College of Health and Science

Electronic Undergraduate Handbook 2008

University of Western Sydney

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UWS reserves the right to discontinue or vary its units, courses and announcements at any time without notice.

Information contained in this electronic handbook is correct at the time of production (April 2008), unless otherwise noted.

CRICOS Provider Code 00917K

In accordance with the Education Services for Overseas Students (ESOS) Act 2000, the University of Western Sydney (UWS) is registered on the Commonwealth Register of Institutions and Courses for Overseas Students (CRICOS), Provider Code 00917K.

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.

About the College of Health and Science Electronic Undergraduate Handbook

Sessions and dates

There are two main sessions in 2008: 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.

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 2008 at: 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

The latest information on all College of Health and Science undergraduate courses and units can be found on the UWS website at: http://www.uws.edu.au/health_science/chs/courses

Note:

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/

Contents

COLLEGE OF HEALTH AND SCIENCE

Bachelor of Agriculture

3631.1

This degree equips graduates with specialised knowledge and understanding of the balance between agriculture, landscape ecology, and business activities. The knowledge gained is integrated through the use of industry wide supply chain analyses which integrate production activities and organisations across the industry. In doing so the degree prepares graduates for an extensive range of employment opportunities including: consultancy and advisory services; animal health and welfare; agricultural marketing; rural merchandising; agronomy; agricultural education and secondary teaching (with a further teaching qualification); rural enterprise management (farms or agribusiness); livestock industries; catchment management.

This innovative new degree has been developed to enable graduates to service this large and essential sector of the economy for the next 20 years. A special aspect of the development of the degree has been the role of the various industries that operate in the sector who in association with UWS have defined their current and future needs. This degree was then developed to ensure that graduates could meet industry needs.

It is important to note that agriculture in this degree and the economy as a whole has a broad definition and includes all activities in the production, processing and sale of food and fibre. Agriculture is a part of the economy on which all others are based because food is one of the basic essentials for life. Therefore, expertise in the production of food will continue to be in demand.

Practical experience is important and as a student in this degree you will gain extensive industry experience which is embedded as part of your studies. Your learning from this experience will be guided by academic staff in partnership with industry clients. The benefit of industry-based project work is that you will have gained the skills needed for employment as well as relevant industry knowledge and a network of industry contacts that will greatly assist you in your future career.

In addition to practical experience you will gain a high level of analytical skill that will enable you to work anywhere in the industry. You will have an understanding of the whole of the agriculture value chain including development of environmentally friendly agriculture, ecological principles and values, and the business of agriculture. The skills you gain will be relevant to any industry in the economy.

Study Mode
Three years full-time.

Location

Campus	Attendance	Mode
Hawkesbury Campus	Full Time	Internal

Academic Credit and Advanced Standing
Applications for academic advanced standing will be assessed in accordance with current UWS policy.

Accreditation
Graduates will be eligible for full membership of the Australian Institute of Agricultural Science and Technology, and the Australian Society for Animal Production.

Admission
UAI or mature-age entry through the Universities Admissions Centre (UAC)

International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

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.

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
300502.1 Primary Production
300221.1 Biology 1
300523.1 Agricultural Supply Chains
And one elective

Spring session
300522.1 Introduction to Agricultural and Animal Systems
300535.1 Soils

300421.2 Animal Science
And one elective

Year 2

Autumn session
300524.1 Agronomy
300526.1 Ecosystems and Agriculture
300528.1 Water in the Landscape
And one elective

Spring session
300525.1 Agriculture and Animal Systems
300527.1 Analysis of Agricultural and Animal Systems
300529.1 Systems for Agricultural Production
300530.1 Advances in Agronomy

Year 3

Autumn session
300532.1 Agricultural Risk
And two electives

1H session
300531.1 Agriculture and Animal Systems Project

Spring session
300533.1 Agriculture: National and International Context
300534.1 Analysis of Agricultural Supply Chains
And one elective

2H session
300531.1 Agriculture and Animal Systems Project

Bachelor of Animal Science

3592.4

This degree equips graduates with specialised knowledge and understanding of the balance between animal systems, landscape ecology, and business activities. The knowledge gained is integrated through the use of systemic analyses which integrate animal related production activities and organisations across the industry. In doing so the degree prepares graduates for an extensive range of employment opportunities including: consultancy and advisory services; animal health and welfare; marketing; rural enterprise management (including farms); livestock industries; wildlife management.

Study Mode
3 years full-time

Location

Campus	Attendance	Mode
Hawkesbury Campus	Full Time	Internal

Accreditation
Graduates will be eligible for full membership of the Australian Society for Animal Production.

Admission
Assumed Knowledge: any two units of English and any two units of Mathematics. Recommended Studies: one or more of Biology, Chemistry, Geography or Agriculture.

Course Structure

Recommended Sequence

Full-time

Year 1

Autumn session
300426.1 Human Animal Interactions
300221.1 Biology 1
300224.1 Chemistry 1
300560.1 Introduction to Animal Science

Spring session
300522.1 Introduction to Agricultural and Animal Systems
300425.1 Introduction to Wildlife Studies
300421.1 Animal Science
And one elective

Year 2

Autumn session
300561.1 Animal Research
300562.1 Animal Nutrition and Feeding
And two electives

Spring session
300527.1 Analysis of Agricultural and Animal Systems
300424.1 Animal Health and Welfare
300525.1 Agriculture and Animal Systems
300563.1 Animal Reproduction

Year 3

Autumn session
300427.1 Animal Production
300531.1 Agriculture and Animal Systems Project
And two electives

Spring session
300531.1 Agriculture and Animal Systems Project
300564.1 Animal Behaviour

300470.1 Vertebrate Biodiversity
And one elective

Suggested Animal Science Related units
Students will be issued with a list of suggested units, including sets of units that are appropriate for studies in chemistry, microbiology, biochemistry/ molecular biology and gene science.

Bachelor of Applied Science (Environmental Health)

3569.3

Environmental Health encompasses the health impacts of the interaction between humans and the environment. In some Indigenous Australian settings and in developing countries, a major focus for environmental health professionals is the need to provide basic sanitation, waste management, sound buildings and safe food and water. More generally in Australia and other industrialised nations, attention is also given to understanding and controlling pollution in both the environment and occupational settings, the assessment and management of complex environmental and occupational risk factors and assessment of the built environment. At a global level, environmental health professionals have been actively examining the health impact of acid rain, climate change, movement of hazardous waste, ozone depletion, overpopulation and resource depletion.

Study Mode
Internal mode - three years full-time. External Mode - six years part-time requiring distant learning and once every semester compulsory attendance at workshops, held during the Autumn and Spring semester breaks.

Accreditation
Professional level accreditation by the Australian Institute of Environmental Health (AIEH).

Admission
NSW HSC Mathematics or equivalent and NSW HSC Science or equivalent.

Course Structure
Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.
The option of an honours year is available for outstanding students with a credit point requirement of 320.

Recommended Sequence

Full-time

Year 1

Autumn session
EY104A.1 Management of Aquatic Environments
300288.1 Occupational Environment
300469.1 Introductory Chemistry
Choose one of
300221.1 Biology 1
BI107A.1 Biological Sciences 1.1 (X)

Spring session
EY101A.1 Terrestrial Environment Management
300362.1 Environment and Health
And two electives

Year 2

Autumn session
300290.1 Researching Communities and their Environments
LW212A.1 Environmental Health Law
EH214A.1 Epidemiology
300331.1 General Microbiology

Spring session
300283.1 Community Environmental Health Action
EH217A.1 Toxicology
EH325A.1 Environmental Regulations
And one elective

Year 3

Autumn session
300286.1 Environmental Practice 1
300284.1 Environmental Risk Management
And two electives

Spring session
300287.1 Environmental Practice 2
And three electives

Work experience:
Choose one of
EH218A.1 Approved Industrial Experience (10Wks)
FS203A.1 Approved Industrial Experience (42Wks)

Part-time

Year 1

Autumn session
300221.1 Biology 1
300288.1 Occupational Environment

Spring session
300362.1 Environment and Health
And one elective

Year 2

Autumn session
300290.1 Researching Communities and their Environments
300469.1 Introductory Chemistry

Spring session
EY101A.1 Terrestrial Environment Management
And one elective

Year 3

Autumn session
EY104A.1 Management of Aquatic Environments
And one elective

Spring session
300283.1 Community Environmental Health Action
EH217A.1 Toxicology

Year 4

Autumn session
LW212A.1 Environmental Health Law
And one elective

Spring session
EH214A.1 Epidemiology
300331.1 General Microbiology

Year 5

Autumn session
Two electives

Spring session
EH325A.1 Environmental Regulations
And one elective

Year 6

Autumn session
300286.1 Environmental Practice 1
300284.1 Environmental Risk Management

Spring session
300287.1 Environmental Practice 2
And one elective

Majors

Environmental Health Management Major

Environmental Health Management is an area which deals with strategies for environmental monitoring, assessment and intervention with a view to securing human health promotion. Units cover the management of air quality, water supply, food, the acoustic environment (noise) and buildings, in addition to health promotion and regulatory approaches required for ensuring a safe and healthy environment.
Eight compulsory units:
300448.1 Housing for Public Health
300449.1 Environment, Health & Emergency Management
300471.1 Urban Development Systems
EH205A.1 Noise Assessment & Control
EH321A.1 Air Quality Assessment & Management (UG)
EH324A.1 Environmental Planning
EY211A.1 Water Quality Assessment and Management
FS323A.1 Food Safety A

Bachelor of Applied Science (Naturopathic Studies)

4597.2

Naturopathy is an holistic form of health care that aims to enhance the health and wellbeing of people through the use of a variety of modalities and techniques that address the underlying causes of suboptimal health including lifestyle choices.

