends against them. Where appropriate, examples of functional diseases will be discussed.

### **700061.1 Introduction to Human Biology (UWSC)**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

300361 - Introduction to Human Biology

#### **Special Requirements**

This unit is only available to UWS College students.

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This unit gives a basic understanding of the human body and introduces the scientific and medical terminology used for anatomy, physiology and biochemistry. It deals with gross structure and microscopic structure of the human body. It also examines microbial organisms, their classification, how they differ from eukaryotic cells and how our body defends against them. Where appropriate, examples of functional diseases will be discussed.

### **300753.1 Introduction to Human Physiology**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

E1237 - Human Biology 2, BC206A - Human Physiology 2.2, 300320 - Introduction to Human Physiology

#### **Incompatible Units**

400130 - Human Medical Sciences 1, 400256 - Human Medical Sciences 2, 400134 - Human Medical Sciences 3

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This unit uses a body-systems approach to examine the physiology of tissues, organs and systems in order to develop an integrated view of the regulated functioning of the human body. The unit concludes with a critical examination of the concept of homeostasis.

### **300134.1 Introduction to Information Technology**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

B1582 - Introduction to Computers, J1742 - Computer Fundamentals, 61211 - Information Technology

#### **Special Requirements**

Permission required for students enrolled in course code 3562 Bachelor of Science (Advanced).

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This introductory unit gives students an insight into the history, structure, operations and uses of computers, and their impact on society. This will be complemented by hands-on use of computers and popular application software packages in a graphical user interface environment. Students gain a basic understanding of the uses of computers, and the skills necessary to use popular applications software, including word processing, spreadsheet and database packages, and Internet tools and services.

### **200591.1 Introduction to International Business**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

61128 - International Business and Asian Environment

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This unit introduces students to the nature of international business operations in the world economy with a focus on the Asian region. The first part of the unit covers the growth in the proportion of international business in world trade; the emergence of different types of organisations involved

in international trade, including multinational corporations; the nature of international business strategy, planning and operations, including the growing role of electronic commerce; how international business differs from domestic business; and the interaction of international business with its environment, including ethical issues. The second part of the unit introduces some of the main features of the socio-economic environment of the countries of Asia, including social, cultural, political, legal and economic factors that affect business operations.

### **400244.1 Introduction to Leisure and Recreation Theory**

**Credit Points** 10 **Level** 1

This unit uses a multidisciplinary approach to explore the different meanings of leisure and recreation. It explores the social psychology of leisure and recreation in addition to the principles and processes of leisure education and leisure counselling. This unit provides the knowledge base that underpins the practical skills of leisure and recreation assessment, program planning and evaluation for a variety of client groups.

### **400776.2 Introduction to Nursing Practice**

**Credit Points** 20 **Level** 1

#### **Assumed Knowledge**

Knowledge gained from a biological or arts/ behavioural science degree or a 3 year post secondary school, overseas registered nurse qualification.

#### **Incompatible Units**

400640 - Foundations of Nursing Practice, 400462 - Medical-Surgical Nursing Therapeutics

#### **Special Requirements**

Space restriction in relation to CPU's safety dealing with the public.

This unit introduces the student to nursing concepts, principles and skills that identify, promote, maintain and support health and well being across the lifespan. Students will also acquire knowledge of nursing concepts and practices that support people who are affected by health breakdown. This introductory unit prepares students for entry into the second year of the Bachelor of Nursing 4642 degree course.

### **400160.2 Introduction to Occupational Therapy**

**Credit Points** 10 **Level** 1

#### **Special Requirements**

This is a specialty unit offered as a compulsory core unit of the occupational therapy program. It is profession specific, preparing students to practice as an occupational therapist and not relevant as an elective for non-occupational therapy students. If students are visiting a NSW Health facility they will need to comply with the NSW Health Occupational Screening and Vaccination Against Infectious Diseases Policy.

This unit introduces students to the profession of occupational therapy, conceptual foundations underpinning the profession, and areas of clinical practice. Students will learn about the important and unique contribution made by occupational therapists in people's lives to promote health and well-being. The important role of occupation in daily life will be discussed. In particular, this unit presents an overview of how occupational therapy reduces activity limitations people may have, and in doing so enhances the social participation for people of all ages and abilities. The problem solving process used by occupational therapists to assist clients will be introduced.

### **200042.2 Introduction to Operations Research**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

HSC Mathematics or equivalent.

This unit introduces the ideas of systems and their mathematical modelling, with special reference to the allocation, inventory, scheduling, queuing and other processes taking place within social systems. It introduces modelling and heuristic problem solving techniques and goes on to introduce the standard techniques of linear programming, network analysis, critical path analysis, inventory control and simulation. Throughout, an emphasis is placed upon the mathematical development of algorithms and their computerisation.

### **400906.1 Introduction to Physiotherapy Practice**

**Credit Points** 10 **Level** 1

#### **Special Requirements**

This unit is only available to students enrolled in course 4662 - Bachelor of Health Science/Master of Physiotherapy.

This unit introduces students to the concept of physiotherapy as a profession and its scope of practice in Australia. It includes exploration of the roles and responsibilities of physiotherapists in the context of the changing health environment. Ethical issues and relevant legal and regulatory requirements will be discussed. In addition, students will be introduced to complexity of normal development, and its relation to human movement. Finally students will learn therapeutic techniques of soft tissue mobilisation. Unit material is presented to students in three blocks.

### **400905.1 Introduction to Podiatry**

**Credit Points** 10 **Level** 1

The broad aim of this unit is to introduce the work of podiatrists in health care and explain the important role of podiatric services in the community. Students will develop basic skills in dealing with professional and health issues. The focus will primarily be on areas designed to prepare

students for incorporating the correct clinical protocols for infection control and to identify relevant clinical skills involving dermatology, functional anatomy, gait, cursory examinations and communication.

### **400137.1 Introduction to Research for Health Sciences**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

E1235 - Research Methods in Health Care, 400863 - Foundations of Research and Evidence-Based Practice

#### **Incompatible Units**

63235 - Introduction to Social Research

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In 2010 this unit replaced by 400863 - Foundations of Research and Evidence-Based Practice. This unit lays down broad foundations of research as used in various disciplines of health sciences, including health and well-being, physical fitness, physical activity, and nutrition. The aim is to create an overall understanding of the significance of research in the students' fields of endeavour. It is designed to introduce the student to foundational concepts and principles in quantitative and qualitative research methods and to explore the complementary role of research paradigms as they underpin the quest for knowledge in the health sciences. It will also address essential research themes such as epidemiology research, validity, reliability, and research ethics.

### **400164.1 Introduction to Sociology of Health**

**Credit Points** 10 **Level** 2

#### **Equivalent Units**

E2231 - Social Dimensions of Health & Illness, 25006 - Introduction to Sociology of Health, 101336 - Introduction to Sociology

#### **Incompatible Units**

400781 - Dynamics of Health

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In The aim of this unit is to offer students new understandings of people in their relations with each other in complex social and cultural contexts. The unit uses health and illness as the prism through which such understandings can be gleaned. The unit introduces students to sociological perspectives and it applies sociological ways of thinking to questions of health, illness and disability. Students will study the influence of culture and social institutions, and of social determinants such as class (socio-economic status), gender, race/ethnicity in shaping social relations and in the production of differing patterns of health and illness. The 'body' as a social and cultural construct, as well as a physical entity, will be explored, as will models of health and health care.

### **300733.1 Introduction to Structural Engineering**

**Credit Points** 10 **Level** 2

#### **Prerequisite**

**300040.1** Mechanics of Materials

#### **Equivalent Units**

85006 - Introduction to Structural Engineering

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This unit covers the basic concepts in analysing and designing simple structural members. It consists of the fundamentals of structural analysis, concrete structures and steel structures

### **400136.1 Introduction to the Psychology of Health**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

E2238 - Health & Human Behaviour

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This unit introduces some of the core concepts, models, theories and methods of inquiry in psychology as they apply to health. Assumptions of human behaviour are examined, showing how these assumptions form the four foundational models of psychology. Those models being psychobiological, learning, cognitive and social. The application of these models to issues of development, personality, motivation and clinical applications allows students to address health topics such as stress, resilience and coping, smoking, eating disorders, disability and health practices.

### **300425.1 Introduction to Wildlife Studies**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Basis understanding of biological / general / environmental sciences.

#### **Special Requirements**

This unit is only available to students who are enrolled in 3592 Bachelor of Animal Science.

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This unit will study the basic biology, ecology, conservation and management of selected terrestrial animals (amphibian, reptiles, birds and mammals) grouped according to their taxonomic affiliations. It will examine the various strategies used in the management of both wild roaming and captive reared animals including those propagated for human use. Students will learn the different management systems and research methods used in the conduct of wildlife research. The use of wildlife as a sustainable resource will be analysed within the context of ecological sustainable development and animal ethics.

### **300469.1 Introductory Chemistry**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

It is assumed that students will have at least already completed a Chemistry bridging course offered by this university, or an equivalent course.

#### **Equivalent Units**

300224 - Chemistry 1, 80800 - Introductory Chemistry 1, CH101A - Introductory Chemistry 1.1D



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The aims of this unit are to relate chemical principles to everyday life. Laboratory skills will be introduced in a systematic way that helps students apply the concepts they will be learning concurrently within the unit. The usefulness of chemistry will be emphasised by giving examples relevant to the students' areas of professional interest (eg food technology, environmental sciences, biology or horticulture), while ensuring that the following fundamental topics are covered: matter, energy, chemical bonds, states of matter, chemical reactions and rates, equilibrium, introduction to organic compounds and nuclear chemistry.

### 300613.1 Introductory Geochemistry: Earth, Resources and Environments

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Chemistry or equivalent.

#### Equivalent Units

14524 - Introductory Geochemistry: Earth, Resources and Environments

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This unit covers rocks and minerals as chemical systems; acquisition, presentation and use (modelling) of geochemical data; chemical evolution of Earth's atmosphere and oceans; monitoring Earth's major and minor climatic events; land degradation; remote sensing and aerial photographic interpretation; chemical aspects of ore genesis; minerals and phase equilibria; transport and cycling of the elements.

### 300333.1 Introductory Plant Physiology

**Credit Points** 10 **Level** 2

#### Equivalent Units

BI104A - Plant Science and Physiology

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This unit introduces students to the study of the mechanisms by which plants function and provides an understanding of these mechanisms. The unit covers the basic concepts of plant physiology, photosynthesis, respiration, photomorphogenesis, phytohormones, mineral nutrition, water relations and the regulation of plant growth and development. This unit is designed to provide a basic knowledge of the scientific principles that underpin horticulture.

### 300334.1 Invertebrate Biology

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

An understanding of biology, especially invertebrates. An understanding of basic chemistry.

#### Equivalent Units

BI203A - Biology of Non-Plant Organisms

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This unit aims to build plant protection skills for students wishing to learn a detailed understanding of arthropods

causing plant damage, their characteristics, physiology and behaviour, ecology and taxonomy.

### 200057.2 Investment Management

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200488 - Corporate Financial Management

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This unit describes the theory and practice of investment decision making. The general objective of the unit is to introduce students to the tools of financial decision making by providing a conceptual framework within which the key financial decision of investment can be analysed. The objectives of this unit are as follows: To provide an overview of the theory of investing in Australian Financial Markets: Equity Markets in Australia, Stock Exchange Trading, Taxation, Australian Debt Markets: Money and Bond Markets. International Investment Environment Foreign Exchange, Equity Debt and Property Market; To apply theoretical concepts of investing to practical applications; Evaluate Asset Allocation, Security selection and Security analysis in Australian Derivatives Markets, International Derivatives Market; Describe Equity Valuation Models, Macro and Industry Analysis of Share Markets; Futures and Forward Contracts. Characteristics of futures/ forwards; Analyse Qualitative and Quantitative Stock Selection; Be knowledgeable about Investor Preferences and Passive and Active Portfolio Management; Describe the risk-return trade-off and know the meaning of efficient markets.

### 400821.2 Issues in Chronic and Palliative Nursing Care

**Credit Points** 10 **Level** 3

#### Incompatible Units

400763 - Family Health Care: Chronicity and Palliative Care Nursing

#### Special Requirements

Students must be enrolled in the Bachelor of Nursing Studies.

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This unit version replaces version 1 from 2010. This unit enables students to explore professional nursing issues that arise when caring for people and families who are living with chronic illness, and for people who are dying from a life threatening illness.

### 300035.2 Kinematics and Kinetics of Machines

**Credit Points** 10 **Level** 2

#### Prerequisite

**300463.1** Fundamentals of Mechanics AND **200237.1** Mathematics for Engineers 1

#### Equivalent Units

86222 - Engineering Mechanics 2

In this unit rigid body kinematics is analysed from the freedom-and-constraints point of view and graphical approaches to velocity and acceleration analyses are covered. The unit looks at how one or more particles move in one, two or three dimensions and how forces cause these movements. It also looks at how forces and couples cause the movement of a single rigid body in two and three dimensions. The movement of multi-body mechanisms and gear trains, and the geometry of gear teeth and cams are studied.

### **400752.2 Knowing Nursing**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

400748 - Becoming a Nurse

#### **Equivalent Units**

400049 - Nursing Context 2

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This unit version replaces version 1 from 2010. This unit introduces students to further constructs that inform professional nursing and nursing practice related to health breakdown.

### **300656.1 Laboratory Quality Management**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

A demonstrated understanding of and competence with laboratory techniques in analytical chemistry or microbiology, corresponding to successful completion of a Level 2 Microbiology or Analytical Chemistry unit.

#### **Equivalent Units**

SC301A - Laboratory Quality Management, BCT321 - Biological/Chemical Technology Practicum 6A, SSCB34 - Practicum 6 (NATA Registration)

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The unit is directed towards the accreditation of a laboratory for chemical, microbiological or forensic testing. Throughout their undergraduate studies, students will have acquired and developed a wide range of practical skills. Competency in the laboratory, however, encompasses much more than the ability to demonstrate a range of manipulative skills. This unit focuses upon the importance and coordination of good laboratory management, teamwork, calibration, record keeping and laboratory manuals. Students are required to develop, establish and operate a Laboratory Quality Management system designed for a specific class of chemical or microbiological test. The quality system is then subjected to a mock accreditation following the guidelines laid down by the National Association of Testing Authorities (NATA). Students will staff the laboratory system under evaluation while academic staff and visitors act as the assessors.

### **SC301A.1 Laboratory Quality Management**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

A demonstrated understanding of and competence with laboratory techniques in analytical chemistry or microbiology, corresponding to successful completion of a Level 2 Microbiology or Analytical Chemistry unit.

#### **Equivalent Units**

BCT321 - Biological/Chem Technology Practicum 6A, SSCB34 - Practicum 6 (Nata Regn), 300656 - Laboratory Quality Management

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In 2009 this unit replaced by 300656 - Laboratory Quality Management. This unit is directed towards the accreditation of a laboratory for chemical or microbiological testing. Throughout their undergraduate studies, students will have acquired and developed a wide range of practical skills. Competency in the laboratory, however, encompasses much more than the ability to demonstrate a range of manipulative skills. This unit focuses upon the importance and coordination of good laboratory management, teamwork, calibration, record keeping and laboratory manuals. Students are required to develop, establish and operate a Laboratory Quality Management system designed for a specific class of chemical or microbiological test. The quality system is then subjected to a mock accreditation following the guidelines laid down by the National Association of Testing Authorities (NATA). Students will staff the laboratory system under evaluation while academic staff and visitors act as the assessors.

### **300624.1 Landuse and the Environment**

**Credit Points** 10 **Level** 2

#### **Equivalent Units**

DN207A - Landuse and the Environment

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This unit will assist students develop a sound framework for the analysis of land use and its interactions with the environment. The skills gained will assist in evaluation of land use at various levels from household to international level. Particular emphasis will be placed on students gaining a sound conceptual framework from which to examine sustainability at the environmental, economic, social, and production levels. Emphasis will be placed on the use of ecological footprinting as a tool.

### **200183.2 Law of Business Organisations**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

General knowledge of Australian business law.

#### **Equivalent Units**

61522 - Business Associations Law, F2006 - Business Associations Law, LW208A - Law of Business Organisations

### Special Requirements

Students enrolled in course 2502.1 - Bachelor of Laws (Non graduate entry) must obtain permission to enrol in this unit.

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This unit deals with legal issues concerning the creation and control of companies and compares this structure with other forms of business organisations, such as partnership, trusts and sole traders. This unit will provide students with an appreciation of the law of partnership, and companies and, for the sake of completeness and comparison, a brief examination of the law regarding unincorporated and incorporated non-profit associations.

## 400818.2 Leadership and Management in Graduate Practice

**Credit Points** 10 **Level** 3

### Assumed Knowledge

It is expected that students will have an understanding of psychosocial concepts and theories, and an awareness of the relationship between effective interpersonal communication and professional relationships.

### Incompatible Units

400063 - Nursing Context 6, 400766 - Leadership in Graduate Practice

### Special Requirements

Students must be enrolled in the Bachelor of Nursing Studies.

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This unit version replaces version 1 from 2010. This unit introduces students who are registered nurses to the concept of the professional nurse as a leader and manager. The exploration and application of leadership and management theory and concepts will enable students to develop an understanding of the relationship of between leadership, management and ethical, effective workplace relationships.

## 400766.2 Leadership in Graduate Practice

**Credit Points** 10 **Level** 3

### Equivalent Units

400063 - Nursing Context 6

### Special Requirements

Students must be enrolled in the Bachelor of Nursing OR Bachelor of Nursing (Graduate Entry).

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This unit introduces the student to the role of the professional nurse as leader and manager.

## 400849.1 Leadership in Graduate Practice (Advanced)

**Credit Points** 10 **Level** 3

### Assumed Knowledge

Completion of all Year 1 and Year 2 Nursing units.  
Completion of all Year 2 Bachelor of Nursing (Advanced) units

### Incompatible Units

400766 - Leadership in Graduate Practice

### Special Requirements

Restrictions on clinical practicum placements students must be enrolled in the Bachelor of Nursing (Advanced) and meet special requirements for safety and professional issues when dealing with the public. Special Requirements are those stipulated by the NSW Health and UWS. At present these include: • Prohibited Persons Employment Declaration (PPED) • Criminal Record Check (CRC) • Adult Health Immunisation • Workcover accredited Senior First Aid Certificate

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This unit introduces the student to the role of the professional nurse as leader and manager. The unit provides opportunities to explore the role of the nurse as leader and manager of a team alongside medical students. The student will be provided with an opportunity to participate in a mentored relationship with appropriate School and College staff.

## 101259.2 Learning and Creativity

**Credit Points** 10 **Level** 2

### Equivalent Units

SE111A - Learning and Creativity

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This unit examines the inter-related processes of learning and creativity and the application and practice of these in all aspects of life. Learning and creativity is contextual. This context is personal, social, cultural and environmental. Unit content is critically positioned within diverse theories, with an emphasis on experiential learning and ongoing critical reflection. The unit promotes understanding of feeling and experience as much as concepts and ideas. It emphasizes the tools and skills of learning, the everyday nature of creativity and enables students to develop and apply their creativity. It is designed for students interested in personal, community and cultural development, in the context of far reaching change.

## 101117.1 Learning through Community Service

**Credit Points** 20 **Level** 3

### Assumed Knowledge

Competence in various forms of communication, such as written, visual, or media-based, to underpin the preparation of a final report. The students need to be at third-year level, adept at working with others and capable of carrying out project work independently.

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Learning through Community Service is a 20 credit point unit in which students apply discipline-based knowledge as they carry out projects of substantial benefit to community agencies. The unit will run over a 6-month period (1H or 2H) and will include common symposium sessions, a 10-week placement in a community agency, an on-line learning system for student/team support, and a final report to the agency. Cohorts available in 2007.1H include

International Student Social Support Networks; MMADD about the arts: Music, Media Arts, Dance and Drama in the Primary School; Students in Free Enterprise (SIFE); Community Language School Development; Video Production; Equity Buddies; Strategic Communications; Children and Technology; and Languages in Educational and Community Settings. Cohorts available in 2007.2H include MMADD about the arts: Music, Media Arts, Dance and Drama in the Primary School, Students in Free Enterprise (SIFE), Literacy, Practically Primary and Serving Children, Families and Professionals as Children Start School.

## 400789.2 Leisure Education Programming and Mental Health

**Credit Points** 10 **Level** 3

In this unit students will explore leisure education that is used in a broad range of service industries that focus on the development and acquisition of a range of leisure, recreation and programming related skills, knowledge and attitudes. Students will develop a philosophical approach to leisure and recreation and skills in communication and facilitation strategies to enable them to use appropriate decision-making processes in developing recreation programs for a range of people across the lifespan. Students will utilise a variety of leisure, recreation and tourism resources to develop recreation programs that will assist in enhancing the lifestyle opportunities and leisure experiences for the client populations they serve.

### 200027.1 Linear Algebra

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Content of 200025 - Discrete Mathematics

#### Equivalent Units

J1730 - Mathematics 1.2, J2764 - Mathematics 2.1, 14501 - Mathematics 1, 14503 - Mathematics 3

Objective of this unit is to present the main fundamentals of linear algebra and includes such topics as solving systems of linear equations, matrix algebra, determinants, eigenvalues and eigenvectors, Euclidean vector spaces, general vector spaces, inner product spaces and linear transformations.

### 300632.1 Living in Country

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Basic understanding of Indigenous culture and landscape values; in particular, the learning outcomes from 300631 Indigenous Landscape.

#### Prerequisite

**300631.1** Indigenous Landscape

#### Special Requirements

National Parks and Wildlife Service (NPWS) Protected Heritage Laws; Custodian-restricted access onto traditional Aboriginal lands; Human Research Ethics approval

This unit complements and builds on the content of unit 300631 Indigenous Landscape. It aims to integrate traditional Aboriginal ways of living in landscape into the undergraduate Bachelor of Natural Science program. Specifically, the unit explores how landscape has influenced Indigenous Australians in terms of their cultures, diet, water supply and shelter and how traditional Indigenous stewardship practices underpin the practice and principles of 'living off the land' and 'Caring for Country'. This unit adopts an ecological approach to the exploration of sustainable land use and the concept of self-sustaining systems.

### 200546.1 Macroeconomic Issues

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200053 Economic Modelling (or equivalent).

#### Prerequisite

**200547.1** Macroeconomic Theory OR **200051.1** Macroeconomic Analysis

#### Equivalent Units

200060 - Macroeconomic Theory and Practice

Macroeconomic Issues builds on concepts examined in earlier units in macroeconomics and applies them to selected areas of debate concerning macroeconomic policy formulation. The unit examines key areas of debate within macroeconomic theory and develops an understanding of approaches used in the theoretical and empirical modelling of key macroeconomic aggregates. Macroeconomic policies are analysed for an open economy with special reference to the Australian economy. Major policy areas considered include inflation, unemployment and labour markets, exchange rate adjustments and the current account, the role and effectiveness of monetary and fiscal policy, and Australia's recent economic growth performance.

### 200547.1 Macroeconomic Theory

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

HSC Mathematics

#### Prerequisite

**200549.1** The Australian Macroeconomy

#### Equivalent Units

200051 - Macroeconomic Analysis

Macroeconomic Theory aims to provide alternative theoretical explanations of the working of the macroeconomy. The unit will be based on the analytical narratives of macroeconomic developments taught in Australian Macroeconomy. Starting from the basic IS-LM model, it derives the aggregate demand (AD) curve and examines the components of commodity and money markets. It also analyses the labour market and derives the aggregate supply (AS) curve of an economy. Using the AD-AS model, it examines the interdependent nature of

macroeconomic problems (e.g. inflation, unemployment), and the effectiveness of fiscal and monetary policies within a closed economy context. The basic model is then extended to analyse open economy issues (e.g., exchange rates and balance of payments, external shocks and international interdependence). Whenever appropriate, alternative approaches to macroeconomics are evaluated.

### 300459.1 Major Project Commencement

**Credit Points** 20 **Level** 4

#### Assumed Knowledge

Knowledge related to the successful completion of year 3 Industrial Design is assumed.

#### Prerequisite

**300313.1** Design Studio 4: Simulate to Innovate AND **300314.1** Designed Inquiry

#### Corequisite

**10915.1** Industrial Experience AND **300012.1** Design Management 1: Product Design Audit OR **300312.1** Industrial Graphics 4: Surface OR **86301.1** Automated Manufacturing

#### Special Requirements

Successful completion of 220 credit points.

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This unit prepares students to be flexible and innovative, with the emphasis placed on design, and its place in and effect on society and people. Students are challenged to respond to a real world design brief focusing on a specific user group and context-of-use. Students undertake desk, field and practical research in order to find design opportunities for detailed development in the second semester of the fourth year program. Peer learning is an important part of the learning experience, as is a user-centred design research approach and is facilitated by an intensive off-campus field trip in the project start-up phase.

### 300460.1 Major Project Completion

**Credit Points** 30 **Level** 4

#### Assumed Knowledge

Knowledge related to the successful completion of year 3 Industrial Design is assumed and successful completion of Major Project Commencement and Major Project Commencement's co-requisite units.

#### Prerequisite

**300459.1** Major Project Commencement

#### Corequisite

**300013.1** Design Management 2: Corporate Image and Identity OR **300015.1** Design Management 4: Design Process OR **300315.1** Industrial Graphics 5: Integrated

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Major Project Completion is the project realisation component of the student's final year program. The unit offers the student the chance to consolidate the range of methodologies and processes developed and evaluated in Major Project Commencement, that contextualise the principles and practices that will lead to the realisation of

their identified design solution. The final design outcome will form part of the final year graduate exhibition. The design solution which students will be developing and submitting for this unit responds to the design brief developed in Major Project Commencement.

### 300536.1 Major Project in Construction

**Credit Points** 10 **Level** 4

#### Prerequisite

**200485.1** Decision Making for Construction Professionals

#### Equivalent Units

BG402A - Major Project 1

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This unit will enhance the ability of students to investigate a selected topic with a construction industry focus. The unit involves the preparation of a literature review, in consultation with an external supervisor from industry. Content: mechanics of a literature review, use of research (or strategic planning) in the construction industry, development of high-value competencies in terms of marketing, organisational structure and project management.

### 300408.1 Mammalian Cell Biology and Biotechnology

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

First year biology and second year biochemistry units.

#### Prerequisite

**300219.1** Biochemistry 1 OR **300555.1** Proteins and Genes

#### Equivalent Units

BI302A - Cell Biology, 300318 - Mammalian Cell Biology and Biotechnology

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This unit deals with the molecular mechanisms within cells that co-operate to create a system that feeds, moves, responds to stimuli, grows and divides. The unit will initially build on existing knowledge of the properties that are common to most eukaryotic cells and that are necessary to an understanding of how any individual cells live, reproduce and form mammalian tissue.

### 300407.1 Mammalian Molecular Medicine

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Basic knowledge in plant, animal and microbial genetics and molecular biology.

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This unit focuses on the science that is critical to our understanding of the basic biology, pathophysiology, diagnosis and treatment of acute and chronic diseases. This unit prepares students for future innovations in prevention, management and cure of catastrophic diseases, such as autoimmune diseases, fatigue illnesses, rheumatic diseases, cancer and infectious and genetic diseases.

### **200116.2 Management Accounting Fundamentals**

**Credit Points** 10 **Level** 1

#### **Prerequisite**

**200111.1** Financial Accounting Applications OR **200103.1** Accounting Reports and Decisions

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This unit provides an introduction to management accounting in an e-commerce environment. The interrelations of management accounting to other functional areas, to suppliers, to customers, and to other sources of external information relevant to planning and control are examined. Topics include the development and logic of routine and non-routine analysis performed to support management decision making.

### **200571.1 Management Dynamics**

**Credit Points** 10 **Level** 1

#### **Corequisite**

**200336.1** Business Academic Skills

#### **Special Requirements**

External offerings for this unit are only available to students who are enrolled in a Property course or Property key program.

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This unit provides an opportunity for students to engage with the dynamics of the management of organisations. Students will be introduced to the connection between the way work and systems are organised and managed and their impact on individuals and societies. This is achieved by using case based opportunities to examine real life contexts. This is an essential unit for business students that can be taken by any student needing a broad initial understanding of management.

### **700003.2 Management Dynamics (UWSC)**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

200571 - Management Dynamics

#### **Special Requirements**

Students must be enrolled at UWS College.

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The unit provides an opportunity for students to engage with the dynamics of the management of organisations. Students will be introduced to the connection between the way work and systems are organised and managed and their impact on individuals and societies. This is achieved by using case based opportunities to examine the real life contexts. This is an essential unit for business students that can be taken by any student needing a broad initial understanding of management.

### **MG102A.2 Management Foundations**

**Credit Points** 10 **Level** 1

#### **Special Requirements**

This unit is restricted to students enrolled in the Bachelor of Engineering, Bachelor of Construction Management, Bachelor of Technology, and Bachelor of Housing.

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Management Foundations provides an opportunity for students to understand the linkage between organisational processes and managerial practices. The main aim of the unit is to identify the dynamic nature of managerial practice in changing social, economic, technological and global environments. This unit is for students in the School of Engineering only. Students in other degrees are not able to complete this unit.

### **300633.1 Management of Aquatic Environments**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Basic biological sciences.