Naturopathy uses a broad range of techniques which aim to diagnose, treat and prevent a wide range of health problems, ranging from sports injuries, disorders in children, the care of pregnant and breast-feeding women, to the management of stress and age related and chronic disorders.

Treatment is aimed at restoring function to the body through massage, herbal medicine, stress management, homoeopathy, nutritional and lifestyle guidance and counselling. Naturopathy stresses maintenance of health and prevention of disease.

The combination of the Bachelor of Applied Science (Naturopathic Studies) and the Graduate Diploma in Naturopathy is designed to prepare graduates to work competently and safely as primary health care practitioners and to meet the demands of a changing health care system.

Study Mode

Three-years full-time (HECS funded) followed by a one year full-time (full fee paying) graduate diploma in order to practice Naturopathy.

Location

Campus	Attendance	Mode
Bankstown Campus	Full Time	Internal

Academic Credit and Advanced Standing

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

Accreditation

The completion of both the Bachelor of Applied Science (Naturopathic Studies) and the Graduate Diploma in Naturopathy will provide qualifications that would lead to practitioner accreditation with professional associations and/or (in the future), statutory regulatory bodies. Students completing only the Bachelor of Applied Science (Naturopathic Studies) would not be eligible for practitioner membership of professional associations.

Admission

Application to the Bachelor of Applied Science (Naturopathic Studies) is normally through the Universities Admissions Centre (UAC).

International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

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

Full-time

Year 1

Autumn session
400130.1 Human Medical Sciences 1
400492.1 Introduction to Naturopathy
400732.1 Communication in Health
400491.1 Remedial Massage 1

Year 1

Spring session
400493.1 Biochemistry for Naturopathy
400256.1 Human Medical Sciences 2
400494.1 Remedial Massage 2
400496.1 Homoeopathic Principles

Year 2

Autumn session
400135.1 Clinical Pharmacology and Microbiology
400497.1 Naturopathic Nutrition 1
400495.1 Western Herbal Medicine 1
and one elective

Spring session
400262.1 Clinical Diagnosis
400137.1 Introduction to Research for Health Sciences
400499.1 Naturopathic Nutrition 2
400498.1 Western Herbal Medicine 2

Year 3

Autumn session
400501.1 Naturopathic Nutrition 3
400138.1 Pathophysiology 1
400500.1 Western Herbal Medicine 3
And one elective

Spring session
400361.1 Herbal Pharmacognosy
400502.1 Naturopathic Practice
400267.1 Pathophysiology 2
And one elective

Elective Units

Elective units in the Bachelor of Applied Science (Naturopathic Studies) may be chosen from any award offered by UWS, provided that unit prerequisites are met and space is available.
The following elective unit in the Naturopathy/ Complementary Therapies discipline area may be offered. This unit is not listed elsewhere in the Handbook, and is open to students from across UWS provided space is available:
E1022.1 Introduction to Complementary Medicine

Bachelor of Applied Science (Occupational Therapy)

4520.2

Occupational therapy is a client centred process that facilitates and 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 particupate 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.

Admission
Potential students normally apply for admission to the course through the Universities Admission Centre (UAC). Other admission schemes of the University of Western Sydney are available.

International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

Admission to the Honours program is assessed on completion of the first semester in year three. Students deemed eligible are invited into the honours program. Grade point average (GPA) over the first five semesters of the pass program is used to determine eligibility and must represent credit average or above.

Special Requirements
To be enrolled in this course you must comply with the occupational screening and vaccination policy of NSW Health at course commencement. Students must also possess a current Work Cover Authority approved first aid certificate before commencing any clinical practice units.

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
400130.1 Human Medical Sciences 1
400160.1 Introduction to Occupational Therapy
400732.1 Communication in Health
400733.1 Occupational Analysis

Spring session
400134.1 Human Medical Sciences 3
400136.1 Introduction to the Psychology of Health
400137.1 Introduction to Research for Health Sciences
400161.1 Occupational Therapy Clinical Practice 1

Year 2

Autumn session
400164.1 Introduction to Sociology of Health
400138.1 Pathophysiology 1
400148.1 Quantitative Research
400734.1 Functional Analysis

Spring session
400166.1 Clinical Neurosciences
400167.1 Occupational Therapy Clinical Practice 2
400165.1 Occupation and the Environment
400162.1 Child and Adolescent Occupations

Year 3

Autumn session
400168.1 Ergonomics and Work Occupations
400169.1 Occupation and Mental Health
400171.1 Occupation and Neurology
400170.1 Occupation and Social Participation

Spring session
400172.1 Occupational Therapy Clinical Specialties 1
400173.1 Occupational Therapy Clinical Specialties 2
400174.1 Occupational Therapy Clinical Practice 3a
400175.1 Occupational Therapy Clinical Practice 3b

Year 4 (Pass)

Autumn session
400154.1 Integrating Evidence into Practice
400177.1 Professional Reasoning
400178.1 Occupational Therapy Qualitative Project
400176.1 Occupation and Ageing

Spring session
400179.1 Occupational Therapy Clinical Practice 4
And two electives

Year 4 (Honours)

Autumn session
400154.1 Integrating Evidence into Practice
400176.1 Occupation and Ageing
400180.1 Occupational Therapy Honours Thesis 1
400177.1 Professional Reasoning

Spring session
400182.1 Occupational Therapy Clinical Practice 4 (Honours)
400181.1 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:

400183.1 Upper Limb Rehabilitation Following Stroke
400184.1 Conducting Medicolegal Assessments
400186.1 Paediatric Practice
400187.1 Supervision in Clinical Practice
400809.1 Outcome Measures and Indicators in Clinical Practice

Bachelor of Applied Science (Honours) Occupational Therapy

4521.1

Applications for recognition of prior learning will be assessed in accordance with current UWS policies, and students may be given advanced standing for units where equivalent content is demonstrated.

Study Mode

Four years full-time.

Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

Bachelor of Applied Science (Honours) Podiatry

4519.1

This course is only available to meritorious continuing students, and is embedded in the fourth year of the Bachelor of Applied Science (Podiatry) course 4518.1. It allows students who achieve high grades to undertake an Honours stream, enabling them to qualify for a Bachelor of Applied Science (Honours) Podiatry.

Study Mode

The Bachelor of Applied Science (Podiatry) Honours is an embedded program in the fourth year of the Bachelor of Applied Science (Podiatry) course.

Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

Academic Credit and Advanced Standing

Recognition will be given to prior learning as per the current University of Western Sydney guidelines.

Admission

Applications for the Honours program will be judged against the following criteria:

- A minimum of a credit grade point average over the first three years of the course 4518 Bachelor of Applied Science (Podiatry).

- Having adequate supervision available in the potential student's area of interest.

- A clear and comprehensive written and verbal research proposal of about 500-1000 words.

Course Structure

Qualification for this award requires the successful completion of 320 credit points (including those achieved in course code 4518). Students in the Honours program undertake different units in Spring session of year three, and also in year four as outlined below.

Year 3

Spring Session (Honours)
400150.1 Surgery for Podiatrists
400151.1 The High Risk Foot
400421.1 Research Methods for Humanities and Social Sciences
400152.1 Podiatric Practice 4

Year 4 (Honours)

Autumn session
400153.1 Gerontology and Neurology
400154.1 Integrating Evidence into Practice
400155.1 Podiatric Practice 5
400159.1 Honours Research Thesis (Podiatry)

Spring session
400156.1 Practice Management for Health Professionals
400157.1 Podiatry Professional Practice Studies
400158.1 Podiatric Practice 6
400159.1 Honours Research Thesis (Podiatry)

Bachelor of Applied Science (Sport and Exercise Science)

4558.3

Please note that this course version will start in 2008. Continuing students please refer to the link below.