#### **Equivalent Units**

EY104A - Management of Aquatic Environments

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This unit uses the setting of surface freshwater aquatic environments to develop an understanding of a range of professional skills and values necessary for the theory and practice of environmental management. Working in small groups students investigate the philosophy and practice of science through the design and implementation of field studies that investigate the nature of pollution, evaluate the current condition of aquatic systems and recommend strategies that will improve ecosystem integrity and mitigate the risk of adverse human health outcomes.

### **200570.2 Management of Change**

**Credit Points** 10 **Level** 3

#### **Equivalent Units**

H3741 - Management of Change

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This unit introduces the concepts of organisational change, the need to manage change as a change agent and how to develop and optimise change models and schemes. In this unit we encourage you to consider the world from different perspectives. We wish you to challenge your own ways of learning and to try to include more reflection in the work that you do. The unit will be driven by theory as well as practice and will need you to read conflicting viewpoints in order to understand the complexity of the relationships we are discussing.

### 200528.1 Management of Projects

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Students are expected to have gained an introductory level of knowledge in operations and supply chain management.

#### Equivalent Units

61654 - Facilities Location and Project Management, 61823 - Business Modelling

Management of Projects introduces students to the role of projects in organizations and the associated issues in managing projects, including the management of project teams and project lifecycles. While project management is well understood in areas such as construction and information systems, this unit also covers its use in other business applications, such as product development, advertising and promotional campaigns, organizational change and the implementation of corporate strategy. The use of cases, simulations and other exercises allows students to gain a realistic appreciation of the issues involved in managing projects. A range of project management tools and techniques are demonstrated through these case studies.

### 200081.2 Managerial Economics

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Microeconomics OR Introduction to Economics

This unit develops and applies economic theories and principles introduced in previous units. Practicality is emphasised, with economic methods, theories and practices being applied to managerial decision making. Topics include: the firm's environment, production, costs, profit maximisation, constrained optimisation, markets, firm behaviour, project management, and the impact of government policy.

### 200376.1 Managing and Developing Careers

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

A basic knowledge of employment relations principles and processes as presented in Managing People at Work

#### Prerequisite

**200300.1** Managing People at Work

Managing and Developing Careers is an introductory unit designed to identify the determinants of the process of career management and analyse the roles of key stakeholders in this process including employers, unions, employees, government and societal groups. This unit will explain the nature and process of career management using a stakeholder focus. In achieving these goals, this unit will evaluate the different approaches to career management and relate such approaches to contemporary issues in the field of career management

### 200150.1 Managing Diversity

**Credit Points** 10 **Level** 3

#### Prerequisite

**200300.1** Managing People at Work

Diversity in the workplace has come to refer to those groups most likely to be affected by the homogeneous and normative assumptions of traditional employment systems. While race, gender and religion are the most recognised forms of diversity it has also come to refer to the needs of other groups such as the disabled, the aged and those disadvantaged because of family obligations. The management of diversity is concerned with addressing the needs of such groups in ways that are equitable and organisationally sustainable. This has become increasingly important in a pluralistic society.

### 200175.4 Managing Human Resources and Industrial Relations

**Credit Points** 10 **Level** 3

#### Prerequisite

**200300.1** Managing People at Work

This unit integrates the study of strategic theory and practice in the management of human resource management and industrial relations as they co-exist together in the employment relations model. The dynamic contemporary environment influencing strategic planning of business, human resource and industrial relations is analysed. Models of strategic choice theory, strategic planning, human resource management and industrial relations strategy are used to examine the strategy in employment relations. The application of ethics and standards at work in the development and implementation and evaluation of strategy is examined. Students undertaking this unit are required to participate in a HR Simulation exercise that explores the realities of employment relations in practice.

### 200300.1 Managing People at Work

**Credit Points** 10 **Level** 1

#### Equivalent Units

200151 - Management of Employment Relations, 61428 - Introductory Employment Relations, 61411 - Australian Employment Relations

Managing People at Work provides an introductory framework for the study of employment relations. The unit is approached from a stakeholder perspective, emphasising the way that management, labour and the state, along with other key stakeholders, act, both separately and together, to structure the employment relationship. In doing so, the unit integrates industrial relations and human resource management theory and practice, illustrating the links between the two disciplines. The content of the unit is structured so as to provide an initial introduction to the disciplines of industrial relations, human resource

management, and employment relations, and to the key stakeholders in the employment relationship. Building on this framework, a theoretical and empirical analysis of employment relations processes is provided, with particular emphasis given to recent changes in the role and perspectives of stakeholders.

### **200273.3 Managing Service and Experience**

**Credit Points** 10 **Level** 2

#### **Equivalent Units**

200564 - Introduction to Sport Management, 400319 - Sport Management 1

As service provision becomes increasingly important across a number of industries, some firms are moving beyond the idea of providing a service to providing a total customer experience. Managing Service and Experience introduces students to the exciting concepts of management in the service and experience economy. The unit examines the development of the experience economy and the specialist skills required to manage commercial organisations in the emerging experience economy. Key areas which are covered include: the experience economy, the characteristics of service, service development, service evaluation & service improvement.

### **200709.1 Managing the Accommodation Experience**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Students are expected to have gained an introductory level of knowledge in hospitality management.

#### **Equivalent Units**

200144 - Lodging Management

The accommodation sector is an integral part of the hospitality experience. It requires the combination of intangible service and experience with the tangibility of a product which is used by guests. The need to stay competitive in this growing and competitive market creates a need for organisations to look beyond the historical components such as affordability, suitability and luxury. This unit gives students the opportunity to develop an understanding of these accommodation issues as they relate to hospitality organisations.

### **200710.1 Managing the Food and Beverage Experience**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Students are expected to have gained an introductory level of knowledge in hospitality management.

#### **Equivalent Units**

200145 - Food Service Systems

The provision of Food and Beverage is a key component of the hospitality industry and is a prominent feature of the

experience economy. Future managers and decision-makers need a thorough knowledge of the nature and characteristics of modern food and beverage service to gain competitive advantage. This unit draws upon traditional gastronomy to examine the role of food & beverage in society. A systems approach to food and beverage service management is then utilized to understanding the delivery of a food and beverage experience.

### **200086.2 Marketing Communications**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Basic principles of marketing

#### **Prerequisite**

**200083.1** Marketing Principles

Developing and managing an effective integrated marketing communications (IMC) program is a vital part of successful marketing. Moreover, IMC is a highly visible and demanding aspect of marketing communication effort at brand level. This unit, grounded in marketing principles, provides students with an understanding of coordinating major elements of the communication mix – advertising, sales promotions, personal selling, sponsorship marketing, public relations, direct marketing, and point of purchase material.

### **200090.2 Marketing of Services**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

An advanced understanding of Marketing theory and practice

#### **Prerequisite**

**200083.1** Marketing Principles

#### **Equivalent Units**

MK319A - Services Marketing, 61726 - Services Marketing

Given the service-based nature of modern economies, business graduates will either work for firms whose central offering is service or be employed by organisations that use service as an integral supporting element in what they do and what they offer. Therefore, increasingly, knowledge and skills in the field of marketing of services are required by personnel operating across various industries and in a range of roles. The unit aims to: expose students to relevant theory and practice in the field of services marketing; develop participants into more complete marketers capable of operating in service marketing environments.

### **200096.2 Marketing Planning Project**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

An understanding of marketing concepts including the elements of consumer behaviour, marketing research methods, marketing communications, channel



management and distribution, brand and product management, competitive strategy and quantitative methods in marketing. The basics of economics, finance and accounting, mathematics and statistics and general communications are also assumed.

**Prerequisite**

**200083.1** Marketing Principles

**Equivalent Units**

61734 - Marketing Project, K311A - Marketing Planning Project

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Marketing planning project (MPP) assimilates and builds on the wide range of marketing units that students have previously completed. MPP assimilates students' specialist knowledge developed in other units through the use of a 'real-life' case context in which students demonstrate their mastery of marketing in the development and presentation of a professional marketing plan.

**200083.1 Marketing Principles**

**Credit Points** 10 **Level** 1

**Equivalent Units**

61711 - Marketing Principles, H2808 - Principles of Marketing, MK104A - Marketing Fundamentals

**Special Requirements**

External offerings for this unit are only available to students who are enrolled in either a Property course or a Property Key Program in 2739 - Bachelor of Business and Commerce.

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This unit is a survey of the marketing process, introducing students to the marketing concept, strategic and marketing planning, marketing research, consumer and customer behaviour, issues of market segmentation, targeting and positioning as well as all the elements of the marketing mix (product/service, pricing, distribution and marketing communication strategies).

**200592.1 Marketing Research**

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

Basic principles of marketing, consumer behaviour and statistics.

**Prerequisite**

**200032.1** Statistics for Business AND **200083.1** Marketing Principles

**Equivalent Units**

200085 - Fundamentals of Marketing Research

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Marketing Research provides a comprehensive appreciation of the methods, uses and limitations of contemporary marketing research. The emphasis is on a conceptual understanding of research method rather than applied research application, which is the focus of a later unit. Students gain exposure to concepts such as research design, information collection, data processing and analysis

and results communication. Students gain exposure to qualitative and quantitative techniques with an appreciation of the role of computer processing in marketing research.

**200472.2 Material Science in Construction**

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

Contents covered in Building 1.

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This unit deals with the behaviour of building materials and products in the construction context, including concrete, timber, metal, composites and polymers. An introduction will be given first on how material behaviour and properties are affected by micro-structure, composition and environment. Materials will be discussed in detail according to their physical properties and how they degrade in context. We will also discuss how the materials are manufactured and used and what their environmental impacts are.

**200024.1 Mathematical Finance**

**Credit Points** 10 **Level** 3

**Prerequisite**

**200026.1** Advanced Mathematics for Business OR **200030.1** Differential Equations

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The first section of the unit covers the idea of hedging and pricing by arbitrage in the discrete-time setting of binary trees. The key probabilistic concepts of conditional expectation, martingales, change of measure and representation are introduced in a simple framework. The second (and main) part of the unit concentrates on classical Black-Scholes analysis, assuming a lognormal random walk for asset prices. Ito's lemma and simple arbitrage arguments are used to derive the Black-Scholes partial differential equation for the fair value of an option. A variety of different kinds of options are considered and it is shown how, by suitably selecting boundary and final conditions for the Black-Scholes equation, virtually all derivative securities may be valued in a Black-Scholes framework. The unit concludes with a variety of 'exotic options': digital, pay-later, gap options and American options and the free boundary value problems. The link between the existence of equivalent martingale measures and the ability to price and hedge is formalised.

**200022.1 Mathematical Modelling**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Differential Equations.

**Equivalent Units**

14336 - Mathematical Modelling 1, J3674 - Mathematical Modelling, 14407 - Differential Equations Modelling

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This unit concentrates on the solution of some mathematical problems that are suitable for interpretation in a deterministic manner. Selected real-world problems are approximated by mathematical models that are amenable

to being written in terms of linear and non-linear equations and ordinary differential equations. In some instances analytic solutions are obtained, while in others computer programs provide numerical results. In either situation, there is emphasis on interpreting models, modifying them as required and using them for prediction.

### 300691.1 Mathematical Reasoning

**Credit Points** 10 **Level** 1

#### Equivalent Units

300589 - Mathematics Toolbox

#### Special Requirements

Only students enrolled in a Science / Computing / Business degree course should enrol in this unit and this enrolment must take place in their first year of study. Students may not concurrently enrol in Mathematical Reasoning and any other mathematics / statistics unit. Due to the requirements above, permission is required to enrol in this unit. 300691 Mathematical Reasoning is incompatible with the following units: DN206A Planning Research Methods, 200022 Mathematical Modelling, 200023 Analysis, 200024 Mathematical Finance, 200025 Discrete Mathematics, 200026 Advanced Maths for Business, 200034 Statistical Theory, 200036 Data Mining & Visualisation, 200037 Regression Analysis & Experimental Design, 200038 Time Series & Forecasting, 200041 Applied Regression and Forecasting, 200042 Introduction to Operations Research, 200237 Mathematics for Engineers 1, 200238 Mathematics for Engineers 2, 200242 Mathematics for Engineers 3, 200424 Statistics for Accountants, 200027 Linear Algebra, 200028 Advanced Calculus, 200030 Differential Equations, 200031 Mathematics for Business, 200032 Statistics for Business, 200033 Applied Statistics, 200045 Quantitative Project, 200182 Quantitative Techniques, 200189 Concepts of Mathematics, 200192 Fundamentals of Mathematics, 200192 Statistics for Science, 200193 Abstract Algebra, 200263 Biometry.

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This unit will cover basic mathematical concepts, such as algebraic, graphical, trigonometric and arithmetic skills that are needed in a variety of contexts. In any one semester, six areas of content will be considered from the following - Basic Numerical Operations, Basic Algebraic Operations, Functions and Graphs, Linear Equations, Quadratic Equations and Quadratic Functions, Basic Trigonometry, Financial Mathematics and Basic Statistics. In addition to the mathematical content, students will be exposed to strategies that will help them to learn to study mathematics effectively and also to lessen any mathematical anxiety problems that they may experience.

### 700044.1 Mathematics (UWSCFS)

**Credit Points** 10 **Level** Z

#### Special Requirements

Students must be enrolled at UWS College.

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The Mathematics unit is designed and written to prepare students for further mathematical study at first year university level. It provides a comprehensive introduction to the study of calculus and its applications in the real world.

The unit develops those skills peculiar to the mathematical requirements of further study in the areas of Business, Computing, Information Technology, Science and Engineering.

### 300672.1 Mathematics 1A

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Mathematics achieved at band 4, 5 or 6 or equivalent, or 200191 Fundamentals of Mathematics

#### Equivalent Units

200189 - Concepts of Mathematics

#### Special Requirements

This unit is not available to students enrolled in 3621 Bachelor of Engineering.

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This level one hundred unit provides a solid foundation in the theory and applications of differential calculus, as well as some introductory work on complex numbers. It is the first of two units developing aspects of calculus.

### 300673.1 Mathematics 1B

**Credit Points** 10 **Level** 1

#### Prerequisite

**300672.1** Mathematics 1A

#### Equivalent Units

200189 Concepts of Mathematics

#### Special Requirements

This unit is not available to students enrolled in 3621 Bachelor of Engineering.

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This Level 1 unit provides a solid foundation in the theory and applications of integral calculus, as well as some introductory work on linear algebra and infinite sequences and series. It is the second of two units developing aspects of calculus.

### 700069.1 Mathematics B (UWSCFS)

**Credit Points** 10 **Level** Z

#### Assumed Knowledge

Completion of Year 10 Mathematics or equivalent.

#### Equivalent Units

900033 - Mathematics B

#### Special Requirements

This unit is only available to UWS College students.

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The Mathematics B course is designed and written to prepare students for further mathematical study at first year university level in courses that do not demand an in-depth study of Calculus.

**700025.1 Mathematics C (UWSCFS)**

**Credit Points** 10 **Level** Z

**Special Requirements**

Students must be enrolled at UWS College.

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The Mathematics C unit is designed and written to prepare students for mathematical study at first year university level, specifically in the area of Engineering. It provides a comprehensive introduction to the study of calculus and its applications in the real world.

**200237.1 Mathematics for Engineers 1**

**Credit Points** 10 **Level** 1

**Equivalent Units**

14505 - Engineering Mathematics 1, 200195 - Mathematical Methods A, 200196 - Mathematical Methods B

**Incompatible Units**

200031 - Mathematics for Business, 200189 - Concepts of Mathematics

**Special Requirements**

HSC Mathematics at band 5 or 6.

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This unit is the first of two mathematics units to be completed by students enrolled in an engineering degree. It covers the following topics: Differential and integral calculus of a single variable, complex numbers, aspects of matrix algebra, vectors and some elementary statistics and probability theory.

**700019.1 Mathematics for Engineers 1 (UWSC)**

**Credit Points** 10 **Level** 1

**Prerequisite**

**700025.1** Mathematics C (UWSCFS)

**Equivalent Units**

200237 - Mathematics for Engineers 1

**Special Requirements**

Students must be enrolled at UWS College.

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This unit is the first of two mathematics units to be completed by students enrolled in an engineering degree. It covers the following topics: Differential and integral calculus of a single variable, complex numbers, aspects of matrix algebra, vectors, and some elementary statistics and probability theory.

**200238.1 Mathematics for Engineers 2**

**Credit Points** 10 **Level** 1

**Prerequisite**

**200237.1** Mathematics for Engineers 1

**Equivalent Units**

14506 - Engineering Mathematics 2

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This is a Level 1 unit to be undertaken by students enrolled in an Engineering degree. It covers the following topics: Ordinary Differential Equations and Multivariable Calculus.

**700022.1 Mathematics for Engineers 2 (UWSC)**

**Credit Points** 10 **Level** 1

**Prerequisite**

**700019.1** Mathematics for Engineers 1 (UWSC)

**Equivalent Units**

200238 - Mathematics for Engineers 2

**Special Requirements**

Students must be enrolled at UWS College.

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This is a Level 1 unit to be undertaken by students enrolled in an Engineering Diploma. It covers the following topics: Ordinary Differential Equations and Multivariable Calculus.

**200242.2 Mathematics for Engineers 3**

**Credit Points** 10 **Level** 2

**Prerequisite**

**200238.1** Mathematics for Engineers 2 OR **14506.1** Engineering Mathematics 2

**Equivalent Units**

200194 - Engineering Mathematics 3

**Special Requirements**

This unit is designed to meet the requirements of students enrolled in an engineering degree. There are other mathematics units more suitable for students from other disciplines.

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This unit covers topics from Advanced Calculus including Vector Calculus, Complex Analysis, Fourier Series, Heat and Wave Equations, Fourier Integrals and Transforms; Discrete Mathematics including logic and set theory; Random Variables and Random Processes including mean correlation and covariance functions, ergodicity, ensemble averages, and Gaussian processes.

**200413.2 Mathematics Honours Thesis**

**Credit Points** 40 **Level** 5

**Special Requirements**

Restriction to students enrolled in a Bachelors honours course. understanding and knowledge equivalent an undergraduate BSc (Mathematics) Degree or key program in Mathematics/Statistics is required. normally the student will have a grade point average > 5 unless a case can be made.

The aim of this unit is to further develop the student's research and problem solving skills. The student is required to implement the research plan, complete a substantive piece of research in the field of Mathematics/Statistics, and to communicate the results of that work to an interested and technically literate audience. All projects will therefore contain at least two broad areas of assessment: the substantive work itself, and the oral and written communication of the work to others. All assessment components submitted in both of these areas are expected to be of a high professional standard. Students will present their research in the thesis. The thesis topic and structure will vary according to the area of interest of the student and the expertise of the supervisor. Throughout this unit regular planned consultations between the student and supervisor will occur. Students are expected to work to a schedule devised in consultation with their supervisor. The schedule will include set dates for the presentation of draft chapters for review by the supervisor.

### 300040.1 Mechanics of Materials

**Credit Points** 10 **Level** 2

#### Prerequisite

**300463.1** Fundamentals of Mechanics

#### Equivalent Units

300039 - Mechanics and Materials

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Mechanics of Materials is the study of the stresses and deformation of a body made of any elastic solid material, and how these are related to the body's shape and the load applied to it. This unit looks at how and why structural components including bars and beams deform and break. It concentrates on how these are affected by the geometry of the body and loading. Types of loadings considered include normal loads, torsional loads and bending loads. The main objective of the unit is to introduce students to the aspects of stress, strain and internal force development in the components and the methods to determine the deformation and deflections of the components. Energy methods and impact loadings are also considered.

### 300487.1 Mechatronic Design

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Understanding of statics and mechanics of materials.

#### Prerequisite

**300040.1** Mechanics of Materials

#### Equivalent Units

300041 - Mechatronic Design 1, 300042 - Mechatronic Design 2

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The aim of the unit is to integrate the basic skills of mechanics, mechanical systems and automation in the practice of engineering design as applied to mechatronic devices and systems. The ability to perform detailed design analysis of such machine elements as bearings, brakes, clutches, belt drives and shaft and motor systems is the intended outcome of undertaking this unit and project

based tasks will form part of the learning process and team work experience.

### 300749.1 Medical Microbiology

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

A knowledge in microbiology equivalent to the successful completion of Microbiology 1.

#### Prerequisite

**300300.1** Microbiology 1 AND **300321.1** Microbiology 2

#### Equivalent Units

J3814 - Medical Microbiology, MI308A - Medical Microbiology, 300233 - Medical Microbiology

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This unit has a modern approach to the study of the interaction between the human host, micro-organisms and parasites. Students will embark on a journey into the world of pathogenic micro-organisms exploring the molecular mechanisms by which these override host defences leading to disease. Topics include: Non-specific and specific defences (immune system) of the human body. Host-parasite interaction and pathogenesis of disease. Types of infection and epidemiology. Infectious diseases of the human body systems and associated aetiological agents. This will be supported with laboratory experience representing modern laboratory diagnostic procedures including molecular biology for the identification of infectious disease agents and how this information is applied to epidemiology.

### 400813.1 Medical Research Project

**Credit Points** 60 **Level** 3

#### Assumed Knowledge

Knowledge from successful completion of years 1 and 2 of MB BS

#### Prerequisite

**400737.1** Scientific Basis of Medicine 1 AND **400738.1** Health Practice 1 AND **400739.1** Scientific Basis of Medicine 2 AND **400740.1** Health Practice 2

#### Corequisite

**300411.2** Research Methodology and Experimental Design OR **400148.1** Quantitative Research AND **400137.1** Introduction to Research for Health Sciences

#### Special Requirements

If any clinical work is to be undertaken as part of the research project, the students will need to continue to meet the same requirements for immunisation and child protection as for all other students in the medical course.

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This unit is the principal component in the Bachelor of Medical Research. It aims to give students, enrolled in the UWS MBBS, the opportunity to develop their critical thinking and gain a more detailed experience in medical research than is provided in the medical course. It consists of a research project in any area of medical research for which the School can provide suitable supervision. Students will study the relevant literature, develop and

conduct the program of research with the assistance of their supervisor, take part in research seminars in their research group, and present the results as a dissertation.

### **400825.2 Medical Surgical Nursing 2 (Advanced)**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Completion of all Year 1 Bachelor of Nursing Units  
Completion of all Year 2 Bachelor of Nursing (Advanced) Units  
Completion of all Autumn Year 2 Bachelor of Nursing Units

#### **Prerequisite**

**400749.1** Nursing and Health Breakdown OR **400776.1** Introduction to Nursing Practice

#### **Corequisite**

**400758.1** Alterations in Breathing, Sexuality, Work/Leisure and Mobility

#### **Incompatible Units**

400757 - Medical-Surgical Nursing 2

#### **Special Requirements**

Students must be enrolled in course 4648 - Bachelor of Nursing (Advanced). To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; possess a current WorkCover Authority approved First Aid Certificate.

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This unit will elaborate on professional nursing concepts and practices that promote maintain and support people who are experiencing health breakdown affecting breathing, work/leisure, sexuality and mobility. This unit will enable the student to undertake an advanced health assessment and develop advanced clinical reasoning and decision making skills to link theory and practice.

### **400753.3 Medical-Surgical Nursing 1**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Content and achievement of learning outcomes derived from Year One nursing units.

#### **Prerequisite**

**400749.1** Nursing and Health Breakdown OR **400776.1** Introduction to Nursing Practice

#### **Corequisite**

**400814.1** Alterations in Nutrition, Elimination and Sexuality

#### **Incompatible Units**

400058 - Nursing Therapeutics 6, 400059 - Nursing Therapeutics 7, 400642 - Medical-Surgical Nursing Therapeutics

#### **Special Requirements**

Restrictions on clinical practicum placements (students must be enrolled in the Bachelor of Nursing and have met

Special Requirements), safety and professional issues dealing with public. Special Requirements are those stipulated by the NSW Health and UWS. At present these include: Prohibited Persons Employment Declaration (PPED), Criminal Record Check (CRC), Adult Health Immunisation, Workcover accredited Senior First Aid Certificate.

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This unit will elaborate on professional nursing concepts and practices that promote, maintain and support people who are experiencing health breakdown affecting eating, drinking, nutrition and elimination.

### **400757.3 Medical-Surgical Nursing 2**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Content and achievement of learning outcomes related to Year One nursing units and MSN1 and ANE units from Year 2 Autumn.

#### **Prerequisite**

**400749.1** Nursing and Health Breakdown OR **400776.1** Introduction to Nursing Practice

#### **Corequisite**

**400815.1** Alterations in Breathing, Work/Leisure and Mobility

#### **Incompatible Units**

400055 Nursing Therapeutics 4

#### **Special Requirements**

Special Requirements are those stipulated by the NSW Health and UWS. At present these include: • Prohibited Persons Employment Declaration (PPED) • Criminal Record Check (CRC) • Adult Health Immunisation • Workcover accredited Senior First Aid Certificate

.....

This unit will elaborate on professional nursing concepts and practices that promote, maintain and support people who are experiencing health breakdown affecting breathing, work/leisure, sexuality and mobility.

### **300550.1 Medicinal Chemistry**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

300225 - Chemistry 2, J1574 - Organic Chemistry 1

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Students studying at Hawkesbury or Parramatta campus should refer to 300225 - Chemistry 2. This unit uses medicinal chemistry to continue the development of students' understanding of the basic foundations of chemistry begun in Principles of Chemistry. The unit focuses on introductory chemical and pharmacological kinetics, introduces coordination compounds such as haemoglobin, and goes on to an in-depth treatment of the structure, reactivity and nomenclature of the principal functional groups. These are discussed in the context of their role in life, medicine and disease. The unit provides a necessary foundation for subsequent studies in chemistry, biochemistry, and related areas.

### 400759.3 Mental Health Nursing 1

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Content and achievement of learning outcomes for Year One Bachelor of Nursing units in the 4642, 4643 or 4648 Bachelor of Nursing courses.

#### Prerequisite

**400749.1** Nursing and Health Breakdown OR **400776.1** Introduction to Nursing Practice OR **400640.2** Foundations of Nursing Therapeutics

#### Equivalent Units

400054 - Nursing Therapeutics 3

#### Special Requirements

There are considerable restrictions on the availability of clinical practicum placements so students must be enrolled in one of the Bachelor of Nursing courses, 4642, 4643 or 4648, and must have met Special Requirements for these courses. This enrolment requirement is a risk management strategy to ensure that enrolled students are able to satisfy safety and professional issues when dealing with public. Special Requirements are those stipulated by the NSW Health and UWS. At present these include: • Prohibited Persons Employment Declaration (PPED) • Criminal Record Check (CRC) • Adult Health Immunisation • Workcover accredited Senior First Aid Certificate

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This unit will extend the student's understanding of the relationships between stress, adaptation, mental health and the person's capacity to function in everyday life and the implications for professional nursing practice.

### 400762.2 Mental Health Nursing 2

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Knowledge and skills relating to 400759 - Mental Health Nursing 1.

#### Prerequisite

**400759.1** Mental Health Nursing 1

#### Equivalent Units

400066 - Nursing Therapeutics 11

#### Special Requirements

Special Requirements are those stipulated by the NSW Health and UWS. At present these include: Prohibited Persons Employment Declaration (PPED), Criminal Record Check (CRC); Adult Health Immunisation and Workcover accredited Senior First Aid Certificate.

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This unit will elaborate the mechanisms of health breakdown and their application to professional nursing practice in supporting people who are affected by serious mental health breakdown.

### 300300.1 Microbiology 1

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Knowledge of introductory biology, including an understanding of the diversity of living organisms and basic concepts of cell structure and function.

#### Prerequisite

**300221.1** Biology 1 OR **300222.1** Biology 2 OR **300539.1** Biodiversity OR **300543.1** Cell Biology

#### Equivalent Units

14434 - Microbiology 1, B1106A - Biological Sciences, J2029 - Basic Microbiology, MI201A - Microbiology 2.1 (V1)

#### Incompatible Units

300331 - General Microbiology

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Microorganisms are important in all aspects of our lives. In this unit students will explore the diversity of microorganisms and their significance in the environment, in foods and industry as well as in health and disease. Students will be introduced to the structure, reproduction, classification, cultivation and enumeration of bacteria, viruses and fungi. The conditions required for growth and survival of microorganisms will be studied as well as physical and chemical methods of control. Students will conduct laboratory exercises designed to develop their skills in culturing and observing microorganisms.

### 300321.1 Microbiology 2

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

For safety reasons it is essential that students understand and are competent in the practice of aseptic technique in basic microbiological techniques. These skills are developed in Microbiology 1 and General Microbiology. These units, together with Biochemistry 1, also provide the foundation knowledge necessary for studying the metabolic diversity of microorganisms, molecular systematics and microbial genetics, the major themes of Microbiology 2. Relevant topics in Biochemistry 1 or General Biochemistry include structure and function of enzymes, protein synthesis, structure and function of nucleic acids. The introductory microbiology units provide essential knowledge of the major groups of microorganisms and the conditions required for their growth and survival.

#### Corequisite

**300331.1** General Microbiology OR **300300.1** Microbiology 1 AND **300219.1** Biochemistry 1 OR **300227.1** General Biochemistry OR **300555.1** Proteins and Genes

#### Equivalent Units

14443 - Microbiology 2, J2028 - Microbial Physiology and Genetics, MI202A - Microbiology 2.2

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This unit discusses the origins of genetic variation in prokaryotes and explores the structure and metabolic diversity of microorganisms from a variety of habitats

including extreme environments. Studies of the biochemistry of prokaryotes focus on metabolic strategies for energy generation and growth in various natural environments. Students are introduced to the applications of microbial metabolism in food, wine and other industries. The principles of classification and identification of bacteria and yeasts are developed. This includes an introduction to molecular systematics and its impact on the classification of living organisms and in areas such as molecular diagnostics and epidemiology. The unit also addresses the principles and applications of recombinant DNA techniques in biotechnology and in the study of microbial physiology and genetics. Laboratory classes introduce students to techniques used to study microbial identification, physiology and genetics.

### 300044.1 Microcontrollers and PLCs

**Credit Points** 10 **Level** 2

#### Prerequisite

**300025.1** Electronics

#### Equivalent Units

86402 - Microprocessor Applications in Mechanical Engineering, 89025 - Computers in Real Time Control

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This unit introduces students to the study of specialized, dedicated and embedded control oriented devices through the in depth study of one of the members of the 8051 family of microprocessors and the Omron programmable logic controller (PLC) and associated pneumatic cylinders as actuators. The unit introduces the hardware and software details needed to apply microcontrollers and PLCs to general situations in computer, electrical and mechanical engineering. Students write assembler code and compose ladder diagrams to achieve control along with the physical interfacing needed to external devices. This unit integrates knowledge, acquired in other units, of physical devices and processes through microcontroller and PLC applications thus enhancing employability.

### 300076.1 Microprocessor Systems

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Competence in the following knowledge obtained in 300027 - Engineering Computing: Data manipulation using a spreadsheet application; Basic structured programming techniques; Apply algorithms as a methodology for solving engineering problems.

#### Prerequisite

**300018.1** Digital Systems 1

#### Equivalent Units

84137 - Microprocessor Systems

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This unit introduces students to the internal structure of microprocessors and its fundamental operations. Topics include assembly language programming, interrupt processing, CPU functions, memory organisation and peripheral programming. Intel 8088 microprocessor will be discussed in great detail. Embedded processor will also be covered.

### 300043.2 Mobile Robotics

**Credit Points** 10 **Level** 4

#### Prerequisite

**300463.1** Fundamentals of Mechanics

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To develop an understanding of the basic concepts involved in Mobile Robotics. The areas of mobile robot mechanics, localisation, map building and path planning of mobile robots will be introduced. Various sensors and their applications in mobile robotics are also to be introduced.

### 300551.1 Molecular Basis of Disease

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

The content of Human Molecular Biology, i.e. knowledge of the molecular biology of eukaryotic cells and gene regulation at an advanced level, and processes and practical applications of DNA technology including DNA manipulation using restriction enzymes, PCR, DNA fingerprinting, Northern blotting, cloning vectors, DNA libraries and genetic engineering in different types of eukaryotic cell. Introductory functional genomics and bioinformatics.

#### Prerequisite

**300555.1** Proteins and Genes OR **300219.1** Biochemistry 1

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This unit builds on the molecular biology studied in second and third year, equipping students with detailed knowledge of the molecular basis of disease. Studying the molecular basis integrates many previously learned scientific principles in molecular biology and functional genomics into the context of disease.

### 300234.1 Molecular Biology

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Yes, knowledge of DNA, gene and chromosome structure in bacteria and eukaryotes; the basic events in bacterial transcription, including the structure and role of bacterial RNA polymerase; the differences between transcription in bacteria and eukaryotes; post-transcriptional events in eukaryotes and their purpose; the basic events in bacterial translation and how these differ in eukaryotes; protein structure and conformation, and the importance of post-translational modifications for protein function.

#### Prerequisite

**300219.1** Biochemistry 1 OR **300555.1** Proteins and Genes

#### Equivalent Units

14439 - Cell and Molecular Biology, 300549 - Human Molecular Biology, B1305A - Molecular Biology, J3678 - Molecular Genetics

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Students studying at Campbelltown campus should refer to 300549 - Human Molecular Biology. This unit studies gene regulation at an advanced level, leading into the processes

and practical applications of DNA technology. Students gain a thorough grounding in major techniques such as restriction mapping, DNA sequencing, PCR, DNA fingerprinting, southern blotting and gene cloning. Cloning vectors, DNA libraries, genetic engineering in different types of cells and organisms and functional genomics are studied. Students are introduced to bioinformatics and issues in biosafety and ethics relating to gene technology.

### 300757.1 Molecular Biology of the Immune System

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

A sound knowledge of cell structure, protein structure, gene expression, protein synthesis, protein secretion and protein degradation. Some understanding of cell signalling pathways would be an advantage.

#### Prerequisite

**300219.1** Biochemistry 1 OR **300555.1** Proteins and Genes

#### Equivalent Units

300552 - Molecular Biology of the Immune System

#### Incompatible Units

300223 - Cell Signalling and Molecular Immunology, J3830 - Immunology and Cell Signalling

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The immune system relies on a complex interplay between cells, receptors and signalling molecules for its effective operation. Antibody- and cell-mediated immune responses will be examined from a molecular and biochemical perspective. Topics include B- and T-cell receptor gene expression, antibody structure, function, maturation; MHC genes and proteins; differentiation and activation of B and T cells; antigen processing and presentation; the roles of cytokines. The relevance of this knowledge for understanding disorders of the immune system will be emphasised throughout. Medical and diagnostic applications of hybridoma technology, antibody engineering and advances in vaccine development will be discussed. The laboratory course will develop technical and interpretative skills in relevant techniques.

### 300475.1 Molecular Pharmacokinetics

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Medicinal Chemistry

#### Prerequisite

**300236.1** Physical Chemistry 2 OR **300540.1** Biomolecular Dynamics

#### Equivalent Units

300303 - Physical Chemistry 3

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This unit investigates the mechanisms and pathways of degradation of introduced compounds within the body and of their removal from the body; the relationship between chemical structure and stability of compounds within the body, including quantitative structure-stability relationships; the physical, metabolic and chemical stability within the

body of representatives of each of the major types of drug class, relating this stability to molecular structure; the influence of the stability of drug compounds within the body upon the choice of drug delivery system used.

### 300557.1 Molecular Spectroscopy

**Credit Points** 10 **Level** 3

#### Prerequisite

**300230.1** Inorganic Chemistry 2 OR **300545.1** Coordination Chemistry OR **300301.1** Organic Chemistry 2 OR **300553.1** Molecules of Life: Synthesis and Reactivity

#### Equivalent Units

300216 - Advanced Spectroscopy

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This unit builds upon an understanding of the fundamental physical processes involved in the interaction of electromagnetic radiation of various energies with matter, and develops into analysis of spectroscopic data for structure elucidation, as an analytical technique and for monitoring chemical and biochemical processes. The relevance of these processes and techniques to all other areas of science, particularly chemistry and biology, is emphasised. Spectroscopic methods include advanced NMR spectroscopy, ESR spectroscopy, electronic and visible spectroscopy and mass spectrometry. Whilst some basic spectroscopy is taught in a number of other chemistry units, this subject goes to a substantially deeper level.

### 300553.1 Molecules of Life: Synthesis and Reactivity

**Credit Points** 10 **Level** 2

#### Prerequisite

**300550.1** Medicinal Chemistry OR **300225.1** Chemistry 2

#### Equivalent Units

300301 - Organic Chemistry 2, J3830 - Immunology and Cell Signalling

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Students studying at Hawkesbury or Parramatta campus should refer to 300301 - Organic Chemistry 2. This unit introduces organic chemistry from a biological and pharmaceutical perspective, emphasising the structure & reactivity of biological molecules as organic molecules and functional group manipulation as a tool for drug design and synthesis. Appropriate practical skills to achieve this are learnt in the associated practical work.

### 400886.1 Motor Control and Skill Acquisition

**Credit Points** 10 **Level** 2

#### Prerequisite

**400868.1** Human Anatomy and Physiology 1 AND **400869.1** Human Anatomy and Physiology 2 AND **400881.1** Functional Anatomy

#### Equivalent Units

100679 - Motor Control and Learning



### Special Requirements

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science).

Motor Control and Skill Acquisition is an investigation of the physiological and psychological processes involved in both the control and the learning of movement. As such, it considers the control mechanisms which are innate to the learner, how these mechanisms change by virtue of both maturation and experience, and how the latter type of changes may be facilitated by manipulation of the learning environment.

### 400891.1 Movement and Skill Development

**Credit Points** 10 **Level** 1

#### Prerequisite

**300361.1** Introduction to Human Biology AND **400880.1** Fundamentals of Exercise Science

#### Incompatible Units

400794 - PDHPE: Exploring Movement Skills, 400796 - PDHPE: Efficient Movement Principles

#### Special Requirements

This unit is only available to students enrolled in course 4659 - Bachelor of Health Science (PDHPE) or 4549 - Bachelor of Health Science (PDHPE).

This unit examines the scientific basis for movement and sports skill development. An understanding of the principles of movement and motor skill and how they apply to performance is examined through a range of movement tasks required for track and field athletics and some team sports. Laboratory activities will focus upon the basic movement tasks of throwing, jumping, balancing, striking, running and rotary activities. An examination of the instruments used in efficient movement analysis is undertaken.

### 300046.1 Multimedia Signal Processing

**Credit Points** 10 **Level** 4

#### Prerequisite

**300069.1** Digital Signal Processing

#### Equivalent Units

84492 - Honours/Pass Subject 1

This unit introduces students to the digital processing of speech and image signals, and to the latest developments in the area of multimedia signal processing. Topics include speech generation, analysis, synthesis, speech and speaker identification, image processing techniques, image and video compression and standards.

### 300590.1 Nanochemistry

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

An understanding of the content of the units Nanotechnology 1 and Nanotechnology 2 or equivalent.

#### Prerequisite

**300224.1** Chemistry 1

#### Equivalent Units

300416 - Nanopowders and Nanomaterials

The unit covers basic theory of surface chemistry, latest technologies of surface depositions and industrial and commercial applications of nanomaterials and nanopowders. Upon successful completion, the students will achieve an in-depth understanding of techniques of preparation of nanomaterials and nanopowders that includes plasma arching, chemical vapour deposition, electrodeposition, sol-gel synthesis, ball milling and the use of natural particles. Technical aspects of process control on the microstructure and properties of coatings will be discussed. Case studies of applications of nanopowders and nanomaterials such as biomedical implants, insulators, high power magnets, molecular sieves, supercomputers, jet engines and other industrial applications will be pursued.

### 300705.1 Nanotechnology

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Physics (2 unit) and HSC Chemistry (2 unit) or HSC Multi-strand Science (4 unit) or equivalent.

#### Equivalent Units

300417 - Nanotechnology 1, 300418 - Nanotechnology 2

This unit provides a broad introduction to nanoscience, the current status of nanotechnology and their applications. It introduces main areas that are central to understanding the importance of nanoscale applications and to study the connection between the underlying nanoscience of various nanotechnology devices. Emphasis will be placed to reflect the true interdisciplinary nature that encompasses a broad understanding of basic sciences intertwined with medical, engineering, and information sciences pertinent to nanotechnology.

### 200613.1 Negotiation, Bargaining and Advocacy

**Credit Points** 10 **Level** 3

#### Prerequisite

**200300.1** Managing People at Work

#### Equivalent Units

61430 - Negotiation, Bargaining and Advocacy

Negotiation, bargaining and advocacy are central activities in the industrial relations process. The effective industrial

relations practitioner requires knowledge of the theoretical perspectives in negotiation together with an ability to critique the relevance and application of these perspectives. The importance of strategy and judgement in negotiation is highlighted and students are given the opportunity to develop their skills through negotiation exercises. An important theme in the unit is the assessment of the contextual and regulatory factors that shape negotiation, bargaining and advocacy practice. This aspect draws on contemporary debates in these spheres most notably concerning the Australian context.

### 300143.2 Network Security

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Good understanding of the principles of information security, and computer networks and internets.

#### Prerequisite

**300094.2** Computer Networking Fundamentals OR  
**300565.1** Computer Networking

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This unit is concerned with the protection of information transferred over computer networks. It includes discussion of techniques for securing data transported over local and wide area networks. At the conclusion of the unit students will have a good understanding of the practical aspects of securing a computer network against internal and external attacks.

### 300575.1 Networked Systems Design

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Knowledge equivalent to that gained in the prerequisite unit

#### Prerequisite

**300095.1** Computer Networks and Internets

#### Equivalent Units

300088 - Broadband Networking

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Students successfully completing this unit will gain the necessary design skills and knowledge required to build and configure a complex network. This unit builds on the work of Networking Fundamentals and Computer Networks and Internets. The unit also provides the student with an opportunity to develop problemsolving techniques and decision-making skills to resolve networking issues. Students completing this unit and its prerequisites should now be prepared to attempt world recognized network industry certification.

### 300576.1 Networking Workshop

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

• List, discuss and compare the elements of information coding and signal transmission, • List, describe, and explain the elements and functional relationships of communications hardware and software, • Identify, locate, distinguish, and describe the individual hardware

components of a personal computer (PC) and explain their purpose, functions and operations, • Install PC components, devices and peripherals in accordance with installation procedures and operational standards.

#### Prerequisite

**300565.1** Computer Networking AND **300150.2** PC Workshop

#### Equivalent Units

300138 - LAN Workshop

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This unit covers in depth the basics of networking and provides students with the knowledge and skills necessary to install, test, tune, customise, repair and maintain networking hardware and software necessary to create a Local Area Network (LAN). Students also learn how to administer a LAN by setting up user accounts, access privileges, security procedures, and back-up/recovery procedures.

### 300754.1 Neuroanatomy

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

The outcomes of: 300543 Cell Biology, 300554 Principles of Chemistry, 300752 Introduction to Anatomy and Histology, 300753 Introduction to Human Physiology; or 400868 Human Anatomy & Physiology 1, 400869 Human Anatomy & Physiology 2; or equivalent units.

#### Equivalent Units

300322 - Neuroanatomy, 400964 - Clinical Neurosciences, 400166 - Clinical Neurosciences

#### Special Requirements

Because of space limitations, this unit will be restricted to students in the following courses: 3577 - Bachelor of Medical Science, 3657 - Bachelor of Medical Science/ Bachelor of Information and Communication Technology, 4663 - Bachelor of Health Science/Master of Occupational Therapy, 4662 - Bachelor of Health Science/Master of Physiotherapy, 4668 - Bachelor of Health Science (Honours)/Master of Physiotherapy.

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This unit builds on the human anatomy and physiology studied in first and second year, equipping students with detailed knowledge of functional neuroanatomy, with particular emphasis on the central nervous system. Cadaver specimens are used to facilitate the learning of spatial relationships between structures. The study of neurological function and dysfunction integrates many previously learned scientific principles.

### 300625.1 Noise Assessment

**Credit Points** 10 **Level** 2

#### Equivalent Units

EH205A - Noise Assessment and Control

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This unit is designed to provide the practical and theoretical information to enable the assessment of environmental and occupational noise problems and the implementation of

noise controls. To control noise, the noise (or noise potential) must first be determined to ascertain if a problem exists or is likely to arise. If there is a problem, the magnitude of the problem must be determined and a solution devised. These issues are discussed starting with first principles: the nature of sound, both physical and psychological. You will look at the legislation that controls noise, at noise meters and their operation and use, at the various ways of controlling noise at its source, along its pathway or at the receiver. You are introduced to the litigation process, as often the investigating officer will be required to give evidence in court. You will look at how to plan for noise control and the various issues — physical, social/cultural, political and legal — that influence the choices made. Transportation noise is covered and finally you will look at the important issue of hearing conservation. The overall objective of writing a noise impact report/statement and the accompanying legal briefing notes will draw together the threads of the whole unit.

**200029.1 Numerical Analysis**

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

200189 - Concepts of Mathematics

**Equivalent Units**

J2788 - Numerical Analysis; 14701 - Numerical Methods and Modelling

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This unit covers a substantial range of computational techniques in formulating and solving mathematical, scientific and engineering problems. Topics include: algorithmic approaches to solving nonlinear equations; systems of linear equations; differential equations; polynomial interpolation; numerical differentiation and integration; and curve fitting to approximate functions.

**300488.2 Numerical Methods in Engineering**

**Credit Points** 10 **Level** 3

**Prerequisite**

**85006.2** Introduction to Structural Engineering OR **85012.2** Soil Engineering OR **200238.1** Mathematics for Engineers 2

**Equivalent Units**

85019 - Civil/Environmental Engineering Pass/Hons Elective 1

**Special Requirements**

Availability of computer lab.

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The finite element method is a powerful numerical tool for analysing a wide range of engineering problems. The objective of this unit is to introduce the basic and fundamental principles of the finite element techniques by primarily focusing on their applications in the area of structural, solid and soil mechanics.

**400749.2 Nursing and Health Breakdown**

**Credit Points** 10 **Level** 1

**Assumed Knowledge**

Year 1 Autumn units

**Corequisite**

**400750.1** Introduction to Health Breakdown

**Equivalent Units**

400052 - Nursing Therapeutics 2

**Incompatible Units**

400640 - Foundations of Nursing Therapeutics, 400776 - Introduction to Nursing

**Special Requirements**

Students must be enrolled in the Bachelor of Nursing to enroll in this unit. Special Requirements are those stipulated by the NSW Health and UWS. At present these include: Prohibited Employment Declaration (PED), Criminal Record Check (CRC); Adult Health Immunisation and Workcover accredited Senior First Aid Certificate.

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This unit version replaces version 1 from 2010. This unit introduces students to professional nursing concepts and practices that promote, maintain and support people who are affected by health breakdown.

**400751.2 Nursing and Healthy Communities**

**Credit Points** 10 **Level** 1

**Assumed Knowledge**

400747 - Behavioural Foundations of Nursing Practice

**Incompatible Units**

400053 - Nursing Context 3, 400050 - Nursing Science 3

**Special Requirements**

As a result of space restrictions students must be enrolled in either the 4642, the 4643 or the 4648 Bachelor of Nursing course.

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This unit introduces the student to psychosocial concepts and principles that promote and sustain the health of communities and informs professional nursing practice.

**400823.2 Nursing and the Older Person**

**Credit Points** 10 **Level** 3

**Incompatible Units**

400767 - Family Health Care: Older Adult Nursing, 400644 - Gerontic Practice

**Special Requirements**

Students must be enrolled in the Bachelor of Nursing Studies to enrol in this unit.

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This unit enables students to explore the concept of ageing, and the nurse's role in promoting the health, and therefore, the potential of older people. In the Australian health care context nurses have the opportunity to be in the forefront of

health care provision for the older person. This opportunity enables nurses to be therapeutically involved in the lives of older people by working with them, and other groups to facilitate healthy ageing. Nurses are also able to promote positive attitudes towards ageing and older people.

### **400745.2 Nursing for Health and Wellbeing**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

400048 - Nursing Therapeutics 1

#### **Special Requirements**

Students must be enrolled in course 4642 Bachelor of Nursing.

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This unit introduces the student to nursing concepts, principles and skills that identify, promote, maintain and support health and wellbeing across the lifespan.

### **400204.2 Nursing Honours Thesis (Part-time)**

**Credit Points** 60 **Level** 5

#### **Assumed Knowledge**

A basic knowledge of research methods at undergraduate level or equivalent is required.

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This unit aims to provide an opportunity for students to plan and implement a research project related to nursing which results in the production of a thesis. In consultation with an academic supervisor, the student will select a topic, conduct a literature review, design a research study, and report the findings and their implications. Attendance and participation at research seminars/colloquia is expected.

### **400202.2 Nursing Honours Thesis A (Full-time)**

**Credit Points** 20 **Level** 5

#### **Assumed Knowledge**

A basic knowledge of research methods at undergraduate level or equivalent is required.

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This unit aims to provide an opportunity for students to plan and implement a research project related to nursing which results in the production of a thesis. In consultation with an academic supervisor, the student will select a topic, conduct a literature review, design a research study, and report the findings and their implications. Attendance and participation at research seminars/colloquia is expected.

### **400203.2 Nursing Honours Thesis B (Full-time)**

**Credit Points** 40 **Level** 5

#### **Assumed Knowledge**

A basic knowledge of research methods at undergraduate level or equivalent is required.

.....

This unit aims to provide an opportunity for students to plan and implement a research project related to nursing which results in the production of a thesis. In consultation with an academic supervisor, the student will select a topic, conduct a literature review, design a research study, and report the findings and their implications. Attendance and participation at research seminars/colloquia is expected.

### **300651.1 Nutrition and Community Health**

**Credit Points** 10 **Level** 3

#### **Equivalent Units**

NT304A - Nutrition and Community Health (V1)

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This unit aims to develop an understanding of the inter relationship between nutrition and health in the Australian community using anthropological approaches and to provide the student with a sound foundation in nutritional anthropology in order that they may systematically analyse nutritional problems associated with: world food issues; minority (ethnic and/or Koori) groups within Australia; disorders of affluence (such as obesity, cancer, diabetes and cardiovascular disease); current nutrition issues in the community.

### **300649.1 Nutrition and Health 1**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Sound understanding of undergraduate Level 1 chemistry and biology.

#### **Equivalent Units**

NT201A - Nutrition and Health 2.1

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This unit presents the basic principles and concepts of human nutrition including nutrient requirements, functions, deficiency symptoms and the effects of excess as well as energy balance and weight control. Macronutrients involved with energy metabolism. In addition, all vitamins and essential minerals are covered. Specific topics include requirements, functions and the effects of excess and deficiency. Energy balance and weight control are also covered.

### **300650.1 Nutrition and Health 2**

**Credit Points** 10 **Level** 2

#### **Prerequisite**

**300649.1** Nutrition and Health 1

#### **Equivalent Units**

NT202A - Nutrition and Health 2.2

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This unit applies the basic concepts of human nutrition to the various stages of the life span (infant to adulthood) as well as examining the development of Australian dietary practices and diet related disorders. This unit provides the student with adequate and reliable information so that they make informed decisions with regard to nutritionally critical

moments of the life span as well as new or emerging nutrition opinion or fact.

### 300652.1 Nutrition and Health Biochemistry

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Good understanding of basic biochemistry with an emphasis on metabolic pathways.

#### Prerequisite

**300227.1** General Biochemistry OR **300219.1** Biochemistry 1 OR **300555.1** Proteins and Genes OR **300658.1** Endocrinology and Metabolism

#### Equivalent Units

NT306A - Nutritional Biochemistry

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This unit builds upon and integrates knowledge gained in basic biochemistry, human physiology and nutrition. It applies to metabolism from the cellular level to the whole human body emphasizing the utilisation of macronutrients for energy, interrelationships between metabolic pathways and nutritional disorders and diseases that affect the health of individuals and populations.

### 400892.1 Nutrition, Physical Activity, Fitness and Health

**Credit Points** 10 **Level** 2

#### Equivalent Units

400780 - Nutrition, Physical Activity & Mental Health

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Australian Society is currently facing critical challenges in the areas of health & wellbeing, mental health, nutrition, fitness and physical activity. This unit examines the interdependence between these areas, and how the personal and socio-cultural health issues can be addressed in a pro-active, holistic and sensitive manner.

### 300144.1 Object Oriented Analysis

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Should have knowledge similar to the unit 300131 Introduction to Analysis and Design. General understanding of what an information systems is and how information systems development is undertaken.

#### Equivalent Units

14924/48525/61231 - Systems Analysis 1, 14998 - Systems Analysis 1A, 48526/61232 - Systems Analysis 2

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This unit teaches in detail how to conduct business analysis and modeling of requirements using the object-oriented approach. It builds on the knowledge gained by students in Introduction to Analysis and Design unit. This unit uses the OMGs standard Unified Modeling Language version 2.0 (UML 2.0).

### 300144.2 Object Oriented Analysis

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Should have knowledge similar to the unit 300131 - Introduction to Analysis and Design - general understanding of what an information system is and how information systems development is undertaken.

#### Equivalent Units

14935 - Systems Analysis 2, D2783 - Systems Analysis and Design 2, J2783 - Systems Analysis and Design 2

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Analysing and modeling requirements using the object-oriented (OO) approach is the core strength of this unit. The Unified Modifying Language (version 2.0) is used as a modeling standard for creating OO models in the problem space. This unit consolidates and extends the knowledge gained by students in Introduction to Analysis and Design unit and applies it to practical OO analysis work through a case study.

### 700039.1 Object Oriented Analysis (UWSC)

**Credit Points** 10 **Level** 2

#### Equivalent Units

14924, 48525, 61231 - Systems Analysis 1, 14998 - Systems Analysis 1A, 14935, 48526, 61232 - Systems Analysis 2

#### Special Requirements

Students must be enrolled at UWS College.

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This unit teaches in detail how to conduct business analysis and modeling of requirements using the object-oriented approach. It builds on the knowledge gained by students in Systems Analysis and Design unit. This unit uses the OMGs standard Unified Modeling Language version 2.0 (UML 2.0).

### 400176.1 Occupation and Ageing

**Credit Points** 10 **Level** 5

#### Incompatible Units

E2043 - Occupational Therapy 3 (Unit 3): Older Adult, E2045 - Lifespan Development

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The process of ageing will be examined critically using the biopsychosocial model. Students will use research evidence to prepare occupational therapy intervention for older people and their families that promotes quality of life and maximum social participation. Students will reflect on their own attitudes towards ageing and how social stereotypes of older people must be challenged to promote a positive view of this stage of life.

## 400176.2 Occupation and Ageing

**Credit Points** 10 **Level** 3

### Prerequisite

**400912.1** Occupational Therapy Process

### Special Requirements

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

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This unit version will commence in 2012. The process of ageing will be examined critically using the biopsychosocial model. Students will use research evidence to prepare occupational therapy intervention for older people and their families that promotes quality of life and maximum social participation. Students will reflect on their own attitudes towards ageing and how social stereotypes of older people must be challenged to promote a positive view of this stage of life.

## 400169.1 Occupation and Mental Health

**Credit Points** 10 **Level** 3

### Incompatible Units

E2046 - Neurology and Clinical Psychiatry, E2047 - Occupational Therapy 4.

.....

This unit provides an understanding of the aetiology, signs, symptoms and prognosis of psychiatric conditions commonly encountered by occupational therapists. Mental health policies, strategies and consumer issues are examined in relation to the management of mental illness in the community. Occupational therapy theory, assessments, interventions and outcomes related to psychosocial practice are incorporated in the unit to provide a foundation for occupational therapy practice in mental health settings.

## 400169.2 Occupation and Mental Health

**Credit Points** 10 **Level** 3

### Assumed Knowledge

Introductory level psychology.

### Special Requirements

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

.....

This unit version will commence in 2012. This unit provides an understanding of the aetiology, signs, symptoms and prognosis of psychiatric conditions commonly encountered by occupational therapists. Mental health policies,

strategies and consumer issues are examined in relation to the management of mental illness in the community. Occupational therapy theory, assessments, interventions and outcomes related to psychosocial practice are incorporated in the unit to provide a foundation for occupational therapy practice in mental health settings.

## 400171.1 Occupation and Neurology

**Credit Points** 10 **Level** 3

### Incompatible Units

E2047 - Occupational Therapy 4: Unit 1 Neurology.

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This unit prepares occupational therapy students to work in a variety of settings with clients who have a neurological condition, such as a stroke or traumatic brain injury. Students learn how to analyse, measure and retrain impairments such as reduced grasp, mobility, sensation, memory, or motor planning. These impairments commonly affect a client's ability to participate in chosen life roles and activities, and integrate back into the community. Aspects of carers' roles will also be examined. Evidence will be discussed pertaining to occupational therapy assessments and interventions. Traditional, as well as more recently established rehabilitation interventions will be examined.

## 400171.2 Occupation and Neurology

**Credit Points** 10 **Level** 3

### Assumed Knowledge

Neuroanatomy.

### Prerequisite

**300322.1** Neuroanatomy

### Special Requirements

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

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This unit version commences from 2012. This unit prepares occupational therapy students to work in a variety of settings with individuals who have a neurological condition. The impact of common neurological conditions on the person, their environment and their occupations will be examined. Students will be exposed to a variety of assessments, interventions and evaluation tools suitable for this client population.

## 400170.1 Occupation and Social Participation

**Credit Points** 10 **Level** 3

### Equivalent Units

E3026 - Occupational Therapy 5

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This unit will be replaced by 400916 - Occupation Justice from 2013. This unit critically examines practice in the

community with a focus on social inclusion. Life experiences of people with disabilities are explored. Ideologies of Normalisation and Social Role Valorisation, which currently form the basis of Disability Legislation and Community Service Standards, are discussed. Rationales for de-institutionalisation and practice in the community are critically appraised. Varied perspectives of disability are examined and applied. Contentious issues such as duty of care, dignity of risk, choice-making, rights and negligence, social dimensions of participation, are critiqued against legal, ethical and personal perspectives. This unit assists students develop empathy, critical thinking and reflection skills.

### 400165.1 Occupation and the Environment

**Credit Points** 10 **Level** 2

#### Incompatible Units

E1311 - Occupational Therapy 2 (Unit 2)

Students will demonstrate skills in the analysis and modification of the environment using principles of ergonomics and appropriate Australian standards in building design. The ICDH-2 will provide the context for assessment and modification of the environment to enable individuals with impairments to overcome activity limitations or restrictions in participation.