Sport and Exercise Science is a field encompassing the use of specialist knowledge and skills in sport and exercise within a wide range of settings such as community, and corporate health and fitness, government agencies associated with sport, physical activity and health, sports academics, professional sports, rehabilitation clinics and hospitals, private business in personal training and rehabilitation, and in universities and colleges with involvement in teaching and research. This course prepares graduates for the Exercise Science and Sport Science industries. Students undertake advanced studies in Exercise Physiology, Sports Physiology, Biomechanics, Exercise Prescription and Programming, Motor Control and Learning. A research methodology elective is highly recommended.

Study Mode

Three years full-time. Students may take a reduced load from time to time.

Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

Academic Credit and Advanced Standing

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

Accreditation

Graduates completing the Bachelor of Applied Science (Sport and Exercise Science) program will be eligible to apply for full membership of the Australian Association for Exercise and Sports Science (AAESS) and will have the knowledge skills and competences on which to build the additional professional practice requirements for specialist accreditation by AAESS in: Sports Science; Sports Physiology; and Exercise Physiology.

Admission

Students normally apply through the Universities Admission Centre (UAC).

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 undertake this course, students must comply with the following special requirements: Completion of a Prohibited Persons Declaration; Criminal Record Check Clearance; Work Cover approved First Aid Certificate; Provide evidence of compliance with the occupational screening and immunisation policy of 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.

Elective units may be chosen from any award offered by UWS, provided that unit prerequisites are met and space is available. To fulfil requirements for AAESS accreditation, one of the electives must be a research unit.

Students must possess a Work Cover approved First Aid Certifiate prior to enrolment in 400282 Introduction to Sports Medicine. The nature of the activities carried out in the laboratory classes for this and subsequent units for which this unit is a prerequisite requires a knowledge of first aid in a sport and exercise specific context to ensure safe conduct of activitis

Recommended Sequence

Full-time

Year 1

Autumn Session

400802.1 Professional Practice in Sport and Exercise Science 1
400130.1 Human Medical Sciences 1
400256.1 Human Medical Sciences 2
400148.1 Quantitative Research

Spring Session

400134.1 Human Medical Sciences 3
100678.1 Introduction to Sport Psychology
400322.1 Sociological Aspects of Sport and Exercise
400282.2 Introduction to Sports Medicine

Year 2

Autumn Session

400325.1 Bioenergetics of Exercise
400139.2 Biomechanics and Kinesiology
400324.2 Foundations of Exercise Prescription
400323.1 Physiology of Exercise

Spring Session
400326.2 Exercise Prescription for General Populations
100680.1 Exercise Psychology
100679.1 Motor Control and Learning
400650.1 Professional Practice in Sport and Exercise Science 2

Year 3

Autumn Ssession
400327.2 Exercise in Musculo-Skeletal Injury Rehabilitation
400328.2 Exercise Prescription for Special Populations
400329.2 Sports Physiology
And one elective

Spring Session
400330.2 Applied Biomechanics of Exercise
400156.1 Practice Management for Health Professionals
400331.1 Sport and Exercise Science in Practice
And one elective

Bachelor of Applied Science (Honours) Sport and Exercise Science

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4590.1

The Bachelor of Applied Science (Honours) Sport and Exercise Science, is a fourth year extension of the Bachelor of Applied Science (Sport & Exercise Science) degree. For the Sport and Exercise Scientist an Honours degree opens up significant new career opportunities in Elite Sport and Exercise Physiology that are not available to those without research training. .

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

Location

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

Academic Credit and Advanced Standing
Assessment and eligibility for advanced standing is determined in accordance with the University of Western Sydney's advanced standing policy. Advanced standing will only be granted for any equivalent coursework units undertaken at the required level of an honours degree.

Admission
Candidates for admission into the Bachelor of Applied Science (Honours) Sport and Exercise Science, must have:

- Completed the requirements for the award of Bachelor of Applied Science (Sport and Exercise) or an equivalent undergraduate program from another university;
- A grade point average greater than 5.0;
- Completed a research unit at undergraduate level or the unit B3086 Advanced Exercise Physiology;
- Submitted a brief (up to 500 word) written statement about the proposed research as part of their application for admission to the course.

International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

Course Structure
Qualification for this award requires the successful completion of 80 credit points, including the units listed in the recommended sequence below
The course consists of a 10 credit point research methodology unit, a 10 credit point seminar series unit, a 50 credit point discipline specific Honours thesis and a 10 credit point unit in quantitative and/or qualitative data analysis or additional research methodology

Recommended Sequence

Full-time

Autumn session
400471.1 Exercise and Health Science Research and Practice
400472.1 Exercise and Health Sciences Honours Seminar
400477.1 Sport and Exercise Science Thesis A
And one 10 Credit Point data analysis/additional research methodology unit

Spring session
400478.1 Sport and Exercise Science Thesis B

Part-time

Year 1

Autumn session
400471.1 Exercise and Health Science Research and Practice
400479.1 Sport and Exercise Science Thesis C

Spring session
400479.1 Sport and Exercise Science Thesis C
And one 10 Credit Point Data Analysis/additional Research Methodology unit.

Year 2

Autumn session
400472.1 Exercise and Health Sciences Honours Seminar
400480.1 Sport and Exercise Science Thesis D

Spring session
400480.1 Sport and Exercise Science Thesis D
400477.1 Sport and Exercise Science Thesis A

Data Analysis / Additional Research Methodology
The data analysis/research methodology component will be chosen by the student's thesis supervisor in consultation with the student and be based on the student's research methodology and data analysis background and the nature of the statistics required for the analysis of thesis data. Statistic units that may be recommended include, but are not limited to, the following units:
200041.1 Applied Regression Analysis and Forecasting
200033.1 Applied Statistics
200035.1 Decision Analysis and Statistical Process Control
200037.1 Regression Analysis & Experimental Design
200032.1 Statistics for Business
200192.1 Statistics for Science
200039.1 Surveys and Multivariate Analysis

Bachelor of Applied Science (Traditional Chinese Medicine)

4565.2

This course prepares graduates to function as competent practitioners of Traditional Chinese Medicine (TCM). Students undertake study in acupuncture, herbal medicine and Chinese medical theory, and human medical sciences including anatomy, physiology, pharmacology, pathophysiology, clinical examination and diagnosis. Students will participate in over 900 hours of clinical education at the University's clinical facility and at external placement sites. Graduates will have acquired flexible skills permitting them to specialise further in a range of clinical areas.

Study Mode
Four years full-time. Some classes will be held at the specialist outpatient clinic and anatomy facilities at Campbelltown campus as required.

Location

Campus	Attendance	Mode
Bankstown Campus	Full Time	Internal

Academic Credit and Advanced Standing
Students who have previously successfully completed other relevant studies of an equivalent level at a recognised tertiary institution and/or have relevant professional experience may be granted credit for units that form part of their accreditation award, as governed by the University of Western Sydney policies.

Accreditation
The Australian Acupuncture and Chinese Medicine Association, Australian Natural Therapists Association, Australian Traditional Chinese Medicine Association and the NSW Association of Chinese Medicine have accredited the UWS program and will grant recognition of our graduates.

Admission
Potential students normally apply for admission to the course through the Universities Admission Centre (UAC). Other admission schemes of the University of Western Sydney are available.

International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

Special Requirements
Any student going on placement in NSW Health facilities will need to comply with its occupational screening and vaccination policy prior to placement. The unit 400363 Block Clinical Practicum involves 400 hours intensive hospital-based training. It is required to be undertaken at an assigned teaching hospital in China.

Course Structure
Qualification for this award requires the successful completion of 320 credit points including the units listed in the recommended sequence below.