### 400165.2 Occupation and the Environment

**Credit Points** 10 **Level** 3

#### Prerequisite

**400908.1** People, Environment and Occupations AND **400911.1** Occupational Therapy Theory and Practice

#### Special Requirements

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

This unit version will commence 2012. Students will demonstrate skills in the analysis and modification of the environment using principles of ergonomics and appropriate Australian standards in building design. The ICF will provide the context for assessment and modification of the environment to enable individuals with impairments to overcome activity limitations or restrictions in participation.

### 400733.1 Occupational Analysis

**Credit Points** 10 **Level** 1

#### Special Requirements

Enrolment is restricted to students enrolled in course codes 4520 - Bachelor of Applied Science (Occupational Therapy) OR 4521 - Bachelor of Applied Science (Honours) Occupational Therapy. This is a specialist professional unit for occupational therapy practice so is not suited to students from other programs.

In 2011 this unit is being replaced by 400908 - People, Environment and Occupations. The ability to analyse human occupation including tasks and activities is a core component of occupational therapy practice. This unit provides the students with an understanding of the role of activities in a person's life. Students will develop skills in task and activity analysis and an understanding of assessment related to specific performance components of activity. The ICDH-2 will provide the context for activity analysis. Students will gain an understanding of how the modification of activities can enable individuals with impairments to overcome activity limitations or restrictions in participation.

### 200753.1 Occupational Health and Safety

**Credit Points** 10 **Level** 3

#### Equivalent Units

61442 Occupational Health and Safety, 200617 - Occupational Health and Safety

The nature and history of occupational health and safety in Australia, legal frameworks including occupational health and safety acts and workers' compensation. OH&S is considered using the medical, legal, economic, industrial relations and management perspectives. Identifying, assessing, monitoring risks; and specific occupational hazards and intervention strategies are also covered.

### 400916.1 Occupational Justice

**Credit Points** 10 **Level** 7

#### Assumed Knowledge

Students are expected to have completed all of the units of their first three years.

#### Prerequisite

**400912.1** Occupational Therapy Process

#### Equivalent Units

400170 - Occupation & Social Participation

#### Special Requirements

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; if students are visiting a NSW Health facility they will need to comply with the occupational screening and immunisation policy of NSW Health.

This unit critically examines practice in the community with a focus on social inclusion and occupational justice. Life perspectives of people experiencing occupational injustice are explored. Current and historical ideologies which underpin global and national legislation and policies on human rights are examined. The promotion of occupational participation through occupational therapy practice is outlined. This unit challenges popular myths and stereotypes of people with disabilities. Issues such as de-

institutionalisation, duty of care, dignity of risk, choice-making, rights and negligence are critiqued against legal, ethical and personal perspectives. This unit assists students develop critical thinking and reflection skills for practice.

### **400167.1 Occupational Therapy Clinical Practice 2**

**Credit Points** 10 **Level** 2

#### **Prerequisite**

**400161.1** Occupational Therapy Clinical Practice 1

#### **Equivalent Units**

E3027 - Clinical Placement 2

#### **Special Requirements**

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Persons Declaration; Criminal Record Check Clearance; Provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; Students must possess a current, Workcover Authority approved First Aid Certificate

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In 2013 this unit replaced by 400913 - Occupational Therapy Practice 4 Project. This unit provides opportunities for students to implement skills and integrate theory with practice. The placement will allow students to work for a 2 week period with occupational therapists in one of the many settings where therapists currently practice. The project involves participation in a community based activity that contributes benefits a community based group. The project may be conducted in an intensive 2 week period or over a period of several weeks / months.

### **400174.1 Occupational Therapy Clinical Practice 3a**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Client and student safety skills attained in previous clinical units are required before attempting this unit.

#### **Prerequisite**

**400167.1** Occupational Therapy Clinical Practice 2

#### **Incompatible Units**

E3028 - Clinical Placement 3

#### **Special Requirements**

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Employment Declaration; Criminal Record Check Clearance; Provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; Students must possess a current, Workcover Authority approved First Aid Certificate

.....

This unit is being replaced by 400910 Occupational Therapy Practice 3 in 2012. This unit will allow students to consolidate academic knowledge and clinical skills. There will be opportunities to actively participate in assessment, analysis, goal setting, treatment/programme planning and

occupational therapy intervention under the supervision of an occupational therapist. The placement will allow students to work for 5 consecutive weeks with occupational therapist in one of the many settings where therapists currently practice.

### **400175.1 Occupational Therapy Clinical Practice 3b**

**Credit Points** 10 **Level** 3

#### **Prerequisite**

**400167.1** Occupational Therapy Clinical Practice 2

#### **Incompatible Units**

E3028 - Clinical Placement 3

#### **Special Requirements**

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Employment Declaration; Criminal Record Check Clearance; Provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; Students must possess a current, Workcover Authority approved First Aid Certificate

.....

This unit will allow students to consolidate academic knowledge and clinical skills. There will be opportunities to actively participate in assessment, analysis, goal setting, treatment/programme planning and occupational therapy intervention under the supervision of an occupational therapist. The placement will allow students to work for 5 consecutive weeks with occupational therapist in one of the many settings where therapists currently practice.

### **400182.1 Occupational Therapy Clinical Practice 4 (Honours)**

**Credit Points** 10 **Level** 5

#### **Prerequisite**

**400174.1** Occupational Therapy Clinical Practice 3a AND  
**400175.1** Occupational Therapy Clinical Practice 3b

#### **Equivalent Units**

E4115 - Clinical Placement 4

#### **Special Requirements**

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Employment Declaration; Criminal Record Check Clearance; Provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; Students must possess a current, Workcover Authority approved First Aid Certificate

.....

This unit will allow students to consolidate academic knowledge and clinical skills in preparation for becoming a competent beginning practitioner. Students will be expected to actively participate in assessment, analysis, goal setting, treatment/programme planning and occupational therapy intervention under the supervision of an occupational therapist.



### 400172.1 Occupational Therapy Clinical Specialties 1

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Prior knowledge equivalent to Pathophysiology 1.

#### Equivalent Units

E2043 - Occupational Therapy 3

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The unit incorporates the theoretical evidence for clinical practice and an application of clinical practice skills for occupational therapy rehabilitation. The unit will include some of the most common conditions that are currently treated by occupational therapists in rehabilitation settings.

### 400173.1 Occupational Therapy Clinical Specialties 2

**Credit Points** 10 **Level** 3

#### Equivalent Units

E3024 - Counselling & Group Skills

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The unit incorporates the theoretical evidence for clinical practice and an application of skills for group work and creative therapies in clinical practice.

### 400180.1 Occupational Therapy Honours Thesis 1

**Credit Points** 10 **Level** 5

#### Assumed Knowledge

Satisfactory completion of years 1 - 3 of the Bachelor of Applied Science (Occupational Therapy).

#### Equivalent Units

E4119 - Advanced Research Methods

#### Special Requirements

Students must be enrolled in course 4521 to be eligible to enrol in this unit.

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Students will build upon the skills and knowledge of research, evaluation and scholarly enquiry gained in units completed earlier in the program. The emphasis of this unit is on the theory and application of qualitative and quantitative research methods to problems in the student's specialty field. The unit therefore aims to explore: The nature of research and experience of researching in health practitioner roles Technical skills of data collection, management, analysis and interpretation in health practice Application of this knowledge and skill in research project development in specialist health fields.

### 400181.1 Occupational Therapy Honours Thesis 2

**Credit Points** 30 **Level** 5

#### Prerequisite

[400180.1](#) Occupational Therapy Honours Thesis 1

#### Equivalent Units

E4118 - Research Thesis

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In this unit students will build upon the skills and knowledge of research, evaluation and scholarly enquiry gained in units completed earlier in the program. The emphasis of this unit is the completion of a supervised research project and the production of the honours research thesis. Each student will undertake through supervision the stages of data collection, analysis and will write their results into a format suitable for submission for examination.

### 400907.1 Occupational Therapy Practice 1

**Credit Points** 10 **Level** 1

#### Prerequisite

[400160.2](#) Introduction to Occupational Therapy

#### Equivalent Units

400161 - Occupational Therapy Clinical Practice 1

#### Special Requirements

This is a specialty unit offered as a compulsory core unit of the occupational therapy program. It is profession specific, preparing students to practice as an occupational therapist and not relevant as an elective for non-occupational therapy students. Students have a mandatory requirement to complete a NSW criminal record check, and prohibited persons declaration prior to enrolment in this unit. If students are visiting a NSW Health facility they will need to comply with the NSW Health Occupational Screening and Vaccination Against Infectious Diseases Policy.

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This unit introduces students to the principles of professional practice. Students will be provided with learning opportunities through a variety of experiential and community engagement activities that will begin to develop their skills and competence. Professional competencies addressed include communication, documentation, reflection and professional and ethical behaviour. A professional practice placement is incorporated in this unit. Students will complete practice hours in accordance with World Federation of Occupational Therapy accreditation guidelines.

### 400909.1 Occupational Therapy Practice 2

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Completion of the occupational therapy core unit 400160 - Introduction to Occupational Therapy and 400907 - Occupational Therapy Practice 1 is assumed knowledge.

#### Prerequisite

[400907.1](#) Occupational Therapy Practice 1

#### Equivalent Units

400167 - Occupational Therapy Clinical Practice 2

#### Special Requirements

This unit is only available to students enrolled in course 4663 - Bachelor of Health Science/Masters of Occupational Therapy. To undertake this unit, students must comply with

the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; possess a current WorkCover Authority approved First Aid Certificate.

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This unit provides opportunities for students to implement skills and integrate theory with practice. In class students will be provided with learning opportunities through a variety of experiential and self-directed learning exercises that will begin to develop their clinical skills and competence in professional practice. The two week block placement is conducted at the end of the teaching period. This placement will allow students to work with occupational therapists in one of the many settings where therapists currently practice.

### **400910.1 Occupational Therapy Practice 3**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Completion of all Occupational Therapy core units.

#### **Prerequisite**

**400909.1** Occupational Therapy Practice 2

#### **Equivalent Units**

400174 - Occupational Therapy Clinical Practice 3A

#### **Special Requirements**

This unit is only available to students enrolled in course 4663 - Bachelor of Health Science/Masters of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; if students are visiting a NSW Health facility they will need to comply with the occupational screening and immunisation policy of NSW Health.

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This unit will enable students to consolidate academic knowledge and practice skills. There will be opportunities to actively participate in assessment, analysis, goal setting, intervention and evaluation under the supervision of an occupational therapist. Students will experience full time work with occupational therapists in practice settings. Students will complete practice hours in accordance with World Federation of Occupational Therapy accreditation guidelines.

### **400914.1 Occupational Therapy Practice 4**

**Credit Points** 20 **Level** 7

#### **Assumed Knowledge**

Completion of all core Occupational Therapy units.

#### **Equivalent Units**

400179 - Occupational Therapy Clinical Practice 4

#### **Special Requirements**

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. Prerequisite requirements: 400910 - Occupational Therapy

Practice 3 (for students enrolled in 4663) OR 400911 - Occupational Therapy Theory and Practice (for students enrolled in 4664). To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; possess a current WorkCover Authority approved First Aid Certificate.

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This unit will allow students to consolidate academic knowledge and practice skills in preparation for becoming a competent beginning practitioner. Students will be expected to actively participate in assessment, analysis, goal setting, intervention and evaluation under the supervision of an occupational therapist. Students will complete practice hours in accordance with World Federation of Occupational Therapy accreditation guidelines.

### **400913.1 Occupational Therapy Practice 4 Project**

**Credit Points** 10 **Level** 7

#### **Assumed Knowledge**

Completion of all core Occupational Therapy units.

#### **Special Requirements**

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. Prerequisite requirements: 400910 - Occupational Therapy Practice 3 (for students enrolled in 4663). To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; if students are visiting a NSW Health facility they will need to comply with the NSW Health Occupational Screening and Vaccination Against Infectious Diseases Policy.

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This unit gives students an opportunity to participate in a community based project that is part of the fieldwork program. There will be a focus on a self directed practice approach. The unit allows students to develop professional skills in conducting a project which will benefit a community-based group.

### **400915.1 Occupational Therapy Practice 4 Workshop**

**Credit Points** 10 **Level** 7

#### **Assumed Knowledge**

Completion of all core Occupational Therapy units.

#### **Prerequisite**

**400913.1** Occupational Therapy Practice 4 Project

#### **Equivalent Units**

400179 - Occupational Therapy Clinical Practice 4

#### **Special Requirements**

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following

special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; if students are visiting a NSW Health facility they will need to comply with the NSW Health Occupational Screening and Vaccination Against Infectious Diseases Policy.

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This unit will facilitate the transition from student to occupational therapy practitioner. The unit will allow students to consider employment opportunities for their future and strategies for career and professional development.

### 400912.1 Occupational Therapy Process

**Credit Points** 10 **Level** 3

#### Prerequisite

**400911.1** Occupational Therapy Theory and Practice OR **400160.2** Introduction to Occupational Therapy

#### Special Requirements

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

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This unit provides students with the knowledge and skills to apply the occupational therapy problem-solving process in an evidence-based way, across a diverse range of practice situations. Students will gain knowledge in the application of each stage of the occupational therapy process, learn skills in the selection and implementation of assessments and outcome measures, and undertake intervention planning to suit clients with different occupational needs and health trajectories. Different occupational therapy approaches will be reviewed and students will gain skills in tailoring intervention approaches to suit client need and practice context.

### 400917.1 Occupational Therapy Specialties

**Credit Points** 10 **Level** 7

#### Assumed Knowledge

It is assumed that students entering this unit will have completed all previous occupational therapy units from the third year of the Bachelor of Health Science/Masters of Occupational Therapy.

#### Prerequisite

**400912.1** Occupational Therapy Process

#### Special Requirements

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

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This unit provides occupational therapy students with the opportunity to select from, and undertake advanced study in, a range of occupational therapy clinical specialty areas. Several streams will run concurrently in this unit representing key clinical areas of specialisation in occupational therapy. Students will be able to focus their study, by selecting a combination of clinical specialty streams. Streams will cover relevant clinical content, examining the unique occupational therapy contribution in each specialty area.

### 400911.1 Occupational Therapy Theory and Practice

**Credit Points** 10 **Level** 7

#### Special Requirements

This unit is only available to students enrolled in course 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; possess a current WorkCover Authority approved First Aid Certificate.

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This unit introduces master's entry students to the theory and practice of occupational therapy. Students will explore the unique contribution of occupational therapists in the health care setting, apply theoretical and philosophical principles underpinning the profession to client groups, and learn analytical skills to examine the relationship between a person, their environment and their participation in daily occupations. The occupational therapy problem solving process will be briefly introduced. In addition, students will study clinical and professional competencies related to practice as a health professional. Finally, the above knowledge and skills will be applied during a four week fieldwork placement.

### 300149.1 Operating Systems

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Fundamentals of Computer Science. Basic structure and functioning of computer hardware

#### Prerequisite

**300167.1** Systems Programming 1

#### Equivalent Units

14944 - Operating Systems, J2789 - Operating Systems

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This unit provides an introduction to the theory and practice of the internal structure, implementation and functionality of operating systems. The unit is relevant not only for systems programmers, but also for applications developers who need to understand how operating systems control computer hardware, and how they provide convenience, efficiency and security for application development and implementation.

### 300698.1 Operating Systems Programming

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

The students are expected to have general understanding of computer systems, computer fundamentals and programming techniques.

#### Prerequisite

**300581.1** Programming Techniques

#### Equivalent Units

300149 - Operating Systems

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This unit provides the knowledge of the internal structure and functionality of Operating Systems. An operating system defines an abstraction of hardware behaviour and provides a range of services more suitable for ICT application development than what raw hardware could deliver, in terms of convenience, efficiency and security. It is important that ICT Professionals have some understanding of how these services are realized. For ICT Professionals whose role includes supporting the operating system this unit provides the introduction to the relevant theory and practice.

### 200565.1 Operations and Logistics in Practice

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students are expected to have gained an introductory level knowledge in operations and logistics management.

#### Prerequisite

**200588.1** Global Operations and Logistics Management

#### Incompatible Units

200388 - Logistics Management in Practice, 200166 - Operations Management in Practice

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The purpose of this unit is to help students develop a range of skills and practical insights by presenting operations and logistics models in real world settings. The unit will provide a framework for researching a range of topics via primary and secondary sources. Students will analyse topics and discuss contemporary operations and logistics issues in a workshop environment. The unit will also provide a framework to assist students in researching and assessing trends. Overall, this unit has been designed to provide a more advanced holistic view of operations and logistics management.

### 300670.1 Optimisation Techniques

**Credit Points** 10 **Level** 3

#### Equivalent Units

200197 - Optimisation 1, 14346 - Linear Programming, J3638 - Operations Research 3.1

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This unit presents the fundamental mathematical aspects of operations research and develops skills in quantitative approaches in decision making. Students will learn how the optimisation techniques work and how they can be applied by the decision maker in order to generate efficient solutions. The unit focuses on problem formulation and solution methods and covers linear programming primarily and integer programming and dynamic programming briefly.

### 300301.1 Organic Chemistry 2

**Credit Points** 10 **Level** 2

#### Prerequisite

**300225.1** Chemistry 2 OR **300550.1** Medicinal Chemistry

#### Equivalent Units

300553 - Molecules of Life: Synthesis and Reactivity

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Students studying at Campbelltown campus should refer to 300553 - Molecules of Life: Synthesis and Reactivity. This unit introduces how and why organic chemical reactions happen. The chemistry of the major chemical groups is discussed in terms of general reaction mechanisms. These ideas are drawn together in the examination of rationales involved in synthesising and identifying multifunctional organic molecules, and appropriate practical skills to achieve this are learnt in the associated practical work. Applications considered may include biological and medicinal organic chemistry and various aspects of industrial organic chemistry.

### 300235.1 Organic Chemistry 3

**Credit Points** 10 **Level** 3

#### Prerequisite

**300301.1** Organic Chemistry 2

#### Equivalent Units

J3687 - Organic Chemistry 3, CH304A - Organic Chemistry 3.2 (V1), 14107 - Advanced Organic and Analytical Chemistry

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Students studying at Campbelltown campus should refer to 300546 - Drug Design and Synthesis. This unit introduces selected areas of more advanced organic chemistry, focusing on the tools used to synthesise and identify organic molecules. The practical skills required are learnt through laboratory exercises that complement the theory.

### 200159.2 Organisation Analysis and Design

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

General knowledge of management principles (such as in MG102A - Management Foundations).

#### Prerequisite

**200571.1** Management Dynamics OR **MG102A.1** Management Foundations OR **61611.1** Management Studies OR **H1727.1** Business Management

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This unit is concerned with organisation theories, forms and practices at both the macro and micro levels. Tensions and paradoxes that arise through processes of 'getting things done' in organisations are examined. Various classical and contemporary approaches to conceptualising organisations are introduced and critically appraised. Historical shifts in organisational structure and design preferences are examined. Multiple perspectives are brought to analyse organisation designs. Organising as a social meaning making process, where order and disorder are in tension and unpredictability is shaped and managed, is examined. Students are invited to learn through involvement in, and reflection upon, a range of individual and collaborative activities.

### 200585.1 Organisational Behaviour

**Credit Points** 10 **Level** 2

#### Prerequisite

**200571.1** Management Dynamics OR **MG102A.1** Management Foundations

#### Equivalent Units

MG204A - Organisational Behaviour

Organisational Behaviour focuses on people in the work place, what motivates them, their attitudes, and how they interact with others. The effects of different communication and types of conflict are also examined. The unit focuses on the individual and group processes of organisational behaviour. Students will also gain an understanding of the importance of research in what might be classified as the non-tangibles in organisational effectiveness. This unit aims to develop personal and interpersonal skills of prospective managers for working in contemporary organisational settings.

### 200157.2 Organisational Learning and Development

**Credit Points** 10 **Level** 3

#### Prerequisite

**200571.1** Management Dynamics AND **MG102A.1** Management Foundations OR **61611.1** Management Studies OR **H1727.1** Business Management

Organisational Learning and Development introduces a powerful way of understanding the nature of contemporary organisations and the key strategic tasks they face. Promotion of individual self-development within a continuously self-transforming organisation is presented as essential if organisations are to innovate and evolve, and so meet the challenges of a turbulent world. The unit introduces the idea that promoting organisational learning means adopting an appropriate management philosophy, one that challenges traditional theories of management. The concept and practice of organisational learning and implications for management approaches are introduced and critically evaluated. Students are stimulated to learn through involvement in reflection upon a range of individual and collaborative activities.

### 400809.1 Outcome Measures and Indicators in Clinical Practice

**Credit Points** 10 **Level** 3

#### Equivalent Units

400185 - Health Outcomes and Indicators

This unit aims to provide students with a deeper understanding of the methods used to evaluate clinical practice and service provision. The primary focus of this unit is clinical indicators and outcome measurement. Students will be required to apply their knowledge of professional theory, practice, and research to design a project that could be implemented in the clinical setting to evaluate the effectiveness of clinical intervention or service provision.

### 400808.2 Outdoor Recreation

**Credit Points** 10 **Level** 1

#### Equivalent Units

100666 - Outdoor Recreation 1

#### Special Requirements

This unit is only available to students enrolled in course 4659 - Bachelor of Health Science (PDHPE) or 4549 - Bachelor of Health Science (PDHPE).

Students will learn about the variety of outdoor recreational pursuits available to individuals, whether in a school-based or community setting. Through active participation and guided instruction, students will also learn how to supervise specific forms of outdoor recreation. Lecture content will reinforce learning and skill development through the study of the development, administration and delivery of school-based and community public recreation programs, as well as study the role of recreation within Australia.

### 300641.1 Packaging Science and Technology

**Credit Points** 10 **Level** 3

#### Equivalent Units

FS328A - Packaging Science & Technology

This unit will equip students with knowledge of the following: Role of packaging. Packaging materials including paper, glass, metals and polymers. Choice of materials for food packaging in relation to possibilities of interactions with food products. Packaging for various food types including fresh and microwavable foods, dairy and horticultural products, cereals, snacks and beverages. Shelf life of packaged foods. Aseptic, active and controlled/modified atmosphere packaging. Food packaging trends based on responses to marketing and distribution stimuli. Methods of decorating and labelling packages. Green-packaging with response to increasing in environmental consciousness in disposing used packaging. Economics of packaging. Regulations governing packaging and the rationales behind them.

### 400186.1 Paediatric Practice

Credit Points 10 Level 3

This elective unit aims to give students the opportunity to investigate a particular aspect of paediatric and adolescent clinical practice. This unit will be conducted in a self-directed mode where students will have the opportunity through a learning contract to decide on their own learning objectives and negotiate assessment items. It will provide the opportunity for those students interested in pursuing a career with children and adolescents to enhance and apply their theoretical knowledge of paediatric practice to a particular area of interest.

### 300323.1 Pathological Basis of Disease

Credit Points 10 Level 2

#### Special Requirements

This unit is only available to core students enrolled in courses: 3577 Bachelor of Medical Science, 3589 Bachelor of Science (Forensic Science), 3517 Bachelor of Science (Biological Science) and 0J142 Bachelor of Medical Science (Retired).

This unit builds on the human anatomy and physiology studied in first and second year, equipping students with detailed knowledge of the pathological basis of disease. The study of pathology integrates many previously learned scientific principles (physical, chemical and biological) into the context of disease.

### 400138.2 Pathophysiology 1

Credit Points 10 Level 2

#### Prerequisite

400868.1 Human Anatomy and Physiology 1 AND  
400869.1 Human Anatomy and Physiology 2

#### Incompatible Units

300323 - Pathological Basis of Disease

This unit version will commence from 2011. This unit is intended for students enrolled in a range of health science courses within the School of Biomedical and Health Sciences. It is designed to equip students with a detailed knowledge of pathophysiological processes evident in a number of key human diseases that are vocationally relevant to these students. The content is organised using a systems based approach. Problem-based learning methods will be adopted in the tutorial component of this unit to help students develop crucial problem solving skills.

### 400267.1 Pathophysiology 2

Credit Points 10 Level 3

#### Prerequisite

400138.1 Pathophysiology 1

#### Equivalent Units

E3322 - Pathophysiology II

This unit extends the scope of topics that were explored in Pathophysiology I. The lectures and tutorials in this unit, apply a systemic approach to the study of a range of disease categories, providing a foundation of pathophysiological knowledge for Osteopathy, Chinese Medicine, and Naturopathy students. This unit aims at preparing the future practitioner with: an in-depth knowledge base of diseases; to be able to anticipate and safeguard the patient from potential harm by exercising accurate judgement, and making appropriate referrals, if necessary.

### 400267.2 Pathophysiology 2

Credit Points 10 Level 2

#### Prerequisite

300323.1 Pathological Basis of Disease OR 400138.1 Pathophysiology 1

This unit version will commence from 2011. This unit extends the scope of topics explored in Pathophysiology 1 and is designed to equip students enrolled in health science courses of the School with detailed knowledge of pathophysiological processes evident in a number of key human diseases that are vocationally relevant to these students. Problem-based learning methods will be adopted in the tutorial component of this unit to help students develop crucial problem solving skills.

### 300150.2 PC Workshop

Credit Points 10 Level 1

#### Assumed Knowledge

Basic knowledge of personal computers.

This unit introduces students to the hardware and software components of a stand-alone personal computer (PC). Students become familiar with the CPU, memory, secondary storage, IO peripherals and communications devices commonly found in a PC. They learn to assemble and disassemble a PC and to install hardware and software components according to supplier specifications. Students also learn to use and customise the PC operating system to maintain and optimise PC performance.

### 400798.1 PDHPE: Games for Diverse Groups

Credit Points 10 Level 2

#### Equivalent Units

100832 - Sports Coaching with Juniors

#### Special Requirements

Child protection training, senior first aid

This unit focuses on the principles of coaching (young) children and adolescence in a variety of Striking/Fielding sports using a games sense through understanding approach. It builds on theories and practical aspects of game sense presented in Invasion Games 1 and 2. In particular it addresses issues of diversity and difference,

and inclusion in sport and recreation activities. The organisation of the Disability Education Program (DEP) and the catering for diverse groups with special needs is addressed through a games sense approach. As well as addressing a range of traditional sports (Baseball, Cricket, Softball) the unit gives students the opportunity to design game sense approach programs for a range of alternate activities catering for diverse groups (Blind cricket, Table cricket, Boccia, Lifeball, Sitting volleyball, Goal ball, wheelchair basketball). Students will implement a coaching/teaching program in a local school. Students will be required to complete the DEP training program and gain a number of Level 1 coaching certificates in both traditional sports and modified sports. These are undertaken at their own expense and in their own time. They are additional extras to the formal teaching and lecturing of the unit. This school project/coaching clinic may occur outside of time tabled class lectures and tutorials. There are additional costs associated with this unit.

### 400908.1 People, Environment and Occupations

**Credit Points** 10 **Level** 2

#### Prerequisite

**400160.1** Introduction to Occupational Therapy AND **400907.1** Occupational Therapy Practice 1

#### Equivalent Units

400734 - Functional Analysis

#### Special Requirements

This unit is only available to students enrolled in course 4663 - Bachelor of Health Science/Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

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The ability to analyse an individual's functional abilities, daily occupations and social, physical and cultural environments is a core component of occupational therapy practice. This unit will build on the basic occupational analysis skills mastered in year 1 Occupational Therapy units. Students will conduct detailed analyses of occupations, examining how occupational therapists can maximise the Person-Environment-Occupation fit to optimise participation.

### 400897.1 Personal Training and Coaching

**Credit Points** 10 **Level** 3

#### Prerequisite

**300361.1** Introduction to Human Biology AND **400880.1** Fundamentals of Exercise Science AND **400892.1** Nutrition, Physical Activity, Fitness and Health

#### Special Requirements

This unit is only available to students enrolled in course 4659 - Bachelor of Health Science (PDHPE).

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This unit presents the functional anatomy, exercise physiology, physical fitness, biomechanics, motor

development and exercise training content required to function as competent personal trainers and/or sports coaches. Students will also complete laboratory exercises designed to train and provide experience in key aspects of personal training and coaching, including assessments of different components of physical fitness in laboratory and field settings, skill analyses from biomechanical and motor development perspectives, resistance training experience and coaching, and quantifying skill in sports and athletics.

### 300324.1 Pharmacological Chemistry

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

300301 - Organic Chemistry 2. This unit is aimed at undergraduates with a grounding in chemistry and biochemistry.

#### Equivalent Units

J3649 - Pharmacological Chemistry

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Contemporary medicinal chemistry relies upon a rigorously planned and rational design of drugs based upon a full understanding of both chemistry and biology. An ability to determine and define the chemical structure of the drug, its target system, its site of action and its destruction mechanisms, has allowed the scientist to systematically tailor a drug to its specific purpose using quantitative structure-activity relationships (QSAR) and this methodology is emphasised within the unit. With the accelerating development of computer-based technologies this capability has been extended further. Drugs such as cimetidine and other histamine antagonists are used to illustrate the achievement and future uses of structure-activity relationships in rational drug design, whilst the laboratory work leads to a simulated quantitative structure-activity determination relating to antimicrobials.