Recommended Sequence

Year 1

Autumn session
400130.1 Human Medical Sciences 1
400346.1 Traditional Chinese Medicine 1

400732.1 Communication in Health
And one elective

Spring session
400347.1 Acupuncture 1
400349.1 Chinese Herbal Medicine 1
400256.1 Human Medical Sciences 2
400348.1 Traditional Chinese Medicine 2

Year 2

Autumn session
400350.1 Acupuncture 2
400351.1 Chinese Herbal Medicine 2
400135.1 Clinical Pharmacology and Microbiology
400352.1 Traditional Chinese Medicine 3

Spring session
400353.1 Chinese Herbal Medicine 3
400262.1 Clinical Diagnosis
400166.1 Clinical Neurosciences
400137.1 Introduction to Research for Health Sciences

Year 3

Autumn session
400355.1 Classical Texts in Chinese Medicine
400138.1 Pathophysiology 1
400354.1 Traditional Chinese Medicine Practice 1
And one elective

Spring session
400357.1 Chinese Internal Medicine 1
400249.1 Ethical and Legal Issues in Health Care
400267.1 Pathophysiology 2
400356.1 Traditional Chinese Medicine Practice 2

Year 4

Autumn session
400360.1 Chinese Internal Medicine 2
400358.1 Specialties in Traditional Chinese Medicine 1
400359.1 Traditional Chinese Medicine Practice 3 (Research Project)
And one elective

Spring session
400363.1 Block Clinical Practicum (TCM)
400361.1 Herbal Pharmacognosy
400364.1 Specialties in Traditional Chinese Medicine 2
400362.1 Traditional Chinese Medicine Practice 4

Bachelor of Biomolecular Science

3632.1

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 emphasise 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

Academic Credit and 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
Students normally apply through the Universities Admission Centre (UAC). HSC level Chemistry and Mathematics studies are assumed.

International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

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

Full Time

Year 1

Autumn session
300539.1 Biodiversity
300554.1 Principles of Chemistry
300558.1 Physics 1
Choose one of
200191.2 Fundamentals of Mathematics
200189.1 Concepts of Mathematics

Spring session
300543.1 Cell Biology
300550.1 Medicinal Chemistry
300541.1 Biomolecular Frontiers
And one elective

Human Molecular Biology Key Program

Year 2

Autumn session
300555.1 Proteins and Genes
300300.1 Microbiology 1
300547.1 Human Genetics
And one elective

Spring session
300548.1 Human Metabolism and Disease
300321.1 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
300549.1 Human Molecular Biology
300544.1 Cell Signalling
300556.1 Analytical Protein Science
And one elective

Spring session
300551.1 Molecular Basis of Disease
300552.1 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
300297.1 Analytical Chemistry 2
300540.1 Biomolecular Dynamics
300545.1 Coordination Chemistry
300553.1 Molecules of Life: Synthesis and Reactivity

Level 3 Alternate Units
300233.1 Medical Microbiology
300324.1 Pharmacological Chemistry
300326.1 Topics in Physiology
300537.1 Advanced Chemical Analysis
300538.1 Advanced Inorganic Chemistry
300542.1 Biomolecular Science Project
300546.1 Drug Design and Synthesis

Pharmaceutical Chemistry Key Program

Year 2

Autumn session
300545.1 Coordination Chemistry
300540.1 Biomolecular Dynamics
300555.1 Proteins and Genes
And one elective

Spring session
300297.1 Analytical Chemistry 2
300553.1 Molecules of Life: Synthesis and Reactivity
300505.1 Pharmacology
And one elective

Year 3

Autumn session
300537.1 Advanced Chemical Analysis
300546.1 Drug Design and Synthesis
One Level 3 Alternate unit
And one elective

Spring session
300538.1 Advanced Inorganic Chemistry
300324.1 Pharmacological Chemistry
300475.1 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
300542.1 Biomolecular Science Project
300544.1 Cell Signalling
300549.1 Human Molecular Biology
300552.1 Molecular Biology of the Immune System
300556.1 Analytical Protein Science
300557.1 Molecular Spectroscopy

Bachelor of Computer Science

3506.4

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 B Computer Science currently is accredited with the Australian Computer Society at Professional Level. It is due for reaccreditation, and this is due to occur early this year.

Admission

HSC Mathematics (2 unit) and any two units of HSC English

Potential students normally apply for admission to the course through the Universities Admission Centre (UAC). Other admission schemes of the University of Western Sydney are available. International applicants should contact UWS International for details of admission. Contact information for the International Office is available via the UWS website.

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

200192.1 Statistics for Science
300580.1 Programming Fundamentals
100483.1 Principles of Professional Communication 1
200025.1 Discrete Mathematics

Spring session

300096.2 Computer Organisation
300103.1 Data Structures and Algorithms
300104.1 Database Design and Development
300565.1 Computer Networking

Year 2

Autumn session
300167.1 Systems Programming 1
300581.1 Programming Techniques
300121.1 Formal Languages and Automata
And one elective

Spring session
300404.1 Formal Software Engineering
And two Computer Science alternate units
And one elective

Year 3

Autumn session
300578.1 Professional Development
And two Computer Science alternate units
And one elective

Spring session
300579.1 Professional Experience
And two Computer Science alternate units
And one elective

Computer Science Alternate Units

300090.1 Compiler Theory and Practice
300092.1 Computer Architecture
300093.1 Computer Graphics
300095.2 Computer Networks and Internets
300115.1 Distributed Systems and Programming
300128.2 Information Security
300130.1 Internet Programming
300143.1 Network Security
300149.1 Operating Systems
300165.1 Systems Administration Programming
300166.1 Systems and Network Management
300168.1 Systems Programming 2
300368.1 Intelligent Systems
300447.1 Computer Forensics Workshop
300507.1 Extended Computing Project 1
300508.1 Extended Computing Project 2
300575.1 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.

Systems Programming Major

300128.2 Information Security
300092.1 Computer Architecture
300149.1 Operating Systems
300115.1 Distributed Systems and Programming
300165.1 Systems Administration Programming
300168.1 Systems Programming 2
300143.1 Network Security
300569.1 Computer Security

Computer Forensics Major

300447.1 Computer Forensics Workshop
CP308A.1 Information Systems Ethics and Law
300149.1 Operating Systems
300165.1 Systems Administration Programming
300128.2 Information Security
300143.1 Network Security
300095.2 Computer Networks and Internets
300569.1 Computer Security

Networked Systems Major

300128.2 Information Security
300095.2 Computer Networks and Internets
300166.1 Systems and Network Management
300575.1 Networked Systems Design
300143.1 Network Security
300149.1 Operating Systems
300115.1 Distributed Systems and Programming
300576.1 Networking Workshop

Bachelor of Computer Science (Advanced)

3634.1

Students in the Bachelor of Computer Science (Advanced) will follow the study program set out for the 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, 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 >5 GPA.

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

Study Mode

Three years full-time study.

Location

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

Accreditation
The B Computer Science currently is accredited with the Australian Computer Society at Professional Level. It is due for reaccreditation, and this is due to occur early this year.

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

Potential students normally apply for admission to the course through the Universities Admission Centre (UAC). Other admission schemes of the University of Western Sydney are available. International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

Special Requirements
Students must maintain a grade point average of above 5 to remain in the course; those who do not maintain this average will be transferred to the B Computer Science. At enrolment students will be required to sign a declaration acknowledging the requirement to maintain a >5 GPA.

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

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

Accreditation
This program is accredited with the Australian Computer Society.

Course Structure
The award is a year long 80 credit point 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).

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

3633.1

This course commences in 2008.

The Bachelor of Computing course is a three year course accredited by the Australian Computer Society. The course has five distinct key programs which allow students to specialise in different applications of computing, information systems and information technology. The key programs are Health Informatics (Campbelltown Campus), Information Systems (Campbelltown and Parramatta Campuses), Mathematics & IT (Campbelltown Campus), Networks (Penrith Campus), and Service and Support (Parramatta and Penrith Campuses).

Each B Computing student must choose one key program. Health Informatics is closely integrated with health and biomedical sciences. Information Systems focuses on computing and information technology in the context of business. Mathematics & IT integrates computing and information technology with general mathematics, statistics and operations research and brings together data extraction and analysis, statistical and mathematical modelling with computer technical skills transforming data into knowledge. The Networks key program provides specialisations in the design, implementation and management of networked computer systems, including the Internet. Service and Support focuses on the information technology support role which includes call centre operation, technical support, user training and support and some applications development.

Majors and sub-majors may be chosen from a range of disciplines that complement each key program, subject to the approval of Head of Program and subject to the number of elective units available in the key program. Many mathematics units from campuses other than Campbelltown are available to students doing the Mathematics and IT key program. Some units in Mathematics and IT key program may not be offered at Campbelltown campus. Accreditation at Professional level will be sought with the Australian Computer Society.

For enquiries regarding this course, please contact one of the following Course Advisors:

Campbelltown - Mathematics & IT Key Program: Dr Eric Beh - e.beh@uws.edu.au

Campbelltown - Information Systems Key Program: Mr Paul Davies - p.davies@uws.edu.au

Campbelltown - Health Informatics Key Program: Joanne Curry - jm.curry@uws.edu.au

Parramatta - Information Systems Key Program: TBA

Parramatta - Service and Support Key Program: Mrs Simi Bajaj - k.bajaj@uws.edu.au

Penrith - Service and Support Key Program: Dr Jiansheng Huang - j.huang@cit.uws.edu.au

Penrith - Networks Key Program: Dr Hon Cheung - h.cheung@uws.edu.au

Study Mode
Three years full-time.

Accreditation
Accreditation is being sought at Professional Level for all key programs within this course with the Australian Computer Society.

Admission
HSC Mathematics and any two units of HSC English

Potential students normally apply for admission to the course through the Universities Admission Centre (UAC). International applicants should contact UWS International for details of admission. Contact information for the International Office is available via the UWS website.

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:
300589.1 Mathematics Toolbox
Please seek further advice from the Head of Program.

Bachelor of Computing (Health Informatics)

Campbelltown campus

Year 1

Autumn session
300580.1 Programming Fundamentals
100483.1 Principles of Professional Communication 1
300585.1 Systems Analysis and Design
200192.1 Statistics for Science

Spring session
300565.1 Computer Networking
300104.1 Database Design and Development
200025.1 Discrete Mathematics
300566.1 Introduction to Health Informatics

Year 2

Autumn session
300582.1 Technologies for Web Applications
400272.1 Health Care Systems
300581.1 Programming Techniques
And one elective

Spring session
300568.1 Services Computing in Healthcare
300569.1 Computer Security
300567.1 e-Health
And one elective

Year 3

Autumn session
300578.1 Professional Development
200036.2 Data Mining and Visualisation
And two electives

Spring session
300579.1 Professional Experience
400249.1 Ethical and Legal Issues in Health Care
And two electives

Bachelor of Computing (Information Systems)

Campbelltown and Parramatta campuses

Year 1

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
300565.1 Computer Networking
300104.1 Database Design and Development
300089.2 Commercial Applications Development
And one elective

Year 2

Autumn session
300582.1 Technologies for Web Applications
300570.1 Human-Computer Interaction
300581.1 Programming Techniques
200032.1 Statistics for Business

Spring session
300583.1 Web Systems Development
300569.1 Computer Security
300572.1 Information Systems Deployment and Management
300144.2 Object Oriented Analysis

Year 3

Autumn session
300578.1 Professional Development
300584.1 Emerging Trends in Information Systems
And two electives

Spring session
300579.1 Professional Experience
And three electives

Bachelor of Computing (Mathematics & IT)

Campbelltown campus

Year 1

Autumn session
300580.1 Programming Fundamentals
100483.1 Principles of Professional Communication 1
300585.1 Systems Analysis and Design
200189.1 Concepts of Mathematics

Spring session
300565.1 Computer Networking
300104.1 Database Design and Development
200025.1 Discrete Mathematics
Choose one of
200032.1 Statistics for Business
200192.1 Statistics for Science

Year 2

Autumn session
300582.1 Technologies for Web Applications
Choose one of
300583.1 Web Systems Development
300572.1 Information Systems Deployment and Management
300584.1 Emerging Trends in Information Systems
And one elective
Mathematics Unit 1

Spring session
300089.1 Commercial Applications Development
Choose one of
300583.1 Web Systems Development
300572.1 Information Systems Deployment and Management
300584.1 Emerging Trends in Information Systems
And one elective
Mathematics Unit 2

Year 3

Autumn session
300578.1 Professional Development
200036.2 Data Mining and Visualisation
300117.1 Enterprise Database
Mathematics Unit 3

Spring session
300579.1 Professional Experience
300569.1 Computer Security
And one elective
Mathematics Unit 4
To complete the four Mathematics Units, students must choose one strand of units from the following Statistics Strand, Mathematics Strand or Computational Decision Making Strand:

Statistics
200033.1 Applied Statistics
200034.1 Statistical Theory
Choose two of
200037.1 Regression Analysis & Experimental Design
200044.1 Simulation Techniques
200039.1 Surveys and Multivariate Analysis
200038.1 Time Series and Forecasting

Mathematics
Note: Students selecting this group of Mathematics units may be required to travel to Parramatta for some of these units.
This strand of units, in addition to the mathematics units already in the key program, meets the NSW Institute of Teachers requirements to teach Mathematics as a first subject in NSW secondary high schools.
200028.1 Advanced Calculus
200027.1 Linear Algebra
Choose two of
200193.1 Abstract Algebra
200023.1 Analysis
200022.1 Mathematical Modelling

Computational Decision Making
Note: This strand will only be offered if viable numbers of students (>10) elect to do this strand. This should be determined at the end of students first year of study.
Choose two of
200042.1 Introduction to Operations Research
200027.1 Linear Algebra
200029.1 Numerical Analysis
Choose two of
200197.1 Optimisation 1
200198.1 Optimisation 2
200035.1 Decision Analysis and Statistical Process Control
200043.1 Stochastic Decision Theory
200044.1 Simulation Techniques

Bachelor of Computing (Networks)

Penrith campus

Year 1

Autumn session
300580.1 Programming Fundamentals
100483.1 Principles of Professional Communication 1
300585.1 Systems Analysis and Design
200192.1 Statistics for Science

Spring session
300565.1 Computer Networking
300104.1 Database Design and Development
200025.1 Discrete Mathematics
And one elective

Year 2

Autumn session
300582.1 Technologies for Web Applications
300095.2 Computer Networks and Internets
300581.1 Programming Techniques
And one elective

Spring session
300569.1 Computer Security
300143.2 Network Security
300166.1 Systems and Network Management
And one elective

Year 3

Autumn session
300578.1 Professional Development
300575.1 Networked Systems Design
And two electives

Spring session
300579.1 Professional Experience
And three electives

Bachelor of Computing (Service and Support)

Parramatta and Penrith campuses

Year 1

Autumn session
300580.1 Programming Fundamentals
100483.1 Principles of Professional Communication 1
300585.1 Systems Analysis and Design
300150.2 PC Workshop

Spring session
300565.1 Computer Networking
300104.1 Database Design and Development
200025.1 Discrete Mathematics
And one elective

Year 2

Autumn session
300582.1 Technologies for Web Applications
300577.1 Script Programming
Choose one of
200192.1 Statistics for Science
200032.1 Statistics for Business
And one elective

Spring session
300571.1 IT Product Support and Services
300569.1 Computer Security
300576.1 Networking Workshop
And one elective

Year 3

Autumn session
300578.1 Professional Development
300574.1 Internet Structures and Web Servers
300095.1 Computer Networks and Internets
And one elective

Spring session
300136.2 I.T. Support Practicum
300579.1 Professional Experience
And two electives

Bachelor of Computing (Honours)

3588.1

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 and two years part-time.

Location

Campus	Attendance	Mode
Penrith Campus	Part Time	Internal
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

Accreditation
This program is accredited with the professional body - Australian Computer Society.

Course Structure
The award is a year long 80 credit point 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)

Recommended Sequence

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 Construction Management

2607.2

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 or 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.

Study Mode
Four years full-time or eight years part- time

Location

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

Academic Credit and 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
This program is accredited by the Australian Institute of Building, and the Australian Institute of Quantity Surveyors.

Admission
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.

HSC Mathematics, Physics and English.

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 major or submajor for this award.
2006 Final year of offer in this program on Blacktown campus

Recommended Sequence

Full-time

Year 1

Autumn session
BG101A.1 Building 1
BG105A.1 Graphic Communication and Design (V1)
300461.1 Engineering and Industrial Design Practice
300016.1 Design Science

Spring session
BG103A.1 Building 2
200184.1 Introduction to Business Law
200101.1 Accounting Information for Managers

MG102A.1 Management Foundations

Year 2

Autumn session
BG204A.1 Construction Technology 1 (Civil)
200486.1 Quantity Surveying 1
200472.1 Material Science in Construction
BG303A.1 Development Control (V2)

Spring session
BG207A.1 Construction Technology 2 (Substructure)
200468.1 Estimating 1
200482.1 Construction in Practice 1
And one elective

Year 3

Autumn session
200485.1 Decision Making for Construction Professionals
MG313A.1 Project Management
200502.1 Construction Technology 3 (Concrete Construction)
PL302A.1 Construction Planning (V1)

Spring session
200470.1 Construction Technology 4 (Steel Construction)
BG302A.1 Building Regulation Studies
300053.1 Professional Practice
200292.1 Building Law

Non Honours Stream

Year 4

Autumn session
200471.1 Construction Technology 5 (Envelope)
200504.1 Construction Economics
300536.1 Major Project in Construction
And one elective

Spring session
BG406A.1 Construction Technology 6 (Services)
200484.1 Construction in Practice 3
And two electives

Honours Stream
Potential students must have completed at least 240 credit points and have achieved GPA of credit average in the first 3 years of their pass degree in order to be eligible to complete this embedded Honours stream:

Year 4

Autumn session
200471.1 Construction Technology 5 (Envelope)
200504.1 Construction Economics
300484.1 Engineering Thesis

Spring session
BG406A.1 Construction Technology 6 (Services)
200484.1 Construction in Practice 3
300484.1 Engineering Thesis

Sub Major in Construction Economics
To graduate with a sub major in Construction Economics students must successfully complete the following specialist units:
200503.1 Construction Information Systems
200487.1 Quantity Surveying 2
200469.1 Quality and Value Management
BG412A.1 Estimating 2 (V2)

Industrial Experience
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 enroll in BG311A Industry Based Learning (in every year Autumn session only) and have an industry Experience Diary signed off by the Course Coordinator.