### 300505.1 Pharmacology

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Assumed knowledge equivalent to 300320 - Introduction to Human Physiology or 300323 - Pathological Basis of Disease

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Pharmacology is the study of the therapeutic interactions of drugs with the human body, focusing on the drug's mechanisms of action at the biochemical and cellular level, on adverse reactions and on clinical applications. The aim of this unit is to provide students with a sound understanding of fundamental aspects of this field to prepare for further study of advanced pharmacology or other biomedical sciences. The general principles of pharmacokinetics and pharmacodynamics will be discussed in detail. This will be followed by the discussions of the major drug categories that affect different organ systems. Research methods in pharmacology and drug development process will also be introduced.

### 300236.1 Physical Chemistry 2

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

To a standard equivalent to that presented in 300224 - Chemistry 1 (or equivalent); and equivalent to completion of first-year mathematics unit (200191 - Fundamentals of Mathematics OR 200189 - Concepts of Mathematics)

#### Prerequisite

**300224.1** Chemistry 1 OR **300554.1** Principles of Chemistry

#### Equivalent Units

14142 - Physical Chemistry, 300540 - Biomolecular Dynamics, CH205A - Chemistry 2, J2776 - Physical Chemistry 2

Students studying at Campbelltown campus should refer to 300540 - Biomolecular Dynamics. This unit deals with some important principles, topics and techniques in physical chemistry, including the principles of energy flow and transformation in chemical systems (chemical thermodynamics), the rates and extent of chemical reactions (chemical equilibrium and kinetics), and applications of these principles to electrochemistry and a range of industrial and biological processes. The unit extends and expands on some of the topics studied previously in Chemistry 1 and 2, and aims to support and complement other units in chemistry, biochemistry, biotechnology, physics and the biological sciences. It strengthens students' ability to study quantitative chemical problems, and further develop useful experimental and data-analysis skills.

### 300303.1 Physical Chemistry 3

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

A demonstrated understanding of and competence with the basic principles of physical chemistry including states and properties of matter, thermodynamics, chemical equilibria, kinetics and electrochemistry to a standard equivalent to that presented in Physical Chemistry 2 (or equivalent).

#### Prerequisite

**300236.1** Physical Chemistry 2

#### Equivalent Units

J3696 - Physical Chemistry 3, CH305A Physical Chemistry 3.1, 14115 - Advanced Physical and Inorganic Chemistry

This unit introduces selected areas of more advanced physical chemistry, which build on and extend the knowledge and understanding gained in Physical Chemistry 2. The practical skills required are learnt through laboratory exercises, which complement the theory.

### 700026.1 Physics (UWSCFS)

**Credit Points** 10 **Level** Z

#### Special Requirements

Students must be enrolled at UWS College.

This unit serves as an introduction to the fundamentals of physics with appropriate applications in a wide range of engineering areas.

### 300558.1 Physics 1

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

2 units of HSC mathematics or equivalent

#### Equivalent Units

14201 - Foundation Physics 1, 14227 - Engineering Physics, 300050 - Physics 1, 300077 - Physics 1D, EN102A - Engineering Science, J1733 - Physics 1.1, J1763 - Fundamentals of Physics

This unit provides an introduction to physics for science and medical science students as well as providing a basis for further study of more advanced physics for students pursuing courses in nanotechnology, chemical, physical and mathematical sciences. It provides a foundation to understand the physical principles which underlay scientific instrumentation and analysis. Topics covered include systems of units; Introductory mechanics, Newton's laws, work, conservation of energy and momentum; Electricity, electrostatics, DC and AC circuits and components, introductory electromagnetism; Waves and optics, electromagnetic radiation, reflection, refraction, image formation, polarisation, interference and diffraction.

### 700035.1 Physics 1 (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

300050 - Physics 1, J1763 - Fundamentals of Physics, J1733 - Physics 1.1, 14201 - Foundation Physics 1, EN102A - Engineering Science, 14227 - Engineering Physics, 300077 - Physics 1D

#### Special Requirements

Students must be enrolled at UWS College.

This unit provides an introduction to physics for science and medical science students as well as providing a basis for further study of more advanced physics for students pursuing courses in nanotechnology, chemical, physical and mathematical sciences. It provides a foundation to understand the physical principles which underlay scientific instrumentation and analysis. Topics covered include systems of units; Introductory mechanics, Newton's laws, work, conservation of energy and momentum; Electricity, electrostatics, DC and AC circuits and components, introductory electromagnetism; Waves and optics, electromagnetic radiation, reflection, refraction, image formation, polarisation, interference and diffraction.

### 300559.1 Physics 2

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Physics 1 or equivalent.



**Equivalent Units**

14202 - Foundation Physics 2, 300051 - Physics 2, J1734 - Physics 1.2, PH103A - Physics 1.2 (v2)

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This unit develops a deeper understanding of physics for students pursuing courses in nanotechnology, chemical, physical and mathematical sciences. Topics covered include Mechanics: Equilibrium, stress and strain, harmonic oscillators, rotational motion, moment of inertia. Gravitation, types of force in nature. Thermal Physics: temperature, specific & latent heat, heat transfer, kinetic theory of gases, first law of thermodynamics, isothermal, isobaric & adiabatic processes. Introduction to Modern Physics: special relativity, time dilation, length contraction, momentum, mass, rest energy, velocity addition. Basic quantum theory, Planck's hypothesis, wave nature of matter, quantum mechanical view of atoms. Nuclear physics, radiation, half-life, nuclear reactions.

**300464.1 Physics and Materials**

**Credit Points** 10 **Level** 1

**Equivalent Units**

14227 - Engineering Physics

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This unit serves as an introduction to the fundamentals of physics and materials with appropriate applications in a wide range of engineering and industrial design systems.

**700020.1 Physics and Materials (UWSC)**

**Credit Points** 10 **Level** 1

**Assumed Knowledge**

HSC Physics and HSC Mathematics and/or Physics (UWSC Dip) and Mathematics C (UWSC Dip)

**Equivalent Units**

300464 - Physics and Materials

**Special Requirements**

Students must be enrolled at UWS College.

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This unit serves as an introduction to the fundamentals of physics and materials with appropriate applications in a wide range of engineering and industrial design systems.

**200148.1 Planning and Design of Hospitality Facilities**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Advanced unit, assumes basic knowledge of hospitality management.

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An understanding of planning and design is critical to the effective long-term sustainability and performance of hospitality businesses. Planning and Design of Hospitality Facilities provides a unique opportunity for students to learn about contemporary planning a design issues including: an examination of design processes; the role of government

and building authorities; design principles for hospitality facilities; sustainability; and managerial aspects related to commissioning and evaluating hospitality facilities.

**300621.1 Plant Biotechnology**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Basic knowledge of biology, botany, and chemistry.

**Equivalent Units**

BC302A - Plant Biotechnology

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This unit introduces theories and techniques of plant biotechnology that are applicable to crop production and improvement. It will furnish students with an understanding of the scientific principles used in the biotechnological approaches to manipulating plants and their genomes. Emphasis will be placed on providing sufficient information and technical expertise to allow graduates to enter commercial, industrial and research employment. The ethical and environmental impacts of genetic engineering and biotechnology are also emphasised.

**300501.1 Plant Diversity**

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

Basic botanical knowledge in plant anatomy and morphology

**Equivalent Units**

HT105A - Horticultural Plant Identification

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This unit provides knowledge relating to the identification, incidence, culture use or control of a diverse range of plant material encountered in horticultural and agricultural production and associated plant usage and support industries. The diversity of the plant kingdom is explored whether they be crop plants, weeds or Australian native plants.

**300609.1 Plant Physiology**

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

Sound knowledge of biology and chemistry equivalent to undergraduate level 1 units.

**Equivalent Units**

14409 - Plant Physiology, 300333 - Introductory Plant Physiology

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This unit introduces students to the mechanisms by which plants function. It will provide students with a detailed understanding of the processes and pathways involved in plant water, nutrient and energy acquisition and plant growth and development. It also introduces students to the interactions that occur between plants and their external environment including plant stress responses, plant defence strategies, plant - microbe interactions and plant responses to climate change, and how these interactions

influence plant physiological processes and growth and development.

### 300643.1 Plant Protection

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Sound knowledge of chemistry and biology, and some knowledge of genetics.

#### Equivalent Units

HT301A - Plant Protection (V2)

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This unit is designed to enable students to recognise both the significance of pests in agricultural and horticultural production and postharvest, and methods of reducing their damage to plants and plant products. Major areas of study include: pest losses in horticultural production and postharvest: types and level; major groups of organisms causing plant losses, viz. arthropods, pathogens and weeds; strategies for reducing pest damage (including legislative, physical, biological and chemical) - benefits and limitations; and field recognition of pests and damage assessment.

### 300336.1 Plant-Microbe Interactions

**Credit Points** 10 **Level** 3

#### Equivalent Units

BI203A - Biology of Non-Plant Organisms

.....

The unit will explore the positive and negative aspects of interactions between plants and micro-organisms in the environment. This includes plant pathological viruses, bacteria and fungi, their mode of action, life cycle and symptomatology. Beneficial associations include root nodules, mycorrhizae, rhizosphere effects and soil nutrient cycles. The response by plants and their natural defence mechanisms to infection and their positive interactions with micro-organisms will also be investigated.

### 400928.1 Podiatric Clinical Block

**Credit Points** 20 **Level** 7

#### Assumed Knowledge

Human Anatomy and The Appendicular Skeleton, Podiatry Pre-clinical, Podiatric Techniques 1A, 1B, 2B, 3A, 3B.

#### Prerequisite

**400930.1** Podiatric Practice 2 AND **400931.1** Podiatric Practice 3 AND **400937.1** Podiatric Techniques 2A AND **400941.1** Podiatric Techniques 3C

#### Special Requirements

Podiatry specific - students will be participating in patient assessment and management. It is essential that they have been able to demonstrate competencies in patient assessment, documentation, treatment programs and communication within allied health / community settings. The podiatric practice units in combination with the clinical block placement have been designed to be an integrated suite of units where one unit builds on the clinical competencies of the others. Student must hold: 1. Senior

First Aid Certificate and completed the OxyViva Resuscitation and EpiPen components as administration by a work cover accredited educational body. 2. Current Criminal Record Check (CRC) 3. Prohibited Employment Declaration 4. NSW Health Department Category A Vaccinations

.....

This unit will further develop students' assessment skills encouraging the student to make the appropriate selection of assessment techniques to diagnose, treat and provide long term health outcomes especially in the public / community based patients. In this clinical unit, students will continue to participate in clinical activities under supervision in public sector placements to manage foot pathologies with increased scope of treating special populations (the high risk foot). Supporting workshop activities will be divided into two areas: Lecture / tutorial format to prepare the student for the block placement and a final feedback session at the end of the placement.

### 400929.1 Podiatric Practice 1

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Appendicular Skeleton.

#### Prerequisite

**400933.1** Podiatry Pre-Clinical

#### Corequisite

**400942.1** Introduction to Podiatry and Clinical Education

#### Equivalent Units

400141 - Podiatry Practice 1

#### Special Requirements

Podiatry specific - students will be participating in patient assessment and management. It is essential that they have been able to demonstrate baseline competencies in patient assessment and infection control procedures. The podiatric practice units have been designed to be an integrated suite of units where one unit builds on the clinical competencies of the others. Must hold: 1. Senior First Aid Certificate and completed the OxyViva Resuscitation and EpiPen components as administration by a work cover accredited educational body. 2. Current Criminal Record Check (CRC) 3. Prohibited Employment Declaration 4. NSW Health Department Category A Vaccinations

.....

This unit will introduce students to the first clinical unit in the series of four where students will demonstrate basic competencies in patient assessment, communication and management skills. The student will also be introduced to basic skills in mechanical therapy as part of the clinical therapies unit. In this unit students will participate in clinics as informed and guided observers, and will commence elementary assessment and diagnostic skills. The activities will be divided into four areas: new patient clinics, clinical tutorials, clinical therapies and a one-week external clinical placement at the end of semester.

### 400930.1 Podiatric Practice 2

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Appendicular Skeleton, Podiatry Pre-clinical 1, Podiatric Techniques 1A, 1B.

#### Prerequisite

**400929.1** Podiatric Practice 1

#### Equivalent Units

400145 - Podiatric Practice 2

#### Special Requirements

Podiatry specific - students will be participating in patient assessment and management. It is essential that they have been able to demonstrate baseline competencies in patient assessment and infection control procedures. The podiatric practice units have been designed to be an integrated suite of units where one unit builds on the clinical competencies of the others. Must hold: 1. Senior First Aid Certificate and completed the OxyViva Resuscitation and EpiPen components as administration by a work cover accredited educational body. 2. Current Criminal Record Check (CRC) 3. Prohibited Employment Declaration 4. NSW Health Department Category A Vaccinations.

.....

This unit will further develop students' assessment skills encouraging the student to make the appropriate selection of techniques (biomechanical assessments) and to introduce the student to the diagnosis and management of a variety of simple foot pathologies. In this unit, the second of the four clinical practice units, students will participate in assessments of patients under supervision and continue with the management of foot pathologies. Clinical activities will be divided into five areas: General Medicine Clinic, Biomechanical Assessment Clinical, Tutorial, Clinical Therapies and External Clinical Placement.

### 400931.1 Podiatric Practice 3

**Credit Points** 10 **Level** 7

#### Assumed Knowledge

Appendicular Skeleton, Podiatry Podiatry Pre-clinical , Podiatric Techniques 1A, 1B, 2B.

#### Prerequisite

**400930.1** Podiatric Practice 2 AND **400937.1** Podiatric Techniques 2A

#### Equivalent Units

400152 - Podiatric Practice 4

#### Special Requirements

Podiatry specific - students will be participating in patient assessment and management. It is essential that they have been able to demonstrate baseline competencies in patient assessment and infection control procedures. The podiatric practice units have been designed to be an integrated suite of units where one unit builds on the clinical competencies of the others. Student must hold: 1. Senior First Aid Certificate and completed the OxyViva Resuscitation and EpiPen components as administration by a work cover accredited educational body. 2. Current Criminal Record

Check (CRC) 3. Prohibited Employment Declaration 4. NSW Health Department Category A Vaccinations

.....

This unit will further develop students' assessment skills encouraging the student to make the appropriate selection of assessment techniques to diagnose, treat and provide long term health outcomes. In this unit, the third of the four clinical practice units, students will continue to participate in clinical activities under supervision to manage foot pathologies with increased scope of treating special population groups. Clinical activities will be divided into four areas: Clinic – general, biomechanical and surgical assessments, Tutorial, Clinical Therapies and External Clinical Placement.

### 400932.1 Podiatric Practice 4

**Credit Points** 10 **Level** 7

#### Assumed Knowledge

Appendicular Skeleton, Podiatry Pre-clinical , Podiatric Techniques 1A, 1B, 2B, 3A.

#### Prerequisite

**400931.1** Podiatric Practice 3 AND **400937.1** Podiatric Techniques 2A AND **400941.1** Podiatric Techniques 3C

#### Equivalent Units

400158 - Podiatric Practice 6

#### Special Requirements

Podiatry specific - students will be participating in patient assessment and management. It is essential that they have been able to demonstrate baseline competencies in patient assessment and infection control procedures. The podiatric practice units have been designed to be an integrated suite of units where one unit builds on the clinical competencies of the others. Student must hold: 1. Senior First Aid Certificate and completed the OxyViva Resuscitation and EpiPen components as administration by a work cover accredited educational body. 2. Current Criminal Record Check (CRC) 3. Prohibited Employment Declaration 4. NSW Health Department Category A Vaccinations

.....

This unit will further develop students' assessment skills encouraging the student to make the appropriate selection of assessment techniques to diagnose, treat and provide long term health outcomes. In this final clinical unit, students will continue to participate in clinical activities under supervision in both the Uniclinic and public sector placements to manage foot pathologies with increased scope of treating special population groups. Clinical activities will be divided into four areas: Clinic – general, biomechanical and surgical assessments, Tutorial, Clinical Therapies and External Clinical Placement.

### 400934.1 Podiatric Professional Practice Studies

**Credit Points** 10 **Level** 7

#### Special Requirements

Podiatry specific.

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This unit will introduce students to the principles of professional development and appropriate requirements to function as a registered podiatrist. As podiatrists may work as a primary provider, as part of a multidisciplinary team, in the public or private health care setting, they require extensive knowledge of many aspects of the management of a practice or business. During a one week conference, students will be introduced to a gumut of principles specific to professional, ethical and legal issues associated with working as a podiatrist and practice and workplace administrative policies and procedures.

### 400935.1 Podiatric Techniques 1A

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Anatomy – structure and function of the lower extremity is important as the focus of this unit is on abnormalities of the lower limb and subsequent assessment and management of conditions of the foot and leg.

#### Incompatible Units

400142 - Pathomechanics of Human Locomotion 400144 - Podiatric Medicine

#### Special Requirements

Students must be enrolled in 4665 Master of Podiatric Medicine or 4666 Bachelor of Health Science (Honours)/ Master of Podiatric Medicine.

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This unit will introduce students to clinical (practical hands on) and theoretical foundations of human biomechanics of the foot and lower extremity and the mechanics, diagnosis and treatment of pathological conditions. The unit consists of coordinated lectures and practical components to cover the introductory theory of gait analysis, relevant physical examinations (joint, muscle testing to therapeutic options), diagnosing conditions such as shin pain, foot pain (plantar fasciitis, heel spur syndrome or digital deformities) and related treatment options.

### 400936.1 Podiatric Techniques 1B

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Anatomy covered in Human Anatomy & Physiology and Appendicular Skeleton

#### Incompatible Units

400140 - Introduction to Radiology 400143 - Musculoskeletal Disorders of the Lower Extremity

#### Special Requirements

Podiatry specific

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This unit will introduce students to clinical and theoretical foundations of the musculoskeletal system conditions that will impact on the function of the lower extremity. Disease processes that affect the joint structure such as osteoarthritis, rheumatoid arthritis, arthropathies, gout, osteoporosis, osteomyelitis, systematic disorders and tumours will be covered. Advanced assessment evaluation will be taught that will include diagnostic techniques, eg. x-

rays, ultrasound, magnetic resonance imaging and computer tomography. This will assist in the application and clinical interpretation of presenting disease processes in podiatric settings.

### 400937.1 Podiatric Techniques 2A

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Regional anatomy of the lower extremity is essential as students will be injecting local anaesthesia into the foot. Infection control and manual dexterity skills are essential which will be covered in Podiatric Practice 1 and Podiatry Preclinical.

#### Prerequisite

400929.1 Podiatric Practice 1 OR 400942.1 Introduction to Podiatry and Clinical Education

#### Equivalent Units

400150 - Surgery for Podiatrists

#### Special Requirements

Podiatry specific, students are required to use S4 substances and will be eligible for Registration after graduation with the NSW Podiatrists Registration Board after undertaking this unit. Must hold a Senior First Aid Certificate and completed the OxyViva Resuscitation and EpiPen components as administration by a work cover accredited educational body.

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This unit will introduce students to local anaesthesia, the theory of surgical procedures and the practice of skin and nail surgical techniques. As such, this unit allows students to assess patients' suitability for administration of local anaesthesia; understand procedures involved in obtaining voluntary consent, appreciate, reasonably predict and describe the possible adverse effects of administering local anaesthesia. Surgery will focus the medico-legal requirements, principles of theatre protocol, peri-operative and post surgical management of the patient and nail and skin surgery, in preparation for student undertaking surgery during Podiatric Practice 3 and 4.

### 400938.1 Podiatric Techniques 2B

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

400135 - Clinical Pharmacology and Microbiology. As this unit builds on the concepts presented in Clinical Pharmacology and Microbiology, an understanding of the pharmacokinetics and dynamics of drugs is recommended.

#### Incompatible Units

400146 - Pharmacology and Dermatology

#### Special Requirements

Podiatry specific

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This unit will introduce students to the principles of pharmacology in podiatry and further develop the understanding of drug prescription issues, with particular focus on drugs of importance to podiatry patients, drug interactions and poly pharmacological issues.

### 400939.1 Podiatric Techniques 3A

**Credit Points** 10 **Level** 7

#### Assumed Knowledge

Podiatric Techniques 1A, 1B, Human Anatomy and Physiology 1, 2 and Appendicular Skeleton.

#### Incompatible Units

400147 - Paediatrics and Sports Medicine for Podiatry, 400153 - Gerontology and Neurology

#### Special Requirements

Podiatry specific.

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This unit will introduce students to clinical and theoretical foundations of biomechanical alignment, trauma, psychological and behavioural factors leading to pain and restricted function of the foot and lower extremity affecting daily living activities. Particular focus will be placed on the mechanics, diagnosis and treatment options of problems experienced in special populations or different age groups in normal daily activities or the sporting arena. Furthermore, this integration will enhance the previously taught assessment and diagnostic techniques in the development of appropriate management and treatment programs of the lower extremity in different populations.

### 400940.1 Podiatric Techniques 3B

**Credit Points** 10 **Level** 7

#### Assumed Knowledge

As this unit builds on the concepts presented in Clinical Pharmacology and Microbiology, an understanding of the pharmacokinetics and dynamics of drugs is recommended.

#### Incompatible Units

400146 - Pharmacology and Dermatology

#### Special Requirements

Podiatry specific

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This unit will introduce students to clinical and theoretical foundations of dermatology including the function and structure of the skin, assessment, diagnosis, aetiological factors and the management of disorders of the skin, with particular emphasis on common foot conditions.

### 400941.1 Podiatric Techniques 3C

**Credit Points** 10 **Level** 7

#### Assumed Knowledge

Podiatric Techniques 1B, Pathophysiology 1, Human Anatomy and Physiology 1 and 2 and Appendicular Skeleton.

#### Incompatible Units

400151 - The High Risk Foot, 400153 - Gerontology and Neurology

#### Special Requirements

Podiatry specific.

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This unit will introduce students to clinical (practical hands on) and theoretical foundations of the management of the high risk foot. The unit consists of coordinated lectures and practical components to cover the overview of systemic conditions covered in pathophysiology and will explore the management of the foot and lower extremity manifestations associated with vascular, endocrine, neurological and immunosuppression. Particular emphasis will be placed on the foot at risk and podiatry assessment, diagnosis and management in context of a health profession team management approach. Diagnostic assessment techniques, both clinical and laboratory based will be covered. Infection control, wound classification and wound care management will be discussed in detail.

### 400933.1 Podiatry Pre-Clinical

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Anatomy

#### Prerequisite

**400905.1** Introduction to Podiatry

#### Equivalent Units

400133 - Podiatry Pre-clinical Studies

#### Special Requirements

Podiatry specific. Must hold a: 1. Senior First Aid Certificate and completed the OxyViva Resuscitation and EpiPen components as administration by a work cover accredited educational body. 2. Current Criminal Record Check (CRC) 3. Prohibited Employment Declaration 4. NSW Health Department Category A Vaccinations

.....

This unit will build on the skills introduced in Year 1 with an emphasis on clinical competencies in patient communication and management. The clinical component will cover an introduction to basic treatment skills of skin conditions and the evaluation of functional anatomy, gait, cursory examinations and communication. Introduction to general clinical treatment skills such as chair side devices and strapping and removable pads to more complex skills such as the manufacture of non-cast orthotic devices will be covered. The knowledge and skills taught will be relevant in the observational one week placement.

### 200065.1 Political Economy

**Credit Points** 10 **Level** 3

#### Prerequisite

**200046.1** Microeconomics AND **200049.1** Macroeconomics OR **200076.1** Introductory Economics

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This unit examines various political economy approaches to the analysis of economics, mainly associated with Austrian, Marxian, post-Keynesian and evolutionary schools of thought. These may be regarded as the main alternatives to neo-classical economic theory. As they do not represent a unified body of thought, the unit will survey the main contributions of each, focusing on both the positive aspects of theory and the negative aspects relating to the critique of neo-classical theory.

### 400870.1 Population Health and Society

**Credit Points** 10 **Level** 1

#### Equivalent Units

400781 - Dynamics of Health, 400270 - Meanings of Health and Models of Care

.....

This unit deals with foundational concepts and factors relating to population health in our society. Issues that determine both social and environmental aspects of disease, health and wellbeing will be examined. Contemporary problems impacting on states of health will be explored, including current day trends in communicable and non-communicable disease.

### 700066.1 Population Health and Society (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

400870 - Population Health and Society

#### Special Requirements

This unit is only available to UWS College students.

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This unit deals with foundational concepts and factors relating to population health in our society. Issues that determine both social and environmental aspects of disease, health and wellbeing will be examined. Contemporary problems impacting on states of health will be explored, including current day trends in communicable and non-communicable disease.

### 200078.1 Portfolio Management

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200057 - Investment Management

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This unit covers the contemporary theory of portfolio analysis and management. Topics include: risk and diversification; the two and n security case; the Markowitz efficient frontier; investor indifference curves and optimal portfolios; CML and optimal portfolios; beta, SML and the discount rate re-visited; Sharpe single index model and APT asset allocation; investments to the portfolio and portfolio strategies; measuring portfolio performance and security selection decisions; active portfolio management; international diversification; process of portfolio management; and risk management and hedging.

### 300452.1 Postharvest

**Credit Points** 10 **Level** 2

#### Equivalent Units

HT203A - Introduction to Postharvest

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This unit will discuss the factors that affect the retention of quality of fresh fruit, vegetables and cut flowers from grower

to consumer. Topics include: the essential role of fresh produce for the health and happiness of people; the growth and maturation and respiration of fresh produce; the importance of managing temperature and relative humidity of the storage environment; the physiological responses of fresh produce to changes in temperature and water loss; the role of ethylene in fruit ripening and senescence; the practical issues of assessing harvest maturity; packaging; distribution and the control of postharvest disease and the concepts of HACCP.

### 300052.1 Power and Machines

**Credit Points** 10 **Level** 2

#### Prerequisite

**300005.1** Circuit Theory

#### Equivalent Units

84239 - Introduction to Power and Machines

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This unit introduces basic concepts of power and machines, including an introduction to modern power systems and transformers, and fundamentals of electromechanical energy conversion. It also covers magnetic circuits, modern permanent magnet materials and their characteristics, and balanced and unbalanced three-phase power systems.

### 200752.1 Power, Politics and Knowledge

**Credit Points** 10 **Level** 3

#### Equivalent Units

H3743 - Power Politics and Knowledge, 200583 - Power, Politics and Knowledge

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The core aim of this unit is to provide students with a thorough grasp of the complex relationships between power, politics and knowledge in organisational settings. It also highlights the need for managers to use power ethically and equitably. These aims are addressed through an examination of a range of theories of power and topics such as: distribution and exercise of power in organisational settings, organisational politics, gender and power, language and power, resistance to power, and others. Innovative class activities and assessment methods (e.g., reflective brainstorming; storytelling; film analysis) are used in this unit to ensure that students are able to effectively apply theoretical concepts to real life situations.

### 400156.1 Practice Management for Health Professionals

**Credit Points** 10 **Level** 3

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This unit is aimed to introduce the student to the management issues in establishing and working in a clinical practice. While the unit will cover issues related to health professionals and public sector management, the focus of the unit will be on issues in private practice. The aim of the unit is to introduce the student to a wide range of topics, including an over view of health care funding in Australia, private and public health system, developing a business

plan, different business structures, financial management, managing staff and occupational health and safety issues.

### 300502.1 Primary Production

**Credit Points** 10 **Level** 1

#### Equivalent Units

AG103A - Farming Systems, 300450 - Horticultural Production 1

.....

This unit overviews farming systems, primary production industries and enterprises. It introduces ethical issues relating to primary production and their associated industries and investigates many principles and techniques of agricultural and horticultural production. A major feature of this unit is the opportunity to develop practical production management skills through the production of selected crops in the field.

### 300671.1 Principles and Practice of Decision Making

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200192 Statistics for Science or 200032 Statistics for Business or 200263 Biometry and 200189 Concepts of Mathematics and 300606 Foundations of Statistical Modelling and Decision Making

#### Equivalent Units

200043 - Stochastic Decision Theory, 200035 - Decision Analysis and Statistical Process Control

.....

This Level 3 unit investigates models for making optimal decisions under conditions of uncertainty and presents a number of relevant quantitative techniques. Topics covered include probabilistic and non probabilistic decision making criteria, decision trees, sensitivity analysis, using utility for decision making and risk analysis, inventory management, queuing analysis, and introduction to simulation.

### 300646.1 Principles of Biotechnology

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Sound knowledge of undergraduate level 1 sciences such as biology, chemistry, and mathematics.

#### Prerequisite

**300300.1** Microbiology 1

#### Corequisite

**300321.1** Microbiology 2

#### Equivalent Units

MI204A - Principles of Biotechnology, SMIB25 - Industrial Microbiology

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This unit introduces students to the field of biotechnology and provides a foundation for advanced biotechnology units. It will build on the basic sciences and provide an understanding of the basic principles involved in this field. It

will introduce the multidisciplinary nature of biotechnology and provide an overview of biotechnology and the current status of the field.

### 300554.1 Principles of Chemistry

**Credit Points** 10 **Level** 1

#### Equivalent Units

300224 - Chemistry 1, J1753 - Chemistry 1

#### Incompatible Units

300469 - Introductory Chemistry

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Students studying at Hawkesbury or Parramatta campus should refer to 300224 - Chemistry 1. This unit provides an introduction to the principles fundamental to all branches of chemistry. It focuses on atomic structure, periodicity, electronic configuration, structure and bonding, chemical equations, stoichiometry, the mole concept, gas laws, states of matter, intermolecular forces and properties of solutions, chemical thermodynamics, chemical equilibria, electrochemistry, scientific notation, and nomenclature. The unit will emphasise their application to biomedical science, but it is intended to provide a broad, rigorous foundation for studies in all areas of chemistry.