Bachelor of Design and Technology

3502.3

This version of 3502 B Design and Technology commences in 2008.

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

Academic Credit and Advanced Standing

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

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.

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
300461.1 Engineering and Industrial Design Practice
300016.1 Design Science
10943.2 Applied Ergonomics
200191.2 Fundamentals of Mathematics

Spring session
300462.1 Engineering and Design Concepts
300302.1 Industrial Graphics 1: Presentation
300304.2 Sustainable Design: Materials Technology
200083.1 Marketing Principles

Year 2

Autumn session
300305.2 Design Studio 1: Themes and Variations
300309.2 Sustainable Design: Life Cycle Analysis
300282.1 Industrial Graphics 2: Transition
Choose one of
One sub-major alternate unit
Or one elective

Spring session
300308.2 Design Studio 2: The Design Proposal
300306.2 Sustainable Design: Sustainable Futures
300310.2 Industrial Graphics 3: 3D Solids
Choose one of
One sub-major alternate unit
Or one elective

Year 3

Autumn session
300311.2 Design Studio 3: Product Realisation
300014.2 Design Management 3: Organisational Skills for Designers
Choose one of
Two sub-major alternate units
Or two electives

Spring session
300313.2 Design Studio 4: Simulate to Innovate
300314.1 Designed Inquiry
Choose one of
Two sub-major alternate units
Or two electives

Industrial Experience
10915.2 Industrial Experience

Sub-majors

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

Industrial Graphics sub-major

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 alternate/elective units:
300312.2 Industrial Graphics 4: Surface
300315.1 Industrial Graphics 5: Integrated

Sustainable Design sub-major

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 is drawn from alternate/elective units:
86301.2 Automated Manufacturing

Design Management sub-major

The following is a core unit
300014.2 Design Management 3: Organisational Skills for Designers
The following are drawn from alternate/elective units:
300012.2 Design Management 1: Product Design Audit
300013.2 Design Management 2: Corporate Image and Identity
300015.2 Design Management 4: Design Process
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).

Majors

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

Interactive Industrial Graphics Major

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 alternate/elective units
300312.2 Industrial Graphics 4: Surface
300315.1 Industrial Graphics 5: Integrated
101180.1 Web and Time Based Design
100789.1 Interactive Design I
100949.2 Interactive Design II

International Design Management Major

The following are core units
200083.1 Marketing Principles
300014.2 Design Management 3: Organisational Skills for Designers
The following are drawn from alternate/elective units:
300012.2 Design Management 1: Product Design Audit
300013.2 Design Management 2: Corporate Image and Identity
300015.2 Design Management 4: Design Process
200088.1 Brand and Product Management
61671.1 International Management
200154.1 Entrepreneurial Management and Innovation

Innovation Design Management Major

The following are core units
200083.1 Marketing Principles
300014.2 Design Management 3: Organisational Skills for Designers
The following are drawn from alternate/elective units
300012.2 Design Management 1: Product Design Audit
300013.2 Design Management 2: Corporate Image and Identity
300015.2 Design Management 4: Design Process
200163.1 Innovation and Product Development
100800.2 Consumer Psychology
200154.1 Entrepreneurial Management and Innovation

Bachelor of Engineering

3621.3

This version will commence in 2008.

The Bachelor of Engineering course is a four year course accredited by Engineers Australia. The course has a common first year program for all engineering disciplines and also shares two units with the Bachelor of Industrial Design, 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, Electrical, Environmental, Robotics and Mechatronics and Telecommunications. Sub-majors can be chosen from a range that 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. An honours stream is offered, based on meritorious performance over the second and third year of the program.

Study Mode

Four years full-time, on campus.

Location

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

Accreditation

Accredited by Engineers Australia.

Admission

Admission would normally be through 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.

Course Structure

Recommended Sequence

Full-time

Year 1

Autumn session
200237.1 Mathematics for Engineers 1
300464.1 Physics and Materials
300027.1 Engineering Computing
300461.1 Engineering and Industrial Design 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 - Year 4
Students must then select one of the following key programs:
Civil
Computer
Electrical
Environmental
Robotics and Mechatronics
Telecommunications

Civil Key Program

Year 2

Autumn session
85003.1 Surveying for Engineers
300040.1 Mechanics of Materials
85009.2 Water Engineering
300482.1 Engineering Geology and Concrete Materials

Spring session
85006.2 Introduction to Structural Engineering
MG102A.1 Management Foundations
85012.2 Soil Engineering
85021.2 Environmental Engineering

Year 3

Autumn session
85010.1 Structural Analysis
Choose one of
300479.1 Drainage Engineering
300486.1 Infrastructure Engineering
Choose one of
85015.2 Timber Structures (UG)
85020.2 Water Resources Engineering (UG)
And one elective

Spring session
300053.2 Professional Practice
85014.2 Steel Structures (UG)
85251.2 Concrete Structures (UG)
Choose one of
300485.1 Foundation Engineering
300488.1 Numerical Methods in Engineering

Industrial Experience:
81999.1 Industrial Experience (Engineering)

Year 4 (Non-Honours stream)

Autumn session
300483.1 Engineering Project
Choose one of
300479.1 Drainage Engineering
300486.1 Infrastructure Engineering
Choose one of
85015.2 Timber Structures (UG)
85020.2 Water Resources Engineering (UG)
And one elective

Spring session
300483.1 Engineering Project
Choose one of
300485.1 Foundation Engineering
300488.1 Numerical Methods in Engineering
And two electives

Year 4 (Honours stream)
Honours streaming based on 2nd and/or 3rd year performance.

Autumn session
300484.1 Engineering Thesis
And two electives

Spring session
300484.1 Engineering Thesis
Choose one of
300485.1 Foundation Engineering
300488.1 Numerical Methods in Engineering
And one elective

Computer Key Program

Year 2

Autumn session
200242.1 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
300096.2 Computer Organisation
300052.1 Power and Machines

Year 3

Autumn session
300167.1 Systems Programming 1
300069.2 Digital Signal Processing
300075.2 Instrumentation and Measurement
300009.2 Control Systems

Spring session
300149.1 Operating Systems
300053.2 Professional Practice
300010.2 Data Networks
One elective

Industrial Experience:
81999.1 Industrial Experience (Engineering)

Year 4 (Non-Honours stream)

Autumn session
300483.1 Engineering Project
300092.1 Computer Architecture
Choose one of
300019.2 Digital Systems 2
300029.2 Engineering Visualization
And one elective

Spring session
300483.1 Engineering Project
Choose one of
300370.2 Digital Control Systems
300044.1 Microcontrollers and PLCs
And two electives

Year 4 (Honours stream)
Honours streaming is based on 2nd and/or 3rd year performance:

Autumn session
300484.1 Engineering Thesis
300092.1 Computer Architecture
And one elective

Spring session
300484.1 Engineering Thesis
And two electives

Electrical Key Program

Year 2

Autumn session
200242.1 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
300070.1 Electrical Drives
And one elective

Industrial Experience:
81999.1 Industrial Experience (Engineering)

Year 4 (Non-Honours stream)

Autumn session
300483.1 Engineering Project
300075.2 Instrumentation and Measurement
Choose one of
300019.2 Digital Systems 2
300024.2 Electronic Systems Design
And one elective

Spring session
300483.1 Engineering Project
Choose one of
300370.2 Digital Control Systems
300010.2 Data Networks
And two electives

Year 4 (Honours stream)
Honours streaming is based on 2nd and/or 3rd year performance:

Autumn session
300484.1 Engineering Thesis
300075.2 Instrumentation and Measurement
And one elective

Spring session
300484.1 Engineering Thesis
And two electives

Environmental Key Program

Year 2

Autumn session
85003.1 Surveying for Engineers
300040.1 Mechanics of Materials
85009.2 Water Engineering
300469.1 Introductory Chemistry

Spring session
85006.2 Introduction to Structural Engineering
85012.2 Soil Engineering
85021.2 Environmental Engineering
And one elective