### 200525.1 Principles of Economics

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Mathematics

#### Equivalent Units

200076 - Introductory Economics, 200046 - Microeconomics, EC102A - Principles of Economics

#### Special Requirements

External offerings for this unit are only available to students who are enrolled in a Property course or Property Key Program.

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This unit is an introduction to economic concepts and contemporary economic issues. It introduces students to basic concepts such as markets and their operation, the behaviour of firms, the efficiency and potential failings of free markets, the role of government, key macroeconomic variables and problems such as unemployment. It illuminates these concepts via application to contemporary economic issues and debates over different theoretical perspectives. This unit also exposes students to recent developments in economics via presentations by specialist guest lecturers.

### 100483.1 Principles of Professional Communication 1

**Credit Points** 10 **Level** 1

#### Equivalent Units

63901 - Written and Oral Presentation 2, H1745 - Business Skills for Professionals, J1751- Professional Skills for Science and Technology

This unit provide students with an introductory understanding of a range of communication theories and practices necessary for academic work and professional success.

### **700040.1 Principles of Professional Communication 1 (UWSC)**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

63901 - Written and Oral Presentation 2, H1745 - Business Skills for Professionals, J1751 - Professional Skills for Science and Technology

#### **Special Requirements**

Students must be enrolled at UWS College.

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This unit provides students with an introductory understanding of a range of communication theories and practices necessary for academic work and professional success.

### **200040.1 Probability & Stochastic Processes**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Concepts of Mathematics, and Statistical Theory.

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This is an introduction to stochastic processes for students familiar with elementary probability. This unit presents the theory and application of time-dependent processes. In addition the unit applies some methods of probability and stochastic processes to real-world problems. Topics include: Markov chains, Poisson processes, continuous-time Markov chains, branching processes, birth and death processes, queuing systems, and stationary processes.

### **200575.2 Processes and Evaluation in Employment Relations**

**Credit Points** 10 **Level** 3

#### **Prerequisite**

**200300.1** Managing People at Work

#### **Equivalent Units**

200381 - Human Resources Development Seminar

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This unit applies theory and skills developed throughout the key program in HRM/IR to real-world organisational and policy challenges and opportunities. Students will develop and use employment relations concepts and 'metrics' to design implementation plans and to evaluate policies, practices and change initiatives. Evaluation of non-employment relations policies and procedures in terms of their potential impact on employment relations performance will also be assessed. Sustainable and competitive employment relations will be evaluated at organisational, local, regional, national and industry levels.

### **300578.2 Professional Development**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

The following knowledge is assumed: Understanding of Systems Analysis and Design; Ability to express oneself clearly and correctly, both orally and in writing, before an assembly of professional people.

#### **Equivalent Units**

300372 - Professional Preparation and Project Management

#### **Special Requirements**

Students must have completed 140 CP in their course before enrolling in this unit. For students enrolled in 3663 Graduate Certificate in Health Informatics, 3645 Graduate Diploma in IT and 3646 Graduate Certificate in ICT this pre-requisite is not applicable.

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This is a final year unit that builds on foundation and intermediate computing units by preparing students for professional experience. The unit covers ethics and professional code of practice, legal, social and environmental issues relating to computing, I.T. and communications technology, security, privacy and freedom of information, team dynamics, project scheduling and management, project cost/benefit analysis, and quality assurance for systems and applications. This unit is a pre-requisite to the capstone project, covered in Professional Experience.

### **400903.1 Professional Development and Work Experience**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

It is expected that students have the knowledge and skills associated with the prerequisite units.

#### **Prerequisite**

**400880.1** Fundamentals of Exercise Science

#### **Corequisite**

**400326.1** Exercise Prescription for General Populations

#### **Equivalent Units**

400650 - Professional Practice in Sport & Exercise Science 2

#### **Special Requirements**

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science). To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; possess a current WorkCover Authority approved First Aid Certificate.

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Experience in the field of study is an essential ingredient in marketing an individual for employment and often for professional memberships. Professional Practice provides



students with an opportunity to observe and assist Sport & Exercise Science practitioners in action and to learn in a practical “hands on” setting. Students will have the opportunity to see how knowledge and skills acquired in lectures and tutorials/laboratories can be applied and also relate theoretical concepts and skills to situations in exercise-related settings. This unit is the first of two units which require a work placement which is usually off campus.

### 300579.1 Professional Experience

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Software development methodologies, software analysis and design modelling tools and techniques, programming languages, implementing databases management systems, and software construction and testing

#### Prerequisite

**300578.1** Professional Development

#### Equivalent Units

300097 - Computing Project 1

#### Special Requirements

Due to the capstone nature of this unit it can only be undertaken by students enrolled in the 3633 - Bachelor of Computing (Information Systems), 3639 - Bachelor of Information and Communications Technology and 3506 - Bachelor of Computer Science.

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This unit acts as a single capstone unit and through the medium of a specific project, provides opportunities for students to experience the range of issues in requirements definition, analysis, design and implementation, relating to the development of a software product.

### 400871.1 Professional Health Competencies

**Credit Points** 10 **Level** 1

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This unit introduces skills for studying and working in health science. Students will gain an understanding of the interdisciplinary and multi-disciplinary nature of health science practice in the 21st century, and how this interacts with the specialty health professions, client and community expectations of health care and employment opportunities in health science. Students will learn foundation competencies that will underpin their academic development and their safe, responsible and ethical practice in health science service environments.

### 700067.1 Professional Health Competencies (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

400871 - Professional Health Competencies

#### Special Requirements

This unit is only available to UWS College students.

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This unit introduces skills for studying and working in health science. Students will gain an understanding of the interdisciplinary and multi-disciplinary nature of health science practice in the 21st century, and how this interacts with the specialty health professions, client and community expectations of health care and employment opportunities in health science. Students will learn foundation competencies that will underpin their academic development and their safe, responsible and ethical practice in health science service environments.

### 400783.1 Professional Pathways in Health Science

**Credit Points** 10 **Level** 1

#### Equivalent Units

400769 - Foundations of Health Sciences 400242 - Foundation of Therapeutic Recreation

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The unit introduces students to professional issues, history and the philosophy in health sciences: health promotion, health service management and therapeutic recreation. Theories and key concepts of health promotion, health service management, social health and therapeutic recreation are introduced. Students will be introduced to an understanding of human development and the health science processes. Students will examine how human growth and development influences development of socio-economic, cultural, gender, environmental, health science issues. Students will begin an electronic portfolio to help them take more control over their education and assist students to make connections with their learning experiences while building critical and reflective skills. Therapeutic Recreation students will complete a 35 hour workplace learning placement. Health Promotion and Health Service Management students will complete a community project.

### 300053.2 Professional Practice

**Credit Points** 10 **Level** 3

#### Prerequisite

**300461.1** Engineering and Industrial Design Practice OR **300674.1** Engineering, Design and Construction Practice

#### Equivalent Units

85013 - Civil and Environmental Engineering Practice 2

#### Special Requirements

Successful completion of 160 credit points.

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This unit explores the art of managing physical and human resources and the knowledge to plan, deliver and maintain the physical infrastructure for civilisation in an economically sustainable way.

### **400968.1 Professional Practice in Aged Care and Disability**

**Credit Points** 10 **Level** 3

#### **Equivalent Units**

400248 - Professional Practice in Aged Care, 400790 - Professional Practice in Aged Care and Disability

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This unit provides the student with an understanding of current trends underlying policies and services in the aged care and disability industry, which will help them to understand the dynamics of the changing aged care and disability service sector. Students will examine the strategic environments of aged care and disability to develop global and national perspectives, identify drivers of change and development, and the major players in aged care and disability policies. Students will develop an understanding of the aged care and disability competencies and determinants of well-being for aged and disabled persons, which can be used in their future roles in the health industry. Through reflections on practice in aged care and disability, students will develop an individual approach to aged care and disability service issues which they can use in the future as health care professionals.

### **400925.1 Professional Reasoning**

**Credit Points** 10 **Level** 7

#### **Special Requirements**

This unit is only available to students enrolled in courses 4663 - Bachelor of Health Science/Masters of Occupational Therapy and 4664 - Master of Occupational Therapy. To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

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This final year unit focuses on the transition from student to practitioner. The aim of this unit is to provide students with learning opportunities that will consolidate and enhance their competence in professional practice throughout their career. Professional competencies of central concern include advanced clinical reasoning skills, evidence based-practice, reflective practice, personal and career management strategies, self-directed and life long learning. These competencies contribute positively to the effective management of graduates' clinical practice in various work contexts, and their future career paths. Acquisition of such skills will allow the graduate to direct and adapt to change in these areas.

### **400177.1 Professional Reasoning**

**Credit Points** 10 **Level** 5

#### **Equivalent Units**

E4114 - Ergonomics 3, E4116 - Occupational Therapy 6

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This unit will be replaced by 400925 - Professional Reasoning from 2013. This final year unit focuses on the transition from student to practitioner. The aim of this unit is

to provide students with learning opportunities that will consolidate and enhance their competence in professional practice throughout their career. Professional competencies of central concern include advanced clinical reasoning skills, evidence based-practice, reflective practice, personal and career management strategies, self-directed and life long learning. These competencies contribute positively to the effective management of graduates' clinical practice in various work contexts, and their future career paths. Acquisition of such skills will allow the graduate to direct and adapt to change in these areas.

### **300497.1 Professional Skills for Science**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Basic literacy and numeracy skills (high-school level).

#### **Equivalent Units**

300270 - Professional Skills for Science & Technology, HT104A - Plants in Society

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This unit is designed to provide students with academic and generic skills required for successful completion of their science-related undergraduate studies and for professional practice. Activities allow students to learn, develop and utilise various academic and interpersonal skills within the wider context of applied scientific principles in society. Activities encourage development of self-confidence, creative thinking, problem solving, group process, communication and peer support. Academic skills include aspects of scientific reading and writing, assignment preparation, gathering scientific information, research and library skills, oral presentation, group work, taking tests and exams, effective personal and class-based learning strategies, peer assessment and online learning.

### **700042.1 Professional Skills for Science (UWSC)**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

300497 - Professional Skills for Science, HT104A - Plants in Society, 300270 - Professional Skills for Science and Technology

#### **Special Requirements**

Students must be enrolled at UWS College.

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This unit is designed to provide students with the academic and generic skills required for successful completion of their science-related undergraduate studies and for professional practice. Activities allow students to learn, develop and utilise various academic and interpersonal skills within the wider context of applied scientific principles in society. Activities encourage the development of self-confidence, creative thinking, problem solving, group process, communication and peer support. Academic skills include aspects of scientific reading and writing, assignment preparation, gathering scientific information, research and library skills, oral presentation, group work, taking tests and exams, effective personal and class-based learning strategies, peer assessment, and online learning.

### 400786.1 Professional Transition Project

**Credit Points** 10 **Level** 3

#### Special Requirements

The unit is for final semester Bachelor of Health Science students.

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This unit is designed to assist students to make the transition from undergraduate student life to professional life. The student centred learning approach used in this unit enables students to focus their own learning styles and personal capabilities. Students will explore the strengths and weaknesses of their own learning styles and develop strategies to strengthen their personal learning and teaching capabilities for use as professionals. A structure for developing professional performance will be introduced that includes: management skills, interpersonal skills, problem solving skills, project and procedure skills, personal growth, development and socialisation and education roles. Students will participate in hands –on instructor led sessions, through the E-portfolio project to reflect on and connect academic experiences with their life to anticipated graduate capability

### 700047.1 Programming Design (UWSCFS)

**Credit Points** 5 **Level** Z

#### Special Requirements

Students must be enrolled at UWS College.

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Programming Design introduces students to the principles required for the effective design of solutions to computer program related problems. The course has been developed to enhance a student’s practical ability as well as build a solid theoretical foundation for further study.

### 300580.1 Programming Fundamentals

**Credit Points** 10 **Level** 1

#### Equivalent Units

300405 - Fundamentals of Programming, 300155 - Programming Principles 1, 200122 - Business Application Development 1

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As a first unit in computer programming, Programming Fundamentals covers basic computer architecture, basic data and file structures, concept of algorithms, programming constructs, programming language features and functions, program design, test design, basic documentation. A high level programming language is employed to solve problems in a structured manner.

### 700008.1 Programming Fundamentals (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

300405 - Fundamentals of Programming, 300155 - Programming Principles 1, 200122 - Business Application Development 1, 300580 - Programming Fundamentals

#### Special Requirements

Students must be enrolled at UWS College.

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As a first unit in computer programming, Programming Fundamentals covers basic computer architecture, basic data and file structures, concept of algorithms, programming constructs, programming language features and functions, program design, test design, basic documentation. A high level programming language is employed to solve problems in a structured manner.

### 300581.1 Programming Techniques

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Entry to the unit requires a working knowledge of programming concepts, such as standard control logic, modularization, and parameter passing, as well as a demonstrable skills of using selection, iteration, functions and one-dimensional array in a high-level programming language, such as C or C++.

#### Prerequisite

**300580.1** Programming Fundamentals

#### Equivalent Units

300156 - Programming Principles 2, 300147 Object-Oriented Programming

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This unit builds on the programming foundation laid in the unit Programming Fundamentals. Utilising an object-oriented language it continues the development of programming skills and methodologies required for professional programming and for further study in later computing units. Topics covered include object-oriented programming techniques of encapsulation, inheritance and polymorphism, programming concepts including pointers, references, multi-dimensional arrays, strings, file I/O, and abstract data types.

### 300727.1 Project Management

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

An understanding of construction planning and planning techniques (such as critical path method).

#### Equivalent Units

MG313A - Project Management

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This unit is to give students an understanding of appropriate methods of managing construction projects and to develop skills in using these methods on the type of projects the students expect to undertake in their professional careers. Content: Human Resources Management of time, management of cost, quality, resources and communications and contract administration.

### **MG313A.1 Project Management**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

An understanding of construction planning and planning techniques (such as critical path method)

#### **Equivalent Units**

300727 - Project Management.

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In 2010 this unit replaced by 300727 - Project Management. This unit is intended to give students an understanding of appropriate methods of managing projects and to develop skills in using these methods on the type of projects the students expect to undertake in their professional careers. Content: Management of time, management of cost, quality, resources and communications.

### **300555.1 Proteins and Genes**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

Knowledge of cell structure; chromosomes, mitosis and meiosis; structure of DNA and its role as carrier of genetic information; Mendelian genetics; chemical bonding, including covalent, hydrogen and ionic bonds and hydrophobic interactions; properties of water, acids, bases and buffers; structure of common functional groups; stereoisomerism; stoichiometry; principles of chemical reactions. Basic mathematical principles, as taught in Fundamentals of Mathematics.

#### **Prerequisite**

**300543.1** Cell Biology OR **300221.1** Biology 1 AND **300550.1** Medicinal Chemistry OR **300225.1** Chemistry 2

#### **Equivalent Units**

300219 - Biochemistry 1, J2820 - Introductory Biochemistry

#### **Incompatible Units**

14437 - Biochemistry, 300227 - General Biochemistry, BC201A - Biochemistry 2.1

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Students studying at Hawkesbury or Parramatta campus should refer to 300219 - Biochemistry 1. This unit investigates protein structure, function, synthesis and degradation in both health and disease. Students will analyse how proteins fold and how this relates to function, illustrated by proteins such as oxygen carriers, enzymes, and gene regulators. The importance of bioinformatics for analysing protein structure, function and evolution will be emphasised. Discussion of enzyme structure and catalytic mechanisms will provide a deeper understanding of how catalytic proteins work. DNA, gene structure and gene expression (transcription and translation) will be investigated in some detail at the molecular level, including the impact of mutation on protein function. The relevance of post-translational modification, protein targeting and protein degradation for healthy cell function will also be discussed.

### **101614.1 Psychology and Health**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

400136.1 Introduction to the Psychology of Health

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This unit provides an introduction to the psychology of health and behaviour as relevant to the health sciences. Students will be introduced to the principles and applications of psychology and health behaviour using a developmental framework. This will be followed by an examination of the psychological aspects of injury and illness and an introduction to psychological interventions for health concerns. Emphasis is upon understanding health status and behaviour in light of relevant theory and research.

### **700060.1 Psychology and Health (UWSC)**

**Credit Points** 10 **Level** 1

#### **Equivalent Units**

101614 - Psychology and Health

#### **Special Requirements**

This unit is only available to UWS College students.

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This unit provides an introduction to the psychology of health and behaviour as relevant to the health sciences. Students will be introduced to the principles and applications of psychology and health behaviour using a developmental framework. This will be followed by an examination of the psychological aspects of injury and illness and an introduction to psychological interventions for health concerns. Emphasis is on understanding health status and behaviour in light of relevant theory and research.

### **400285.1 Public Health**

**Credit Points** 10 **Level** 2

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This is a flexible learning unit and deals with foundational concepts and issues relating to public health. The philosophical and historical development and the role of public health in Australia are examined, as are policies and principles that govern and inform practice. Emphasis is placed on understanding health issues and concerns in Greater Western Sydney Region as well as on national and international contexts of population health. The unit draws on current and emerging practical situations to highlight the dynamic yet continuing legacy of public health. There is a need to visit a public health unit for consultation purposes.

### **300748.1 Quality and Value Management**

**Credit Points** 10 **Level** 3

#### **Equivalent Units**

200469 - Quality and Value Management

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Introduces students to the concepts of quality systems value management techniques and their application to the built environment. Students will gain knowledge of quality assurance and value management theories, techniques and principles so that they can apply as they enter into their professional careers.

### 300500.1 Quality Assurance and Food Safety

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Food preservation, elementary HACCP

#### Equivalent Units

FS326A - Food Science & Technology Practicum 3.2

#### Incompatible Units

FS323A - Food Safety A

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This unit will provide students with a practical exercise in developing a HACCP plan for a manufacturing process. Quality assurance, principles of food safety, the acceptability of risk, the risk/benefit principle, food law, and ISO9000 Quality Standards, will be covered.

### 200167.1 Quality Management

**Credit Points** 10 **Level** 3

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The principles taught in Quality Management underpin the successful management of all business enterprises. Students enrolled in this unit will be introduced to the latest concepts in performance excellence, with a strong emphasis on service quality. Various tools and techniques that support performance excellence are presented, including ISO9000, Six Sigma, and high-performance human resource practices. Contemporary areas covered in this unit involve identifying customers' needs, and involvement in organisational performance which is supported by continuous improvement and organisational learning.

### 200045.2 Quantitative Project

**Credit Points** 10 **Level** 3

#### Special Requirements

This is an advanced project unit involving individual supervision of students. It will be restricted to students who have successfully completed 30cp of level 2 mathematics/statistics units from 200028 Advanced Calculus, 200033 Applied Statistics, 200030 Differential Equations, 300606 Foundations of Statistical Modelling and Decision Making, 200042 Introduction to Operations Research, 200027 Linear Algebra, 200029 Numerical Analysis AND 30cp of level 3 mathematics/statistics units from 200193 Abstract Algebra, 200023 Analysis, 200036 Data Mining and Visualisation, 200024 Mathematical Finance, 200022 Mathematical Modelling, 300670 Optimisation Techniques, 300671 Principles and Practice of Decision Making, 200040 Probability & Stochastic Processes, 200037 Regression Analysis & Experimental Design, 200044 Simulation Techniques, 200039 Surveys and Multivariate Analysis, 200038 Time Series and Forecasting. These restrictions

are to ensure that students have sufficient mathematical maturity to undertake an independent project, and because staffing limitations preclude the unit from being offered to less prepared students.

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In this unit, students can deepen and/or apply knowledge gained during their course and practise oral and written presentation skills. Students will carry out a project under the supervision of an academic staff member. Assisted by their supervisor, students will define the problem to be studied and then acquire, develop and/or apply the appropriate theory or methodology. They will prepare a final report presenting theoretical results or methodology, an analysis and a discussion followed by an appropriate conclusion, and a literature review or a list of references as appropriate. Students will also give a talk on their project.

### 400148.2 Quantitative Research

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Students should be able to perform basic mathematic operation and have some understanding of research process.

#### Equivalent Units

E2230 - Biostatistics for the Health Sciences, 25719 Quantitative Research, 25823 - Quantitative Research

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This unit is being replaced by 400864 Research Methods (Quantative and Qualitative) in 2011. This unit will explore essential elements of quantitative research methods as used in health sciences. It will prepare students for the planning, designing, conducting, evaluating and reporting of a research project. The most common research designs will be examined for their relative strengths and weaknesses, with particular emphasis on how these will have an impact on interpretation and conclusion of the study. It will also introduce basic concepts in epidemiology and biostatistics as well as in using SPSS to analyse and interpret data. The overall aim is to provide skills in designing and evaluating research studies in health sciences.

### 200486.1 Quantity Surveying 1

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

BG101A - Building 1 and BG103A - Building 2: Specifically building construction including residential, light industrial and small commercial.

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This unit is designed to develop the techniques required to measure, quantify and prepare bills of quantities for residential construction. It will help students to develop an understanding of the factors that affect the cost of building and introduces costing techniques for work on new and existing buildings.

### 200487.1 Quantity Surveying 2

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Building construction including residential, light industrial, small commercial and building measurement.

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To enable students to measure complex building works and trades, civil engineering works, building services, demolition and site works for contract documentation, estimates, variation quotations and construction plans. Content: measurement of: multi storey structural trades, precast concrete, structural steel, metal work partitions, suspended ceilings, curtain walls, fitments, elemental quantities, repair and refurbishment, civil engineering works, services, demolition, site works and computer applications for measurement.

### 300419.1 Quantum Properties of Chemical Systems

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Successful completion of at least one chemistry unit and one physics unit at undergraduate level.

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The unit builds on quantum concepts that have been introduced in earlier units such as chemistry, physics and nanotechnology. It aims to develop the students' understanding of quantum principles as they apply to chemical systems, including atoms, molecules and extended arrays such as metals and semiconductors. Starting with a restatement of some fundamental principles, the unit will consider simple quantum models including the hydrogen atom, then introduce molecular-orbital theory and some of its applications to chemical systems. The unit will also provide a brief introduction to some semiempirical, ab initio and density-functional methods for modelling molecules of interest in nanotechnology.

### 300489.1 Radio and Satellite Communication

**Credit Points** 10 **Level** 4

#### Assumed Knowledge

Physics and Materials, Mathematics for Engineers 1 and 2, Astrophysics

#### Prerequisite

**300007.1** Communication Systems OR **300010.1** Data Networks

#### Equivalent Units

14297 - Satellite Communication

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This unit is offered in alternate years. This unit will develop an understanding of the theory and practice of radio and satellite communication techniques and measurements and provide an introduction to space communication systems. It will complement the general communication engineering units, addressing advanced topics important and specific to radio and satellite communications.

### 400201.3 Readings and Methodology

**Credit Points** 10 **Level** 5

#### Assumed Knowledge

A basic knowledge of research methods at undergraduate level or equivalent is required.

#### Special Requirements

Enrolment in this unit is restricted to those students enrolled in the Bachelor of Nursing (Honours).

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This version will commence from 2010. This unit will broaden and deepen students understanding of research methodologies and develop research skills in order to apply these to a specific B Nursing (Honours) research project.

### 300289.1 Regional Environmental Management

**Credit Points** 10 **Level** 3

#### Equivalent Units

EH310A - Environmental Management 2

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Students will learn to use tools and appreciate the complexity of regional environmental management and planning. Building on their local and site specific environmental management knowledge, the regional planning looks at the difficulties encountered when practicing environmental management on a broader spatial scale.

### 200037.1 Regression Analysis & Experimental Design

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200032 - Statistics for Business, 200192 - Statistics for Science and desirably 200033 - Applied Statistics.

#### Equivalent Units

14410 - Regression Analysis and Experimental Design, J3692 - Regression and Multivariate Analysis, J3717 - Design and Analysis of Experiments

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This unit covers linear regression analysis and experimental design, with analysis of variance being the primary analytical tool. Topics in linear regression are: the statistical model, the method of least squares, sampling distributions of least squares estimators, statistical inferences and testing hypotheses, methods for model building, detecting violations of the regression assumption and remedies, logistic regression, and Poisson regression. Topics in designed experiments are: completely randomised experiment, factorial experiment, randomised block, Latin square, random model, and mixed model. For each design the following aspects are covered: the statistical model, the normal equations and their solutions, sums of squares and basic algebraic identity, the ANOVA table and relevant tests, and treatment comparisons.

### 400803.2 Research in Nursing Practice

**Credit Points** 10 **Level** 5

#### Assumed Knowledge

A basic knowledge of research methods at undergraduate level.

#### Incompatible Units

400200 - Applied Nursing Research

#### Special Requirements

Unit is restricted to those students enrolled in Bachelor of Nursing (Honours).

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Research is a necessary undertaking toward the continued development of nursing science and practice. The aim of this unit is to both broaden and deepen students' understanding of research methods and to extend their ability to discuss, appraise the work of others and participate in their own research.

### 300411.3 Research Methodology and Experimental Design

**Credit Points** 20 **Level** 8

#### Assumed Knowledge

Appropriate background in a scientific discipline to conduct research in that area. No previous research experience is required.

#### Equivalent Units

SC809A - Research methodology and experimental design, 14429 - Science research project, proposal and seminar

#### Incompatible Units

300398 - Methods of Researching

#### Special Requirements

Students must be enrolled in a postgraduate degree.

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This unit introduces students to the principles and tools of scientific research. It is designed for students who are undertaking Master of Science and those who have not previously undertaken training in research. Students attend a series of classes covering topics such as critical thinking, problem definition, formulation and testing of hypotheses, analysis of quantitative and qualitative results, communication of research findings, bibliographic techniques and advanced information retrieval methods. Students are required to prepare a intention to research, a annotated bibliography, seminar, and a research poster.

### 300662.1 Research Methods

**Credit Points** 10 **Level** 2

#### Equivalent Units

300290 - Researching Communities and Their Environments, 300561 - Animal Research

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This unit is designed to help students understand and navigate their way through the scientific inquiry process,

and to make inquiry a meaningful experience. It highlights the creative and strategic thinking skills needed to negotiate research, and covers the entire inquiry process from conceptualisation and design through to data collection, analysis, and report writing. The unit transcends traditional paradigmatic and disciplinary boundaries by approaching research from the ground up – a research question based perspective.

### 400864.1 Research Methods (Quantitative and Qualitative)

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Knowledge and skills covered in Foundations of Research and Evidence-based Practice.

#### Prerequisite

**400863.1** Foundations of Research and Evidence-Based Practice

#### Equivalent Units

400148 - Quantitative Research

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This unit outlines the research methods used to acquire knowledge in healthcare. This includes research designs, international standards, key statistics, and interpretation of results. The range of health research methods will be presented, and studies about treatment effectiveness (clinical trials and systematic reviews), diagnostic effectiveness and qualitative approaches will be explored in detail. The pathways and resources for conducting beginner research will also be introduced in this unit.

### 200412.3 Research Proposal and Seminar

**Credit Points** 10 **Level** 5

#### Assumed Knowledge

Students to have the basic disciplinary knowledge and skills necessary to design and undertake their honours level research project.

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The aim of this unit is to identify a suitable honours thesis topic, conduct a preliminary review of the relevant literature, identify research methods applicable to the study, consider any relevant ethical issues applicable to the study, devise a resource management plan and schedule of study and to seek feedback and input from academics with appropriate skills and experience in the research area. This unit gives honours students access and exposure to research communities via attendance and participation at school research seminars. Students will publicly present and defend their thesis proposal to peers and the academic community.

### 400890.1 Resistance Training and Physiology

**Credit Points** 10 **Level** 3

#### Prerequisite

**400883.1** Exercise Bioenergetics AND **400885.1** Sport and Exercise Physiology AND **400888.1** Advanced Sports Physiology

### Special Requirements

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science). To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; possess a current WorkCover Authority approved First Aid Certificate.

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Resistance Training and Physiology presents the growing body of research evidence supporting specific methods of resistance exercise and training, as well as the role of resistance exercise in disease prevention and health promotion. Students gain an increased understanding of the energetics and physiology of resistance exercise by also completing laboratories focussed on the research of important applied concepts in resistance exercise and training. Students also experience resistance training.

### 300663.1 Resource Sustainability

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Basic biological sciences and an understanding of writing and referencing; a capacity to engage in group work; and a desire to participate in building a better future.

#### Equivalent Units

EY101A - Terrestrial Environmental Management

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Students enrolled in Resource Sustainability will work in groups employing rapid appraisal techniques to score the environmental conditions across a range of landuse categories on the UWS Hawkesbury Campus. Students will be required to design and implement an investigation of the landscape utilizing methods currently in use by relevant legislative and administrative bodies (GPS, GIS, PDT, etc). The development of skills in the area of spatial data management is an essential element in this unit. Having completed an assessment of the environmental conditions on the Campus, students will illustrate their findings and present them in both audio/visual and written reports.