Year 3

Autumn session
EY104A.1 Management of Aquatic Environments
300482.1 Engineering Geology and Concrete Materials
Choose one of
300479.1 Drainage Engineering
300486.1 Infrastructure Engineering
Choose one of
MG309A.1 Water and Waste Management
85020.2 Water Resources Engineering (UG)

Spring session
EY101A.1 Terrestrial Environment Management
MG102A.1 Management Foundations
300053.2 Professional Practice
Choose one of
EH321A.1 Air Quality Assessment & Management (UG)
300488.1 Numerical Methods in Engineering

Industrial Experience:
81999.1 Industrial Experience (Engineering)

Year 4 (Non-Honours steam)

Autumn session
300483.1 Engineering Project
Choose one of
300479.1 Drainage Engineering
300486.1 Infrastructure Engineering
Choose one of
MG309A.1 Water and Waste Management
85020.2 Water Resources Engineering (UG)
And one elective

Spring session
300483.1 Engineering Project
Choose one of
EH321A.1 Air Quality Assessment & Management (UG)
300488.1 Numerical Methods in Engineering
And two electives

Year 4 (Honours steam)
Honours streaming is based on 2nd and/or 3rd year performance:

Autumn session
300484.1 Engineering Thesis
And two electives

Spring session
300484.1 Engineering Thesis
Choose one of
EH321A.1 Air Quality Assessment & Management (UG)
300488.1 Numerical Methods in Engineering
And one elective

Robotics & Mechatronics Key Program

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
86301.2 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:
81999.1 Industrial Experience (Engineering)

Year 4 (Non-Honours stream)

Autumn session
300483.1 Engineering Project
300075.2 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

Year 4 (Honours stream)
Honours streaming is based on 2nd and/or 3rd year performance:

Autumn session
300484.1 Engineering Thesis
Choose one of
300056.2 Robotics
300043.2 Mobile Robotics
And one elective

Spring session
300484.1 Engineering Thesis
Choose one of
300478.1 Design of Servo-systems
300487.1 Mechatronic Design
And one elective

Telecommunications Key Program

Year 2

Autumn session
200242.1 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
300167.1 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:
81999.1 Industrial Experience (Engineering)

Year 4 (Non-Honours stream)

Autumn session
300483.1 Engineering Project
Choose one of
300075.2 Instrumentation and Measurement
300009.2 Control Systems
Choose one of
300019.2 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

Year 4 (Honours stream)
Honours streaming is based on 2nd and/or 3rd year performance:

Autumn session
300484.1 Engineering Thesis
And two electives

Spring session
300484.1 Engineering Thesis
Choose one of
300068.2 Communication Electronics
300489.1 Radio and Satellite Communication
And one elective

Sub-majors
The units for sub-majors may need prerequisites. Please seek advice from Head of Program.

Construction Sub-major
This sub-major is available to any student in UWS other than those enrolled in 2607 Bachelor of Construction Management and 2500 Bachelor of Housing.
BG103A.1 Building 2
BG302A.1 Building Regulation Studies
200471.1 Construction Technology 5 (Envelope)
MG313A.1 Project Management

Environmental Engineering Sub-major
This sub-major is available to students other than those enrolled in the B Engineering (Environmental) key program.
300469.1 Introductory Chemistry
EY101A.1 Terrestrial Environment Management
MG309A.1 Water and Waste Management
EH321A.1 Air Quality Assessment & Management (UG)

Civil Engineering Sub-major

This sub-major is available to students other than those enrolled in the B Engineering (Civil) key program.

85010.1 Structural Analysis
85014.2 Steel Structures (UG)
85251.2 Concrete Structures (UG)
85015.2 Timber Structures (UG)

Structural Engineering Sub-major

This sub-major is available to students other than those enrolled in the B Engineering (Civil) and (Environmental) key programs.

300463.1 Fundamentals of Mechanics
300040.1 Mechanics of Materials
85006.2 Introduction to Structural Engineering
85010.1 Structural Analysis

Ecological Engineering Sub-major

This sub-major is available to students other than those enrolled in the B Engineering (Civil) and (Environmental) key program.

300482.1 Engineering Geology and Concrete Materials
85003.1 Surveying for Engineers
300486.1 Infrastructure Engineering
85021.2 Environmental Engineering

Water Engineering Sub-major

This sub-major is available to students other than those enrolled in the B Engineering (Civil) and (Environmental) key program.

200237.1 Mathematics for Engineers 1
85009.2 Water Engineering
300479.1 Drainage Engineering
85020.2 Water Resources Engineering (UG)

The following sub-majors are for students who have sufficient prerequisite knowledge prior to studying the selected units. This will restrict the selection of these sub-majors to Engineering students.

Soil Engineering Sub-major

This sub-major is available to students other than those enrolled in the B Engineering (Civil) and (Environmental) key program:

200237.1 Mathematics for Engineers 1
300482.1 Engineering Geology and Concrete Materials
85012.2 Soil Engineering
300485.1 Foundation Engineering

Computer Engineering Sub-major

This sub-major is available to students other than those enrolled in the B Engineering (Computer) key program.

300029.1 Engineering Visualization
300167.1 Systems Programming 1
300096.2 Computer Organisation

Choose one of
300092.1 Computer Architecture
300149.1 Operating Systems
300044.1 Microcontrollers and PLCs

Electrical Engineering Sub-major

This sub-major is available to students other than those enrolled in the B Engineering (Electrical) key program.

300071.1 Electrical Machines 1
300481.1 Engineering Electromagnetics

Choose two of
300026.2 Energy Systems
300070.1 Electrical Drives
300024.1 Electronic Systems Design

Wireless Engineering Sub-major

This sub-major is available to students other than those enrolled in the B Engineering (Telecommunications) and the (Satellite and Space Communications) key programs.

300007.1 Communication Systems
300065.2 Wireless Communications
300024.1 Electronic Systems Design

Choose one of
300068.2 Communication Electronics
300489.1 Radio and Satellite Communication

Robotics and Mechatronics Sub-major

This sub-major is available to students other than those enrolled in the B Engineering (Robotics and Mechatronics) key program.

300035.2 Kinematics and Kinetics of Machines
86301.2 Automated Manufacturing
300044.1 Microcontrollers and PLCs

Choose one of
300056.2 Robotics
300043.2 Mobile Robotics

Bachelor of Environmental Management and Science

3620.2

This degree integrates a range of disciplines that are vital to the management and protection of the environment. A thorough understanding of ecosystems and their monitoring and management is crucial if human development is to become ecologically sustainable. Integral to the course is the development of a multi-perspective approach to understanding complex environmental issues, including both the natural / physical perspective and the social, legal,

political and economic perspectives. Major areas of study cover conservation and land management, environmental analysis and monitoring, environmental protection, sustainable environmental management, aquatic studies, environmental evaluation and reporting, urban ecology and water science and management. Graduates will find career opportunities working in the environmental area of industry or government.

Study Mode

Three years full-time. Students may take a reduced load in consultation with the Head of Program.

Location

Campus	Attendance	Mode
Hawkesbury Campus	Full Time	Internal

Admission

Any two units of Science (biology or chemistry recommended) and any two units of English.

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
300221.1 Biology 1
300469.1 Introductory Chemistry
EY104A.1 Management of Aquatic Environments
HT103A.1 Understanding Landscape

Spring session
300222.1 Biology 2
300225.1 Chemistry 2
200263.1 Biometry
And one elective

Environment-related electives:

Spring session
300288.1 Occupational Environment
EY101A.1 Terrestrial Environment Management
AG109A.1 Professional Practice 1B

Year 2

Autumn session
EY210A.1 Ecology 2.1
300300.1 Microbiology 1
And two electives

Spring session
300467.1 Green Chemistry 1
300470.1 Vertebrate Biodiversity
DN207A.1 Landuse and the Environment
MI303A.1 Environmental Biotechnology (V1)

Environment-related electives:

Autumn session
300328.1 Botany
EH205A.1 Noise Assessment & Control
EH324A.1 Environmental Planning

Spring session
300535.1 Soils
EH321A.1 Air Quality Assessment & Management (UG)
300289.1 Regional Environmental Management
BI201A.1 Genetics 2.2

Year 3

Autumn session
300466.1 Environmental Biology 3.3
300468.1 Green Chemistry 2
And two electives

Spring session
300465.1 Aquatic Ecology
EH325A.1 Environmental Regulations
300471.1 Urban Development Systems
And one elective

Environment-related electives:

Autumn session
300284.1 Environmental Risk Management
300286.1 Environmental Practice 1

Spring session
300287.1 Environmental Practice 2
300289.1 Regional Environmental Management
300332.1 Integrated Pest Management
300334.1 Invertebrate Biology
85029.1 Spatial Information Systems
EH217A.1 Toxicology

Bachelor of Health Science

4545.4

For students enrolling in 2nd year B Health Science, please refer to the course information available at:

For students enrolling in 3rd year B Health Science, please refer to the course information available at:

The Bachelor of Health science (BHSc) degree is structured on a recognition that health is a highly complex and multidimensional concept. The course has been developed as a multistrand course which in addition to providing core skills and introductory knowledge, allows for the development of comprehensive and specialised skills and knowledge within defined key programs of study, according to the students' interests and future professional and career aspirations.