### 200739.1 Reward and Performance Management

**Credit Points** 10 **Level** 3

#### Prerequisite

**200300.1** Managing People at Work

#### Incompatible Units

200611 - Management of Employee Performance, 200612 - Remuneration Theory and Practice

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The unit introduces students to critical perspectives in reward management. The structure of the course is initially thematic and considers in turn: the wider context in which reward strategies are devised; the strategic decisions that arise in the organisational context if reward is to meet regulatory requirements, the organisation's objectives and the expectations of the workforce, and the component parts

(base pay, variable pay, transactional rewards, relational rewards of contemporary reward). This unit examines the relationship between performance and reward, performance management systems and the alignment of employer performance with achievement of organisational objectives. Various models of performance management and performance appraisal techniques are critically assessed.

### 300056.2 Robotics

**Credit Points** 10 **Level** 4

#### Prerequisite

**300463.1** Fundamentals of Mechanics

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To develop an understanding of the basic concepts involved in Robotics. The kinematics, dynamics, control and sensing aspects in robotics will be introduced. In addition, the concepts of artificial intelligence (AI) and their applications in robotics will also be introduced. There will be considerable use of MATLAB in the unit.

### 700059.1 Science for Health Science (UWSCFS)

**Credit Points** 10 **Level** Z

#### Equivalent Units

900049 - Science for Health Science

#### Special Requirements

This unit is only available to UWS College students.

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The depth of knowledge and practical skills required by health professionals in the 21st century are very different to that which were required in the past. Medical treatment of illness and disease has become increasingly technical and health professionals are expected to work in partnership in determining patient care. In order to achieve this, today's health professional must have a basic understanding of the fundamental scientific principles behind both the diseases and their treatments. Increasingly, modern health science is concerned with maintaining health as a way of preventing disease and this is achieved through a holistic approach to the human state. This course is an introduction to the basic concepts in physics, chemistry and biology that will be required in order to commence any tertiary health science course.

### 300664.1 Science in Society

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Sound knowledge of the issues affecting primary industries, community health or the environment. Ability to write technical reports and experience in problem based learning approaches. Literacy skills associated with data retrieval and literature searching. Basic knowledge of group dynamics.

#### Equivalent Units

300283 - Community Environmental Health Action

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This unit examines the complex interaction between power, politics, ethics and scientific paradigms in the management of natural agricultural and built environments. As such its foundations are in the field of environmental studies with a particular focus on the role of science graduates in the social interactions that govern societies use, transformation and impact on these environments. The rationale for the inclusion of a sociological perspective in a science degree is that scientists do not operate in a social vacuum, but are constantly subject to broader social, economic, political, ethical and cultural influences that bear upon the distribution and exercise of power and knowledge in organisations and in society as a whole.

### 300615.1 Science Research Project 1

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

This unit is aimed at undergraduates in their final year of undergraduate study who have a good grounding in the Level 2 units for the discipline area of their individual project (e.g. chemistry, biochemistry, microbiology, environmental science.)

#### Equivalent Units

300299 - Chemistry Project 3, J3659 - Biological Science Project 3, 14117 - Chemistry Project, J3662 - Chemistry Project

300615 Science Research Project 1 may be taken in combination with 300645 Science Research Project 2 to allow suitably qualified students to complete a 20 credit-point research project during their final year of study. These units may be taken in the same semester, or in consecutive semesters. Students who wish to complete a 10 credit-point project will normally enrol in 300645 Science Research Project 2. Enrolment requires approval by the Unit Co-ordinator of this unit. Science Research Project 1 is a final-year capstone unit that gives students an introduction to scientific research, while extending their knowledge and practical skills in a particular area of interest. Each student undertakes a small research project under the supervision of an academic staff member. Collaboration with an external organisation may occur in some projects. With the assistance of their supervisor, students will define the problem to be studied, carry out a risk assessment, develop the appropriate experimental methods, carry out research on their project, and present a final written report and a poster or oral presentation. This unit offers a challenge to final-year students, and allows innovation by the student with respect to both method and research direction. Students studying at Campbelltown campus should refer to 300542 Biomolecular Science Project.

### 300645.1 Science Research Project 2

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

This unit is aimed at undergraduates in their final year of undergraduate study who have a good grounding in the Level 2 units for the discipline area of their individual project (e.g. chemistry, biochemistry, microbiology, environmental science.)

#### Equivalent Units

300299 - Chemistry Project 3, J3659 - Biological Science Project 3, 14117 - Chemistry Project, J3662 - Chemistry Project

#### Incompatible Units

300542 - Biomolecular Science Project

300645 Science Research Project 2 is a final-year capstone unit that gives students an introduction to scientific research, while extending their knowledge and practical skills in a particular area of interest. Each student undertakes a small research project under the supervision of an academic staff member. Collaboration with an external organisation may occur in some projects. With the assistance of their supervisor, students will define the problem to be studied, carry out a risk assessment, develop the appropriate experimental methods, carry out research on their project, and present a final written report and a poster or oral presentation. This unit offers a challenge to final-year students, and allows innovation by the student with respect to both method and research direction. Students who wish to complete a 10 credit-point project will normally enrol in this unit. Subject to permission from the Unit Co-ordinator, students may undertake a 20 credit-point project by enrolling in both 300615 Research Project 1 and 300645 Research Project 2. These units may be taken in the same semester, or in consecutive semesters. Students studying at Campbelltown campus should refer to 300542 Biomolecular Science Project.

### 300412.2 Science, Technology and Environment Honours Project

**Credit Points** 60 **Level** 5

#### Assumed Knowledge

Successful completion of a Bachelors degree in a science discipline. Normally the student will have achieved a grade point average of greater than 5.0 in Level 2 and 3 units.

#### Special Requirements

Restriction to students enrolled in postgraduate or honours courses.

The aim of this unit is to further develop the student's research and problem solving skills. The student is required to implement a research plan, complete a substantive piece of research in a relevant field within Science, Technology and the Environment and to communicate the results of that work to an interested and technically literate audience. Students will present their research as a thesis with a substantial chapter detailing research objectives, methodology and research outcomes. The thesis topic and structure will vary according to the area of interest of the student and the expertise of the supervisor. The project is meant to be a significant undertaking and to incorporate some element of innovation. Throughout this unit regular planned consultations between the student and supervisor (s) will occur and students will be required to attend seminar series or regular research meetings; these may be formal components of other units within the Bachelor (Honours) course. Students are expected to work to a schedule devised in consultation with their supervisor. The

schedule will include dates set for progress reports and the presentation of draft chapters for review by the supervisor. The unit builds upon the skills developed in the undergraduate course, extending students' competencies in a range of practical techniques and processes of critical thinking. Students who successfully complete the Honours program will have achieved the appropriate background to enable them to pursue further postgraduate research and/or coursework in the sciences or pursue a career in industry or profession.

### **400737.1 Scientific Basis of Medicine 1**

**Credit Points** 60 **Level** 1

#### **Corequisite**

**400738.1** Health Practice 1

#### **Special Requirements**

Students must be enrolled in the course 4641 Bachelor of Medicine, Bachelor of Surgery. Students must have completed a Prohibited Persons Employment Declaration; undergone a Criminal Record Check; have completed a WorkCover accredited Senior First Aid Certificate; and have an up to date Adult Vaccination Record. Students must also sign a declaration that they understand and comply with Infectious Diseases Policy, Health Records and Information Privacy Act (HRIPA) 2002; and UWS' submitting their details to the NSW Medical Board.

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The corequisite for this unit is 400738 Health Practice 1. Both units must be completed successfully in the same year, in order for you to progress to the next year of the course. If one unit is failed or if both are failed, you must repeat both together in your next year of enrolment. The major objectives of this unit are to gain an integrated understanding of the structure and function of the human body. This will be addressed at the levels of organ systems, tissues, cells and molecules. The scientific basis of the following topics will be discussed: whole body organisation including basic anatomy, roles of the major organ systems, functional organisation of cells and their specific organelles, characteristics of specialised cells, structure-function characteristics of major biological molecules including carbohydrates, lipids, proteins, enzymes and DNA, the biochemical basis of complex processes such as homeostasis, reproduction and inheritance, growth and development, defence against infectious agents, pathological changes, ageing and death. The unit then examines nutrition and metabolism before exploring the structure, function and pathology of the gastrointestinal system (including liver), cardiovascular system and respiratory system.

### **200707.1 Service Industry Studies**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Basic understanding of the service and experience economies is assumed.

#### **Equivalent Units**

200581 - Sport Management Research Methods, 200559 - Hospitality Business Research Methods, 200681 - Services Research Methods

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Service Industry Studies is designed to allow students to develop skills of research planning, execution, interpretation and results dissemination from service industry research projects. Students will learn about and have an opportunity to prepare a literature review, conduct research on a "problem", collect, analyse and present data on a hypothetical or case based service business issue. Strategies and recommendations in the form of a report will be the outcome of the unit.

### **300568.1 Services Computing in Healthcare**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Some ability in design and implementation of Web Applications is desirable but not essential. Students who have worked in the Health sector, or who have gained a broad understanding of Health system and uses of ICT therein may be exempted from the prerequisite unit.

#### **Prerequisite**

**300566.1** Introduction to Health Informatics

.....

In this unit students will learn the concepts underpinning the services computing paradigm of "bridging the gap between Business Services and IT Services". Services Computing technology includes Web services and service-oriented architecture (SOA), business consulting methodology and utilities, business process modelling, transformation and integration. Students will learn, through the development of practical examples, how to utilise these technologies within a healthcare context.

### **300057.2 Signals and Systems**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

300005 - Circuit Theory: this unit requires the knowledge in Laplace transforms, Calculus, Trigonometry and Complex number theory, since understanding of System theory and Fourier series and transform requires a strong background in those areas. Most of the examples and applications in this unit are based on Circuit Theory material.

#### **Prerequisite**

**200238.1** Mathematics for Engineers 2

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This unit aims to develop students' understanding of continuous-time and discrete-time concepts and methods. It covers various signals and their analysis, as encountered in the fields of electrical, computer and telecommunication engineering.

### **200044.1 Simulation Techniques**

**Credit Points** 10 **Level** 3

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This unit covers a general introduction to simulation modelling, with a special focus on systems that change only at discrete points in time. It begins with Monte-Carlo methods for evaluating integrals, and moves into the

simulation of simple queuing and inventory systems with the use of Pascal. It then introduces special simulation languages, with special reference to SEESIM. The purpose is to be able to set up and solve simple practical problems. In doing so we emphasise the need to analyse outputs statistically, and to offer advice on the basis of the analysis. Although requiring computer programming, the emphasis of the unit is mathematical and statistical. It deals with an introduction to random number generation by computers; it also deals with the computer generation of independent random variables with a common probability distribution.

**300731.1 Soil Engineering**

**Credit Points** 10 **Level** 2

**Prerequisite**

**200237.1** Mathematics for Engineers 1

**Equivalent Units**

85012 - Soil Engineering

**Special Requirements**

Restriction on size of lab class.

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This unit is an introductory course covering the use of soil, and the water in it, as an engineering material. It will provide students with a basic understanding of the physical and mechanical properties of soils, simple soil testing methods to characterise soil strength and deformation behaviour and how to apply basic techniques to assess the hydro-mechanical response of soils subjected to loading.

**300535.1 Soils**

**Credit Points** 10 **Level** 1

**Equivalent Units**

HT102A - Soils (V1)

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This unit provides students with a basic understanding of soil formation and erosion processes, soil physical, chemical and biological properties, and the diversity and classification of soils in the Australian landscape. These basic principles are explored in relation to the sustainable management of soils for horticultural and agricultural production and for environmental management under other land uses. The practical sessions are designed to reinforce the lecture material and include field description and analysis of soil profiles and properties, soil sampling principles and practice, laboratory measurement of soil physical and chemical properties essential/important for plant growth, and an introduction to soil biology.

**400919.1 Specialities in Traditional Chinese Medicine 1 (PG)**

**Credit Points** 10 **Level** 7

**Corequisite**

**400918.1** Chinese Internal Medicine 1 (PG)

**Incompatible Units**

400358 - Specialities in Traditional Chinese Medicine

.....

This unit provides learning experiences that enable the health professional to analyse, diagnose and treat common gynaecological diseases and musculoskeletal conditions using a TCM approach with acupuncture and Chinese herbal medicine. Students will develop a good understanding of the causes and pathophysiological mechanisms of common gynaecological diseases and musculoskeletal conditions.

**400923.1 Specialities in Traditional Chinese Medicine 2 (PG)**

**Credit Points** 10 **Level** 7

**Prerequisite**

**400918.1** Chinese Internal Medicine 1 (PG)

**Incompatible Units**

400364 - Specialities in Traditional Chinese Medicine 2

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The specialties of pediatrics, dermatology, ear, nose, throat (ENT) and eye diseases, are important divisions of TCM activity. This unit enables students to develop an understanding of the aetiology and pathophysiology of common paediatric, dermatological, ENT and eye disorders, and to analyze, diagnose and treat these conditions using acupuncture and Chinese herbal medicine.

**400885.1 Sport and Exercise Physiology**

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

Students need to know human anatomy and physiology, as well as have an understanding of cellular energy metabolism and overall metabolic design. Students also need to apply basic concepts in maths and physics.

**Prerequisite**

**300361.1** Introduction to Human Biology OR **400868.1** Human Anatomy and Physiology 1 AND **400869.1** Human Anatomy and Physiology 2 AND **400880.1** Fundamentals of Exercise Science AND **400883.1** Exercise Bioenergetics

**Equivalent Units**

400323 - Physiology of Exercise

**Special Requirements**

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science).

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This unit is designed to provide the student with an understanding of the physiological basis of physical activity/exercise. Physiological factors influence and limit our capacity for and tolerance of exercise. Furthermore, regular participation in a well-designed exercise program can improve such capacities and related exercise tolerance. This unit will explain the responses of the Neuromuscular, Metabolic, Cardiovascular, Respiratory and Hormonal and systems to exercise and training. In addition, the influence of environmental factors and gender differences to exercise tolerance will be presented. Weekly laboratory experiences will reinforce lecture content, as well as allow the teaching

of important laboratory skills and techniques used in exercise physiology research and professional practice.

### 101615.1 Sport and Exercise Psychology

**Credit Points** 10 **Level** 2

#### Prerequisite

101614.1 Psychology and Health

#### Equivalent Units

100678 Introduction to Sport Psychology, 100680 Exercise Psychology, 400322 Sociological Aspects

.....

This unit commences in 2011. Sport and Exercise Psychology is a topic of particular relevance to those working in the sport, health and fitness, and performance industry. The field of Sport and Exercise Psychology is primarily concerned with the study of the psychological factors which impact on the adoption of physical activity, the maintenance of physical activity, and the quality of sporting performance. This unit examines pertinent theory, research, and application in the field of Sport and Exercise Psychology.

### 200742.1 Sport and Hospitality Event Management

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Advanced unit, assumes basic knowledge of sport/hospitality management.

#### Incompatible Units

200579 - Sport Event and Facility Management; 200682 - Convention and Special Event Management

.....

An essential part of many sport and hospitality businesses involves the organisation and management of special events and the facilities which host them. Sport and Hospitality Event Management provides knowledge and understanding by giving students the opportunity to practically apply skills and knowledge through development and execution of their own special event. The unit calls for students to apply previously learned management strategies, leadership theories, communication skills, and staff management to facilitate their event projects.

### 200751.1 Sport Management Applied Project

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students are expected to have gained an introductory level of knowledge in sport management.

#### Equivalent Units

200580 - Sport Management Applied Project

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Sport Management Applied Project provides students a unique opportunity to integrate knowledge gained from operational and theoretical perspectives of sport studies into application in an engaged research project in sport management. Students will engage in comprehensive

projects which bring together real world industry problems and sport theory. The outcome from this unit will be the production of a report and presentation which may involve industry partner. This unit also includes an international option for students

### 200664.1 Sport Management Internship

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students are expected to have gained an introductory level of knowledge in sport management.

#### Equivalent Units

400649 - Professional Practice in Sport Management 3, 400648 - Professional Practice in Sport Management 2, 200576 - Professional Practice in Sport Management

#### Special Requirements

Some placement agencies require completion of a Prohibited Persons Declaration; Criminal Record Check Clearance and Immunisation.

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Sport Management Internship provides students with an opportunity to engage with the sport industry through a 120 hour industry placement. This unit provides the opportunity to observe practitioners in action and to learn in a practical "hands-on" setting. Experience in the field of study is an essential ingredient in preparing an individual for employment either during the period of study or after graduation. Students have the opportunity to see how knowledge and skills acquired in lectures and tutorials/laboratories can be applied and also relate theoretical concepts and skills to situations in sport or exercise-related settings.

### 200754.1 Sports Management - Planning and Development

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Students are expected to have gained an introductory level of knowledge in sport management.

#### Equivalent Units

200244 - Sports Management - Planning and Development

.....

With sport professionalism, globalisation, population change and consumer pressure there is a need for government, not for profit and private enterprise to better plan for and provide sport and leisure facilities and services. Sport Management – Planning and Development provides an in-depth study of the planning and development of sport in the Australian context. Throughout this unit there is a focus on managing change to appropriately planning for future sport and leisure needs within a context of public policy. An introductory framework will be provided emphasizing the historical perspectives of sport and leisure and its history and role within contemporary Australian society.

### 300700.2 Statistical Decision Making

**Credit Points** 10 **Level** 1

#### Equivalent Units

200192 - Statistics for Science, 200032 - Statistics for Business

#### Incompatible Units

200052 - Introduction to Economic Modelling, 200182 - Quantitative Techniques, 200263 - Biometry

#### Special Requirements

Students enrolled in 2739 Bachelor of Business and Commerce, 2741 Bachelor of Business and Commerce (Advanced Business Leadership) or 3639 Bachelor of Information and Communications Technology must pass the Basic Math Skills Test.

.....

This Level 1 unit introduces students to various statistical techniques supporting the study of computing and science. Presentation of the content will emphasize the correct principles and procedures for collecting and analysing scientific data, using information and communication technologies. Topics include describing different sets of data, probability distributions, statistical inference, and simple linear regression and correlation.

### 700041.1 Statistical Decision Making (UWSC)

**Credit Points** 10 **Level** 1

#### Equivalent Units

300700 - Statistical Decision Making

#### Incompatible Units

700007 - Statistics for Business (UWSC)

#### Special Requirements

Students must be enrolled at UWS College.

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The unit will cover the statistical topics required for later computing study, in particular probability and combinatorics, random variables and their distributions, parameter estimation and hypothesis testing and linear regression analysis.

### 700045.1 Statistics for Academic Purposes (UWSCFS)

**Credit Points** 5 **Level** Z

#### Special Requirements

Students must be enrolled at UWS College.

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Statistics for Academic Purposes is designed and written to prepare students for study in Statistics at first year university level. The unit develops those skills peculiar to the statistical requirements of further study in the areas of Arts, Business, Science and the Humanities.

### 200032.2 Statistics for Business

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Mathematics / Mathematics Extension 1 is desirable.

#### Prerequisite

**300589.1** Mathematics Toolbox OR **300691.1** Mathematical Reasoning

#### Equivalent Units

C1022 - Introductory Statistics, J1737 - Statistics 1.1, J1762 - Fundamentals of Statistics, ST202A - Business Statistics, 61811 - Inferential Statistics

#### Incompatible Units

200192 - Statistics for Science, 200052 - Introduction to Economic Methods, 200182 - Quantitative Techniques, 200263 - Biometry, 300700 - Statistical Decision Making

#### Special Requirements

External offerings for this unit are only available to students who are enrolled in a Property course or Property key program. Students must pass the Basic Math Skills Test or have passed the unit 300589 Mathematical Toolbox or 300691 Mathematical Reasoning prior to attempting this unit. Students must pass 70 percent or more in an online Basic Maths Skills Test prior to attempting this unit. To access this test, you will need your UWS student ID number, and have access to the Basic Maths Skills Test vUWS site.

.....

This Level 1 unit introduces the basic concepts and techniques of statistics that are particularly relevant to problem solving in business. It also provides a sound base for more advanced study in statistics and forecasting in subsequent sessions. Topics include: presentation of data; descriptive statistics; the role of uncertainty in business decision making; hypothesis testing; and basic forecasting.

### 700007.2 Statistics for Business (UWSC)

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Mathematics.

#### Equivalent Units

200032 - Statistics for Business

#### Incompatible Units

200192 - Statistics for Science, 200052 - Introduction to Economic Methods, 200182 - Quantitative Techniques, 200263 - Biometry, 300700 - Statistical Decision Making

#### Special Requirements

Students must be enrolled at UWS College.

.....

This unit introduces the basic concepts and techniques of statistics that are particularly relevant to problem solving in business. It also provides a sound base for more advanced study in statistics and forecasting in subsequent sessions. Topics include: presentation of data; descriptive statistics;

the role of uncertainty in business decision making; hypothesis testing; and basic forecasting.

### 200192.1 Statistics for Science

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Mathematics or equivalent.

#### Equivalent Units

14324 - Statistics 1, 14327 - Statistical Methods, 200032 - Statistics for Business, J1730 - Mathematics 1.2, ST003A - Statistics 1.2D, ST109A - Statistics 1.1, 200263 - Biometry, 300700 - Statistical Decision Making

.....

In 2010 this unit replaced by 300700 - Statistical Decision Making. This Level 1 unit introduces the basic concepts and techniques of statistics that are particularly relevant to problem solving in science and technology. It also provides a sound base for more advanced study in statistics in subsequent sessions. Topics include: presentation of data; descriptive statistics; the role of uncertainty in decision making; hypothesis testing; and simple linear regression.

### 300730.1 Steel Structures

**Credit Points** 10 **Level** 3

#### Prerequisite

[300733.1](#) Introduction to Structural Engineering

#### Corequisite

[300732.1](#) Structural Analysis

#### Equivalent Units

85014 - Steel Structures

.....

This unit covers the basic behaviour of steel members and structures, the appropriate methods to analyse them and the design criteria and methods used to proportion them.

### 200665.1 Strategic Communication in Sport

**Credit Points** 10 **Level** 2

#### Equivalent Units

400321 - Sport Management 2, 200556 - Communication in Sport

.....

The student is introduced to the components necessary for the successful development and execution of the organisations communication strategy. Students become aware of the multi faceted nature of this process looking at internal and external communication channels. Together with identifying and discussing the significance of media communications in the local and global market place.

### 200587.1 Strategic Management

**Credit Points** 10 **Level** 3

#### Prerequisite

[200571.1](#) Management Dynamics AND [MG102A.1](#) Management Foundations

#### Equivalent Units

MG302A - Strategic Management

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The choice perspective of strategic management. External environmental assessment and choice. Analysis of international strategic capabilities. Strategy formulation: choice of mission, strategic goals, and a strategy. Implementing strategies through plans, functional strategies, and budgets. Implementing strategy through organisation structure. Implementing strategy through culture, leadership, and human resource management. Control of strategy. Special cases of strategic management: entrepreneurial and non-profit organisations. Strategic management in the international area. Social issues in strategic management. Strategic management in the future.

### 200087.1 Strategic Marketing Management

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

This is a capstone unit in marketing. It is assumed that students have knowledge of basic marketing concepts, theories, and frameworks in consumer behaviour, business-to-business marketing and marketing research.

#### Prerequisite

[200083.1](#) Marketing Principles

.....

This unit is about developing and managing innovative competitive marketing strategies. It crosses the traditional boundaries of marketing (as the modern marketer often does), and is therefore influenced by concepts and tools from a range of disciplines, including strategic management, entrepreneurship and marketing. The central focus is on how marketing strategy and its management can create superior and sustainable value for both customers and shareholders

### 300732.1 Structural Analysis

**Credit Points** 10 **Level** 3

#### Prerequisite

[300733.1](#) Introduction to Structural Engineering

#### Equivalent Units

85010 - Structural Analysis

.....

This unit introduces students to the aspects of structural analysis of trusses, beams and frames. It covers the first-order elastic analysis of statically determinate and indeterminate structures. This course aims to teach students to master basic skills in structural analysis as well as skills in using computer software to analyse complex structures.

### 400187.1 Supervision in Clinical Practice

**Credit Points** 10 **Level** 3

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This unit will provide an introduction to supervision of students in clinical practice settings. Students will have an

opportunity to consider clinical education from a supervision perspective. This will provide them with beginning supervisory skills that can be utilised in clinical settings in the early stages of their professional career.

### 300738.1 Surveying for Engineers

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Students need knowledge of Trigonometry

#### Equivalent Units

85003 - Surveying for Engineering

.....

This core unit provides students with a basic knowledge of Surveying as it relates to various Engineering projects. It provides material for units such as Water Engineering, Environmental Engineering & Infrastructure Engineering

### 200039.1 Surveys and Multivariate Analysis

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200192 - Statistics for Business, 200032 - Statistics for Science

#### Equivalent Units

J3693 - Sample Survey Techniques, J3692 - Regression and Multivariate Analysis

.....

In the first half of this unit students gain an appreciation of survey methodology, including questionnaire design, as well the application of sampling techniques. These include simple random sampling, stratification, supplementary information and cluster sampling. The second half of the unit covers the principal methods of multivariate data analysis, principal components, factor analysis, discriminant analysis, and cluster analysis.

### 300309.2 Sustainable Design: Life Cycle Analysis

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Knowledge related to the successful completion of Year 1 would be of advantage and is assumed.

#### Equivalent Units

J2806 - Manufacturing Technology and Design, 10910 - Environmental Planning 1

.....

Designers prescribe the use of our limited materials resources with every product that transpires from their work. With an informed approach to design, based on a sound knowledge of materials from their origins to their disposal as well how those materials are utilised in existing contexts of use, a designer can maximise the positive impact of their designing on local and global communities. In this unit students will develop an understanding of the central importance of design in developing a more sustainable world on both production and consumption sides. They will reflect critically on their role as both

designers and end-users and will exercise their creative intuition to confidently generate and present designs for sustainability. The aim of the unit is to enhance students' ecological literacy and perception of sustainability as a creative opportunity.

### 300304.2 Sustainable Design: Materials Technology

**Credit Points** 10 **Level** 1

#### Equivalent Units

300304 - Sustainable Design 1: Materials Technology, J1758 - Engineering Design, J2807 - Materials Technology, J2817 - Manufacturing Processes and Materials

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In this unit we explore materials from a design perspective - their properties, qualities, typical applications, their cost and the environmental impact associated with their extraction, use and disposal. We also look at how they can be formed using contemporary and emerging processing techniques - from sand casting to rapid prototyping. Lectures are supplemented with live demonstrations of materials processing techniques and students undertake materials research and a design for manufacture project.

### 300306.2 Sustainable Design: Sustainable Futures

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

300309 - Sustainable Design: Life Cycle Analysis

#### Equivalent Units

10913 - Environmental Planning 2

.....

If science and planning march under the banner of "everything is possible", design culture must know how to point out a path for these potential possibilities, a path that can be completely opposed to that which technological - scientific development has followed up to now. This unit explores the challenges facing design culture in which the designer must now provide scenarios that visualise some aspects of how the world could be and, at the same, time, present it with such characteristics that can be supported by complex ecological equilibria, which are acceptable socially and attractive culturally.

### 700013.1 System Analysis and Design (UWSC)

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

Students should have knowledge of the fundamentals of information systems, computer systems, computer applications and information processing

#### Equivalent Units

300131 - Introduction to Analysis and Design, 300585 - System Analysis and Design

#### Special Requirements

Students must be enrolled at UWS College.

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This unit provides an introduction to systems analysis and design. Incorporating systems concepts, theories and methodologies, this unit provides students with elementary problem solving experience in computerised information systems. Students will gain the ability to derive systems requirements from problem definitions and to produce system models using process, data, object and network modelling. Design and implementation issues include, (but may not be limited to), elementary database design, input, output and user interface design and prototyping. Students are also introduced to roles and responsibilities in information systems development, selection of packaged solutions and the principles of software quality.

### **300165.2 Systems Administration Programming**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

A good understanding of programming concepts, such as selection, iteration, modularization, and one dimensional arrays. Basic knowledge of Windows operation system.

#### **Prerequisite**

**300167.2** Systems Programming 1

#### **Incompatible Units**

300577 - Script programming

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This unit covers programming techniques and tools used to administer standalone and networked computer systems. The unit focuses on the use of high level interpretive scripting languages to automate everyday administrative tasks, and to monitor and control running systems. Techniques to extend scripting language capabilities by dynamic linking to compiled code are examined, particularly in terms of access to operating system level functions. The unit also examines the use of administrative programs and tools to monitor and adjust system performance and capacity.

### **300585.1 Systems Analysis and Design**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Students should have knowledge of the fundamentals of information systems, computer systems, computer applications and information processing

.....

This unit provides an introduction to systems analysis and design. Incorporating systems concepts, theories and methodologies, this unit provides students with elementary problem solving experience in computerised information systems. Students will gain the ability to derive systems requirements from problem definitions and to produce system models using process, data, object and network modelling. Design and implementation issues include, (but may not be limited to), elementary database design, input, output and user interface design and prototyping. Students are also introduced to roles and responsibilities in

information systems development, selection of packaged solutions and the principles of software quality.

### **300166.1 Systems and Network Management**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Students should be familiar with the fundamentals of computer networking and data communications.

#### **Prerequisite**

**300095.1** Computer Networks and Internets

#### **Equivalent Units**

14979 - Network and Systems Management

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The rapid progress in technology, the increasing demand for IT services, and the strong expansion of the Internet have resulted in heterogeneous interconnected networks with many distributed systems that run on them. To ensure access and efficient utilization of network resources, subject to organisational policy restrictions, networked systems must be managed properly. This unit addresses the issues relevant to such management. It covers the principles and current practices pertinent to integrated management of networks, systems, services, and applications. The unit helps the student to understand management functions and architectures as well as current standards and relevant protocols.

### **300167.2 Systems Programming 1**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

This unit requires a knowledge base of at least the level of a completed first year in a professional Computing degree. Ability to apply fundamental concepts in data structures, algorithms, programming principles will be assumed.

#### **Prerequisite**

**300580.1** Programming Fundamentals OR **300027.1** Engineering Computing AND **300018.1** Digital Systems 1

#### **Equivalent Units**

14943 - Systems Programming 1, J2822 - Unix System Programming 1

#### **Special Requirements**

Students enrolled in 3621 Bachelor of Engineering must be enrolled in one of the key programs attached to the course.

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This unit provides an introduction to the knowledge and skills required for the design, writing and support of technical software and other such functions normally falling within the role of the systems programmer. It provides for detailed study of a systems programming environment and its application to systems programming tasks.

### **300168.1 Systems Programming 2**

**Credit Points** 10 **Level** 3

#### **Prerequisite**

**300167.1** Systems Programming 1



**Corequisite**

**300149.1** Operating Systems

**Equivalent Units**

14963 - Systems

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This unit complements and extends the work already done in Systems Programming 1. It covers advanced topics in programming that are directly relevant to systems level application design and implementation. As such it addresses the main concepts, principles, and techniques for system level programs that utilise virtual memory, dynamic link libraries, asynchronous I/O, and multi-threading that can support high levels of concurrency. The unit also emphasises and builds a sound understanding of kernel level objects, as well as error and exception handling techniques, and focuses primarily on using the low-level functionality exposed by the operating system's C/C++ language API.

**300582.1 Technologies for Web Applications**

**Credit Points** 10 **Level** 2

**Assumed Knowledge**

Basic programming principles and program control structures equivalent to that covered in Programming Fundamentals. Basic file management and PC operation including how to access and search the World Wide Web.

**Prerequisite**

**300580.1** Programming Fundamentals

**Equivalent Units**

300129 - Interactive Web Site Development, J2826 - Internet and Web Communications, D2826 Internet and Web Communications

**Incompatible Units**

300101 - Creating and Managing Web Sites, CP108A - Principles of the Internet, 101180 - Web and Time Based Design

.....

Building on material covered in Programming Fundamentals this unit introduces students to the basics of developing interactive and dynamic web applications from both the client and server perspective. The unit covers web site design, web site development, web page accessibility and usability, XHTML, CSS, client side and server side scripting, database interaction, web site promotion (SEO), legal issues and web security.

**200668.1 Technology Management for Competitiveness**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Students are expected to have gained an introductory level of knowledge in operations and supply chain management.

**Equivalent Units**

200165 - Productivity and Technology Management

.....

This contemporary unit provides an understanding of technology management and productivity measurement/improvement concepts aimed to improve the competitiveness of organisations. Students are introduced to a range of tools and techniques to acquire and implement technology and develop productivity improvement programs within global operations and supply chain context. The interaction between technological change and competitiveness (productivity and other performance measurement systems) is also explored. The unit is relevant to managers or technologists with responsibilities for managing technological change

**EY101A.1 Terrestrial Environment Management**

**Credit Points** 10 **Level** 1

**Equivalent Units**

300663 - Resource Sustainability

.....

This unit includes lectures, seminars, group discussions and field activities pertinent to catchment management, landuse and environmental impacts. Content covers mapping spatial data management, impact assessment, State of the Environment reporting, rapid appraisal techniques, Ecologically Sustainable Development, using science as a tool, teamwork, analysis and critical reflection. It also involves the integration of the biophysical environment with the investigation of the impacts of man and implications of the socio-political interface.

**200118.2 The Accountant as a Consultant**

**Credit Points** 10 **Level** 3

**Prerequisite**

**200108.1** Contemporary Management Accounting

**Equivalent Units**

H3328 - The Accountant as a Management Consultant

**Special Requirements**

The need to seek college approval relating to ethics risks and the need for university insurance to cover engaged learning.

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This unit focuses on the role that accountants play in the effective management of businesses, using case studies covering a range of accounting areas.

**300755.1 The Appendicular Skeleton**

**Credit Points** 10 **Level** 2

**Equivalent Units**

E2311 - Human Biological Sciences III, 300325 - The Appendicular Skeleton

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This unit provides a thorough understanding of the topographic anatomy of the human upper and lower limbs, including their respective girdles. It undertakes this by utilising a regional approach (as against a systems approach), emphasising the interplay of the different body

systems within the appendicular. The relationship between form and function at a topographic level, will underpin all teaching of this unit.

### 200549.1 The Australian Macroeconomy

**Credit Points** 10 **Level** 1

#### Assumed Knowledge

HSC Mathematics

#### Equivalent Units

200049 - Macroeconomics

.....

This unit is an introduction to macroeconomic concepts, analysis and issues in the Australian context. Basic concepts introduced and applied include: national income accounting, economic structure, price indexes and inflation, the balance of payments, and labour market aggregates. These concepts are applied in describing and explaining the recent evolution of the Australian economy in terms of growth, structural change, price stability, and employment. This leads to a discussion of major policy issues such as the role of governments in managing economic fluctuations, and the implications of Australia's foreign liabilities. The course ends with a brief introduction to modelling income determination.

### 200098.1 The Markets of Asia

**Credit Points** 10 **Level** 3

#### Equivalent Units

61751 - Regional Market Study (Asia)

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Markets of Asia unit offers a balanced and practical introduction to the dynamic and robust Asian market place. Most of the students undertaking this unit will have exposure to countries other than Australia and would have travelled internationally or have an intention to do so. In the present context of globalisation, business is international business. In Australia today even a small locally based manufacturing company's operations are in some way influenced by the tentacles of Asian businesses. This is a journey that starts with a major Asian powerhouse, Peoples Republic of China and ends at the doorstep of another Asian powerhouse, India.

### 200099.2 The Markets of Europe

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

A knowledge of the basic principles of marketing, consumer behaviour and international marketing

#### Prerequisite

**200083.1** Marketing Principles AND **200094.1** International Marketing

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This unit will profile the member states of the European Union in terms of their marketing environment, with emphasis on those various features, similarities, differences and interactions deemed to be of commercial and marketing significance. A major focus of the course will be

the impact of European integration and the relevance of the European Union. The European Union will be discussed in its global context, particularly its relationship with Central and Eastern Europe and the Asia-Pacific. The course therefore gives students the opportunity to undertake macro-environmental analysis and examine the effects of environmental influences on marketing, while also learning about other cultures.

### 200077.1 The Superannuation Industry

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

200049 - Macroeconomics, 200076 - Introductory Economics, 200488 - Corporate Financial Management

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This unit provides students with an understanding of the economics of retirement and retirement income provision, with particular emphasis on the Australian superannuation industry. On completion of this unit, students should have a comprehensive understanding of superannuation in Australia, as well as an appreciation of the economic issues associated with alternative models of retirement income provision.

### 200705.1 The World of Sport Management

**Credit Points** 10 **Level** 1

#### Equivalent Units

400319 - Sport Management 1, 200564 - Introduction to Sport Management

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The World of Sport Management offers a contemporary view of sport organisations which are uniquely situated within a broader social, cultural and political environment and requires a different managerial approach. Students will be exposed to key areas within the sport management field including developing goals, decision making, strategic planning, leadership styles, and human resource management.

### 400254.2 Therapeutic Recreation Professional Project

**Credit Points** 10 **Level** 3

#### Prerequisite

**400863.1** Foundations of Research and Evidence-Based Practice OR **400252.1** Workplace Learning 2 (Community Placement)

.....

This unit version will commence from 2012. The aim of this unit is for students to apply their knowledge of professional theory, practice, research and evaluation skills to the investigation of a therapeutic recreation professional issue. Emphasis in the unit is on the development of a research/evaluation proposal through literature review and research design outline of a program with a proposed method of evaluation suitable for use in a community setting.

### 300739.1 Timber Structures (UG)

**Credit Points** 10 **Level** 4

**Prerequisite**

**300733.1** Introduction to Structural Engineering

**Corequisite**

**300732.1** Structural Analysis

**Equivalent Units**

85015 - Timber Structures (UG)

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Timber is introduced as a construction material. Engineering properties and methods of assessment are examined with an eye toward the practical usage of timber. Design methods based on sound structural mechanics are covered including the design of members and connections.

### 200038.1 Time Series and Forecasting

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

200192 - Statistics for Science, 200032 - Statistics for Business, 200263 - Biometry

**Equivalent Units**

J3697 - Time Series and Forecasting, 14372 - Time Series

**Incompatible Units**

200041 - Applied Regression Analysis and Forecasting

.....

This Level 3 unit presents the basic techniques of time series analysis with emphasis on model identification, parameter estimation and diagnostic checking. The use of time series models for the process of forecasting future behaviour is discussed. In addition, alternative forecasting approaches, in particular econometric methods, are introduced and some guidelines for choosing an appropriate forecasting method are outlined.

### 300744.1 Tools and Techniques for Website Building

**Credit Points** 10 **Level** 1

**Special Requirements**

Restricted to students enrolled in 3661 - Bachelor of Information and Communications Technology (Enhanced Pathway).

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This unit provides students with experiences that will assist them successfully transition from TAFE to a University learning environment whilst providing valuable skills and knowledge in the development of websites using Content Management Systems. Such systems allow developers and/or clients to easily modify and maintain a website without the need for programming. Websites generally need to attract traffic and persuade users to take desired actions, so traffic generation, analytics and conversion strategies will also be covered. The assessments aim to assist students to recognise and cope with the differing expectations between TAFE and University.

### 300756.1 Topics in Physiology

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

300320 - Introduction to Human Physiology or equivalent unit.

**Prerequisite**

**300320.1** Introduction to Human Physiology OR **BC206A.1** Human Physiology 2.2

**Equivalent Units**

BC306A - Human Physiology 3.1, 300326 - Topics in Physiology

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This unit is an extension of 'Human Physiology 1: Introduction to Human Physiology'. It provides greater depth and breadth of understanding of aspects of whole-body physiology. Topics may include, but are not limited to, locomotion, sleep, reproductive technology, psychoneuroimmunology, interactions with others or the environment, the life cycle.

### 300627.1 Toxicology

**Credit Points** 10 **Level** 2

**Equivalent Units**

EH217A - Toxicology

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Toxicology is the study of toxicants or poisonous substances: their nature, effects on the human body, and on human, animal and plant populations. Poisonous substances have been used by humans from antiquity for both beneficial and malevolent purposes and today a vast array of toxic industrial chemicals are produced. Both accidental (workplace and environmental) and intentional (forensic) exposure are covered, in terms of group properties, toxicity, exposure potential, health impact and intervention. Forensic case studies are also addressed. Students ultimately carry out a toxicological audit of an operation or premises of their choice, meeting a range of disciplinary interests and needs.

### EH217A.1 Toxicology

**Credit Points** 10 **Level** 2

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From 2010, this unit will be replaced by 300627 - Toxicology. Toxicology is the study of toxicants or poisonous substances; their nature, effects on the human body, on populations and on ecosystems. Toxicology is important in both workplace and external environmental risk assessment and management. This unit introduces basic concepts and explores groups of toxicants in terms of properties, sources and uses of specific member substances, associated toxicity and hazard, potential for exposure and nature of disease or impact. Relevant aspects of risk assessment are introduced. Assessment is by extended portfolio and a toxicological inventory in the student's own field of interest.

### **400346.1 Traditional Chinese Medicine 1**

**Credit Points** 10 **Level** 1

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This unit provides a comprehensive introduction to traditional Chinese medicine (TCM). Students are introduced to basic TCM theory, and the physiological principles of the diagnostic system that forms the basis of TCM practice. The history and philosophy of Chinese medicine is introduced and discussed in the light of contemporary clinical practice.

### **400348.1 Traditional Chinese Medicine 2**

**Credit Points** 10 **Level** 1

#### **Assumed Knowledge**

Prior knowledge equivalent to Traditional Chinese Medicine 1.

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This unit provides learning experiences that enable students to expand upon their understanding of TCM philosophy and principles, with particular reference to developing diagnostic skills in TCM. Students acquire basic skills in case history taking, interpretation of relevant signs and symptoms, arriving at a TCM diagnosis, and devising suitable treatment strategies.

### **400352.1 Traditional Chinese Medicine 3**

**Credit Points** 10 **Level** 2

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This unit enables students to develop a sound understanding of causes of disease in TCM with a particular focus on disease pattern differentiation. This is complemented by the reinforcement of skills in case history taking and TCM diagnostics.

### **400354.1 Traditional Chinese Medicine Practice 1**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Assumed knowledge equivalent to Traditional Chinese Medicine 3, and Acupuncture 2, and Chinese Herbal Medicine 2.

#### **Special Requirements**

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Persons Declaration; Criminal Record Check Clearance; Students must possess a current, Workcover Authority approved First Aid Certificate;

.....

This unit is focused on introductory clinical practice in a clinical setting. It enables the student to link theory with practice. It expands the students' knowledge base of acupuncture and Chinese herbal medicine, as well as TCM theory and diagnostics. Students assist with clinical practice and may perform basic acupuncture related techniques.

### **400356.1 Traditional Chinese Medicine Practice 2**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Assumed knowledge and experience equivalent to Traditional Chinese Medicine Practice 1.

#### **Special Requirements**

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Employment Declaration; Criminal Record Check Clearance; Students must possess a current, Workcover Authority approved First Aid Certificate;

.....

This unit is focused on clinical practice in a clinical setting. It enables the student to link theory with practice. It expands the students' knowledge base of acupuncture and Chinese herbal medicine, as well as TCM theory and diagnostics. Students facilitate clinical practice and perform a wide range of acupuncture and related techniques, in addition to basic herbal prescribing.

### **400920.1 Traditional Chinese Medicine Practice 3 (PG)**

**Credit Points** 10 **Level** 7

#### **Assumed Knowledge**

Foundations of Research and Evidence-Based Practice, TCM Practice 2

#### **Incompatible Units**

400359 - Traditional Chinese Medicine Practice (Research Project)

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This unit represents a continuation of the clinical practicum and development of clinical skills. Students will also be able to apply their knowledge of professional theory, practice, research and evaluation skills to the investigation of TCM problem. Students will be expected to demonstrate competence in handling patients in a clinical context, synthesise knowledge from their studies of specialities in TCM and critically examine the practical aspects of acupuncture and Chinese herbal medicine research.

### **400924.1 Traditional Chinese Medicine Practice 4 (PG)**

**Credit Points** 10 **Level** 7

#### **Assumed Knowledge**

Traditional Chinese Medicine 3 (PG)

#### **Incompatible Units**

400362 - Traditional Chinese Medicine Practice 4

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This unit represents a continuation of the clinical practicum and development of clinical skills. Students will be able to integrate their theoretical knowledge, practice skills and research base to the investigation, diagnosis and supervised treatment of patients in a clinical context. Students will be able to synthesise knowledge and

competency in the practice of clinical areas of focus taught in Chinese Medicine I and II, and Specialties in TCM I and II. Students will be expected to demonstrate professional competence in handling patients in a clinical context, diagnosing more complex cases and devising and managing the integrated care of patients using TCM.

**400764.2 Transition to Graduate Practice**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

All other units in Bachelor of Nursing offered in Year 1, 2 and Autumn Year 3

**Prerequisite**

**400745.1** Nursing for Health and Wellbeing AND **400749.1** Nursing and Health Breakdown AND **400753.1** Medical-Surgical Nursing 1 AND **400757.1** Medical-Surgical Nursing 2 AND **400759.1** Mental Health Nursing 1

**Corequisite**

**400762.1** Mental Health Nursing 2 AND **400761.1** Family Health Care: High Acuity Nursing

**Equivalent Units**

400064 - Nursing Context 7

**Special Requirements**

Special Requirements are those stipulated by the NSW Health and UWS. At present these include: Prohibited Employment Declaration (PED); Criminal Record Check (CRC); Adult Health Immunisation and Workcover accredited Senior First Aid Certificate.

.....

This unit explores the transition to graduate practice from undergraduate nursing student to graduate professional registered nurse focusing on the role, responsibilities, accountabilities and options for the registered nurse.

**400746.2 Understanding Good Health**

**Credit Points** 10 **Level** 1

**Assumed Knowledge**

Knowledge of basic chemistry, physics and bioscience.

**Equivalent Units**

400047 - Nursing Science 2

.....

This unit introduces the student to concepts and mechanisms involved in normal body functions and the maintenance of normal activities of living that inform professional nursing practice.

**300642.1 Understanding Landscape**

**Credit Points** 10 **Level** 1

**Equivalent Units**

HT103A - Understanding Landscape

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A holistic, systemic understanding of the nature of landscape is fundamental to the land and water management professions. Drawing upon examples from

the Sydney Basin, this unit will introduce students to the complex interrelationships between biophysical, social and cultural factors which determine the ever changing character of the landscapes we experience around us. Through a series of urban and rural field studies, students will be encouraged to develop an understanding of the formative factors of landscape and their interaction, a sensitivity toward diverse and often conflicting landscape values, and a capacity for landscape description emphasising spatial interpretation.

**400183.1 Upper Limb Rehabilitation Following Stroke**

**Credit Points** 10 **Level** 3

**Prerequisite**

**400171.1** Occupation and Neurology

.....

People with neurological conditions commonly lose the ability to use their hand and arm. The impairments and resulting disability can impact on a person's occupational performance, and their participation in chosen activities and life roles. In this unit, students will learn how to analyse and retrain components of upper limb performance, particularly reach, grasp and in-hand manipulation. A movement science approach will be used, requiring students to read and critique motor control, motor learning, and muscle biology literature, as well as current best evidence in rehabilitation.

**200075.1 Urban and Regional Economics**

**Credit Points** 10 **Level** 3

**Assumed Knowledge**

Microeconomics and Macroeconomics or Introductory Economics

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This unit deals with: models of short-run fluctuations of regional aggregates and the economic relations between regions; models of long-run change in regional aggregates and the long-run economic relations between regions; equilibrium models of intra-urban location; optimal models of intra-urban allocation; and optimal allocation of capital to urban land.

**300471.1 Urban Development Systems**

**Credit Points** 10 **Level** 3

**Equivalent Units**

BG202A-1 Urban Development Systems

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This unit will explore the relationships between community, the natural environment and government within an urban context. Students will examine means of investigating communities and establishing their needs. They will look at ways that this information can be mapped and translated into a graphic representation, including the use of GIS. Urban Development Systems will explore the principles of sustainability and then look at ways that community needs are provided for within an urban environment while seeking to meet sustainability objectives. The unit will examine

infrastructure and service needs to support human settlements as well as government assessment systems and legislation. Students will investigate community power, political systems and how this can influence government to deliver beneficial outcomes.

### **300470.1 Vertebrate Biodiversity**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Satisfactory completion of first-year degree level Biology.

#### **Equivalent Units**

300217 - Animal Form and Function

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This unit will begin with an introduction to the evolutionary placement of the vertebrates and the relative age and importance of the different groups. The focus will then shift to an investigation of the comparative anatomy, function and behaviour from an evolutionary perspective. There will be a particular emphasis on environmental adaptations.

### **MG309A.1 Water and Waste Management**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

This unit will build upon knowledge and skills gained in Year 1 and Year 2 Microbiology and Chemistry units

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Water is arguably the most important natural resource in the world, since without it life cannot exist and industry cannot operate. Unfortunately, the liquid and solid wastes from anthropogenic activities continually jeopardise water quality and the environment. This unit will develop and integrate physical, chemical and biological process understanding of water pollution and waste management. The biotechnology of nutrient transformation in waste treatment, waste minimisation and value-added opportunities will be emphasised.

### **300740.1 Water Engineering**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

200238: Mathematics for Engineers 2

#### **Prerequisite**

**200237.1** Mathematics for Engineers 1 AND **300464.1** Physics and Materials

#### **Equivalent Units**

85009 - Water Engineering

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The unit provides a working knowledge on the basic principles of fluid flow and covers the general principles of engineering hydraulics. The theories learned in classes will be reinforced in laboratory sessions

### **300635.2 Water Quality Assessment and Management**

**Credit Points** 10 **Level** 2

#### **Assumed Knowledge**

The equivalent of an Undergraduate level 1 biological science unit.

#### **Equivalent Units**

EY211A - Water Quality Assessment and Management, EY205A - Principles of Soil and Water Management, EN302A - Water and Wastewater, 300528 - Water in the Landscape

.....

This unit introduces students to a range of concepts from the protection of aquatic environments in terms of the need to monitor and maintain water quality to the application of biological, chemical and physical methods of maintaining the suitability of water quality to meet its use criteria. The unit covers the healthy aquatic environment, pollutants and their sources, health and ecological impacts of water quality degradation, the use of legislation, regulation, policy, guidelines and standards. The concept of water in catchments and catchment management principles are introduced. It also includes irrigation and water use in crop production and landscape management. The fundamental objective in the unit is to broadly address integrated urban and rural water cycle management and explore several case studies through field visits. The unit seeks to develop graduate competencies in water monitoring, regulation, treatment and management. The unit is particularly applicable to those students who are interested in achieving the status of authorised officers with the regulatory authorities, landscape and catchment management.

### **300734.1 Water Resources Engineering (UG)**

**Credit Points** 10 **Level** 4

#### **Assumed Knowledge**

300479 - Drainage Engineering

#### **Prerequisite**

**300740.1** Water Engineering

#### **Equivalent Units**

85020 - Water Resources Engineering (UG)

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This unit introduces aspects of engineering that relate to water as a resource. It builds on the knowledge gained in Water Engineering and Drainage Engineering. This unit will enable students (a) to appreciate major water resource issues around the globe, (b) to understand the social, physical and economic issues involved in distribution, supply and use of water to industry, agriculture and private households; and (c) to understand the need for holistic approaches in planning of water resources projects

### 101180.1 Web and Time Based Design

**Credit Points** 10 **Level** 2

#### Assumed Knowledge

Introductory level understanding of and skills in design principles particularly basic layout, colour and typographic knowledge. Digital basics including working in a networked environment on a Macintosh computer. Ability to manage, transport and store digital information.

#### Equivalent Units

100605 - Web and Time Based Production Technology

Through lectures students develop an understanding of fundamental concepts and processes inherent in designing for an online environment. Students also develop fundamental computer software skills and design understandings appropriate to that medium using the major web software packages and develop a working understanding of production literacies for online design. Students will engage in practical studies of web authoring using HTML, Dreamweaver, image optimisation using Fireworks or Imageready. Emphasis will be placed on understanding the roles, functions and features of each software package in the design production context of online delivery, integrated use, and a working understanding of the responsibilities inherent in the digital production process.

### 300583.1 Web Systems Development

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

Systems Analysis and Design (or equivalent). Ability to develop a dynamic web page using data retrieved from a database and save data entered on to a Web based form in to a database.

#### Prerequisite

[300582.1](#) Technologies for Web Applications

#### Equivalent Units

300085 - Advanced Web Site Development

In this unit students will learn how to build a Web based information systems using programming, database, networking and web technologies that they have learned in other units. Students will learn about various web system architectures and development methodologies that can be used when developing web based information systems. Students will also learn about how to model, design and implement different aspects of Web based information systems.

### 300665.1 Wildlife 2

**Credit Points** 10 **Level** 2

#### Equivalent Units

300561 - Animal Research

#### Special Requirements

Students must be enrolled in course 3640 Bachelor of Science and Key Program Animal Science or former

equivalent course. All activities in the unit involving live animals must be approved by the UWS Animal Care and Ethics Committee. All activities in the unit involving the use of animal specimens must be approved by the UWS Institutional Biosafety and Radiation Safety Committee.

This unit will introduce and immerse students in areas of wildlife management and research. From developing report protocols to result analysis and documentation, groups of students will manage projects in collaboration with UWS and external agencies with a variety of wildlife species.

### 300342.1 Wines and their Appreciation

**Credit Points** 10 **Level** 1

This unit is a general introduction to wines, their history, basic production techniques and place in society and health. Students will develop a knowledge and understanding of wine regions, types and styles from around the world with a focus on the wines of Australia. The unit is taught online with attendance required at one wine appreciation workshop where students will learn how to taste and evaluate wines.

### 300065.2 Wireless Communications

**Credit Points** 10 **Level** 3

#### Assumed Knowledge

The students should have a good understanding of signals and systems, probability and random processes and fundamentals of communication systems.

#### Prerequisite

[200242.1](#) Mathematics for Engineers 3 AND [300007.1](#) Communication Systems OR [300010.1](#) Data Networks

#### Equivalent Units

300017 - Digital Communication Engineering

The unit covers the analysis, design and operation of modern wireless communication systems. The primary focus is on the physical layer and hardware, emphasizing the fundamentals of coding and modulation, spread spectrum and multiple access techniques. Current wireless architectures and mobile communication systems are also covered.

### HC318A.1 Women's Health

**Credit Points** 10 **Level** 3

This unit provides students with a forum to examine issues of women's health from a Primary Health Care perspective.

### 200243.2 Work Employment and the Labour Market

**Credit Points** 10 **Level** 3

#### Prerequisite

[200300.1](#) Managing People at Work

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This unit provides an in-depth study of the links between work, employment and wider labour market issues. An introductory framework will be provided emphasizing the historical perspectives of work and the key theories and concepts involved in industrial sociology. Current and future issues and trends in work organization and practice and their relationships to society will also be considered. The unit will then examine the relationship between labour markets, employment and government policy in both macro and micro settings. Particular emphasis will be placed upon the interaction of regional labour markets, policies and outcomes for key labour market segments.

### **400904.1 Work Experience in Sport and Exercise Science**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

It is expected that students have the knowledge and skills associated with the prerequisite units.

#### **Prerequisite**

**400885.1** Sport and Exercise Physiology AND **400887.1** Clinical Exercise Physiology 1 AND **400902.1** Exercise in Musculo-Skeletal Rehabilitation AND **400903.1** Professional Development and Work Experience

#### **Equivalent Units**

400331 - Sport and Exercise Science in Practice

#### **Special Requirements**

This unit is only available to students enrolled in course 4658 - Bachelor of Health Science (Sport and Exercise Science). To undertake this unit, students must comply with the following special requirements: completion of a Prohibited Persons Declaration; Criminal Record Check clearance; provide evidence of compliance with the occupational screening and immunisation policy of NSW Health; possess a current WorkCover Authority approved First Aid Certificate.

.....

The unit Work Experience in Sport and Exercise Science focuses on observation and participation in Sport and Exercise Science activities in the industry setting. Students will develop professionally in Sport and Exercise Science by applying their knowledge and skills developed during previous Sport and Exercise Science course work and practical experiences through supervised practice placements. During these placements students are expected to develop and demonstrate an ability to design, implement and evaluate testing and training programs for a variety of clients in sports, community and clinical settings.

### **200616.2 Workplace Behaviour**

**Credit Points** 10 **Level** 3

#### **Prerequisite**

**200300.1** Managing People at Work

#### **Equivalent Units**

61441 - Workplace Behaviour

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The primary concern of this unit is to equip students with an understanding of how to apply sociology and work psychology to effectively manage human resources. The unit analyses both the individual (psychological) and social (sociological) factors that influence workplace behaviour and relations in the workplace. The structure of the unit is thematic, drawing on the major theoretical frameworks of psychology and sociology, and applying them to the practice of human resource management and to contemporary issues within the workplace.

### **400246.2 Workplace Learning 1 (Therapeutic Recreation)**

**Credit Points** 10 **Level** 2

#### **Prerequisite**

**400783.1** Professional Pathways in Health Science

#### **Special Requirements**

Students will need to have submitted a Criminal Record Check. This unit is restricted to Therapeutic Recreation students.

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This unit provides students with the opportunity to apply theoretical and practical knowledge and skills gained in the course to develop their practice and professional behaviours in a therapeutic recreation workplace setting.

### **400252.1 Workplace Learning 2 (Community Placement)**

**Credit Points** 10 **Level** 3

#### **Assumed Knowledge**

Workplace Learning 1

#### **Prerequisite**

**400246.1** Workplace Learning 1 (Therapeutic Recreation)

#### **Special Requirements**

This unit is only available to Therapeutic Recreation students.

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This unit provides students with the opportunity to experience the practice of therapeutic recreation/ diversional therapy through supervised needs assessment, problem identification, program planning, implementation and evaluation in a range of distinct therapeutic service setting. Identify and provide services for people from special populations such as culturally and linguistically diverse (CALD), refugees and trauma victims, indigenous people, older people, people with learning problems and high risk populations. Students are to explore the advocacy and support needs of the clients receiving services. Students will explore issues related to quality supervision and their own learning styles as they develop learning contracts to be used in the workplace learning setting.

### **101662.1 Young People, Their Futures and Education**

**Credit Points** 10 **Level** 3

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This unit provides an introduction to the youth studies field. It examines emerging ways of theorising the roles ascribed to 'youth' over the past 50 years and their relationships to the changing contexts in which young people are growing up. These changes include the impact of digital technologies, increases in high-school completion rates, mass tertiary education, increases in student employment, and the effects of labour market deregulation. The unit examines how socio-economic inequality and geographies of exclusion contribute to shaping young people's identities and their life chances. Social and educational challenges affecting immigrant and refugee youth are also examined.

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