The Health Promotion key program focuses on enabling individuals and communities to increase control over factors that influence health and wellbeing. Students will develop skills enabling them to work on specific health promotion projects such as injury prevention, skin cancer prevention, HIV/AIDs awareness, and community development projects, as well as in areas that deal with policy initiative, development and evaluation.

Health Services Management key program aims to develop beginning level health managers who will understand and with experience, will facilitate the new directions that health care systems are taking. Graduates will be skilled in managing and responding to rapid changes within the health care system, the broader political sphere and in areas that deal with policy initiative, development and evaluation.

The Social Health Studies key program aims to give graduates an in-depth understanding of the social and behavioural processes contributing to health and illness. It allows students to draw from a suite of specialist units that examine the social and behavioural nature and social impact of health and illness within society. It also provides access to the latest research and knowledge about health in society.

The Therapeutic Recreation key program provides students with expertise in designing, implementing and evaluating therapeutic recreation programs for people who experience barriers to participation in leisure and recreation programs such as in special schools, aged care facilities, as well as health care and community settings. Such leisure and recreation participation provides a variety of benefits that promote health and wellbeing. The curriculum aims to produce a graduate who can utilise the appropriate process and content to provide leisure and recreation programs, services for a range of people who experience disabilities, illness or disadvantage.

Study Mode

Three years full-time.

Location

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

Accreditation

Graduates of the Bachelor of Health Science can apply for full membership of the following Accreditation bodies associated with this program: Australian College of Health Service Executives; Health Promotion Association of New South Wales; Diversional Therapy Association of New South Wales Inc. and Diversional Therapy Association of Australia National Council.

Admission

Any two units of English

Potential students normally apply for admission to the course through the Universities Admission Centre (UAC). Other admission schemes of the University of Western Sydney are available. International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

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

Full-time

Health Promotion Key Program

Year 1

Autumn session

400783.1 Professional Pathways in Health Science
300361.1 Introduction to Human Biology
400780.1 Nutrition, Physical Activity and Mental Health
400781.1 Dynamics of Health

Spring session

400285.1 Public Health
100663.1 Foundations of Wellbeing
400136.1 Introduction to the Psychology of Health
400137.1 Introduction to Research for Health Sciences

Year 2

Autumn session

400782.1 Essentials of Health Promotion
400148.1 Quantitative Research
And two electives

Spring session
400272.1 Health Care Systems
400273.1 Health Politics, Policy and Planning
400286.1 Injury Prevention
And one elective

Year 3

Autumn session
400784.1 Health Promotion Practice 1
400275.1 Health Planning Project
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

Health Services Management Key Program

Year 1

Autumn session
400783.1 Professional Pathways in Health Science
300361.1 Introduction to Human Biology
400780.1 Nutrition, Physical Activity and Mental Health
400781.1 Dynamics of Health

Spring session
400277.2 Health Services Management
100663.1 Foundations of Wellbeing
400137.1 Introduction to Research for Health Sciences
400136.1 Introduction to the Psychology of Health

Year 2

Autumn session
400782.1 Essentials of Health Promotion
400148.1 Quantitative Research
And two electives

Spring session
400272.1 Health Care Systems
400273.1 Health Politics, Policy and Planning
400788.1 Health Services Workforce Management
And one elective

Year 3

Autumn session
400787.1 Health Services Management Practice
400275.1 Health Planning Project
And two electives

Spring session
400249.1 Ethical and Legal Issues in Health Care
400279.2 Health Services Financial Management
400786.1 Professional Transition Project
And one elective

Social Health Studies Key Program

Year 1

Autumn session
400783.1 Professional Pathways in Health Science
300361.1 Introduction to Human Biology
400780.1 Nutrition, Physical Activity and Mental Health
400781.1 Dynamics of Health

Spring session
100663.1 Foundations of Wellbeing
400136.1 Introduction to the Psychology of Health
400137.1 Introduction to Research for Health Sciences
And one elective

Year 2

Autumn session
400782.1 Essentials of Health Promotion
And two electives from the Social Health Studies Unit Pool
And one elective

Spring session
400272.1 Health Care Systems
Two electives from the Social Health Studies Unit Pool
And one elective

Year 3

Autumn session
Two electives from the Social Health Studies Unit Pool
And two electives

Spring session
101326.1 Work-based Learning Project: Humanitarian, Peace and Health Studies
400786.1 Professional Transition Project
And one elective

Social Health Studies Unit Pool
101318.1 Gender and Society
101319.1 Drugs, Addiction and Society
101322.1 Family Life, Health and Leisure
101325.1 Children, Wellbeing and Society
101326.1 Work-based Learning Project: Humanitarian, Peace and Health Studies
101336.1 Introduction to Sociology
101351.1 Health and Personality
101352.1 Mind, Body and Emotion
101369.1 Statistical Knowledge and Social Power
101370.1 Power, Control and Decision Making
400086.2 Adulthood and Ageing
400088.2 Critical Qualitative Research

All units not available each year - please check timetable for availability

Therapeutic Recreation Key Program

Year 1

Autumn session
400783.1 Professional Pathways in Health Science
300361.1 Introduction to Human Biology
400780.1 Nutrition, Physical Activity and Mental Health
400781.1 Dynamics of Health

Spring session
100663.1 Foundations of Wellbeing
400136.1 Introduction to the Psychology of Health
400137.1 Introduction to Research for Health Sciences
400244.1 Introduction to Leisure and Recreation Theory

Year 2

Autumn session
400782.1 Essentials of Health Promotion
400148.1 Quantitative Research
And two electives

Spring session
400272.1 Health Care Systems
400246.2 Workplace Learning 1 (Therapeutic Recreation)
400790.1 Professional Practice in Aged Care and Disability
And one elective

Year 3

Autumn session
400252.1 Workplace Learning 2 (Community Placement)
400789.1 Leisure Education Programming and Mental Health
And two electives

Spring session
400249.1 Ethical and Legal Issues in Health Care
400254.1 Therapeutic Recreation Professional Project
400786.1 Professional Transition Project
And one elective

Majors

These majors are available to Health Promotion, Health Service Management and Therapeutic Recreation students only
The sharing of some common units across the key programs of Health Promotion, Health Service Management and Therapeutic Recreation in addition to the common core, means that these students may complete a second program of study to graduate with a Key Program (shown on testamur) and a major (shown on their transcript).

Health Promotion Major
400285.1 Public Health
400273.1 Health Politics, Policy and Planning
400275.1 Health Planning Project
400286.1 Injury Prevention
400784.1 Health Promotion Practice 1
400785.1 Health Promotion Practice 2

Health Service Management Major
400273.1 Health Politics, Policy and Planning
400275.1 Health Planning Project
400277.2 Health Services Management
400787.1 Health Services Management Practice
400279.2 Health Services Financial Management
400788.1 Health Services Workforce Management

Therapeutic Recreation Major
400244.1 Introduction to Leisure and Recreation Theory
400790.1 Professional Practice in Aged Care and Disability
400246.2 Workplace Learning 1 (Therapeutic Recreation)
400252.1 Workplace Learning 2 (Community Placement)
400789.1 Leisure Education Programming and Mental Health
400254.1 Therapeutic Recreation Professional Project

Bachelor of Health Science (Honours)

4608.2

The Bachelor of Health Science (Honours) program is available to meritorious students. This Honours program has two primary aims:

- To ensure that students are provided with opportunities to further develop research design and analytic skills relevant to their thesis topic and chosen methodology;
- To enable students to conduct apiece of original research on their own (but under careful supervision);
- To write a scholarly thesis of a substantial nature based on this research.

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

Location

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

Admission

Graduates of the Bachelor of Health Science who achieve a credit average or above are eligible to apply for admission.

International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

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

400471.1 Exercise and Health Science Research and Practice
400472.1 Exercise and Health Sciences Honours Seminar

1H session

400558.2 Honours Thesis in Health Science (F/T)

2H session

400558.2 Honours Thesis in Health Science (F/T)

Part-time

Year 1

Autumn session

400471.1 Exercise and Health Science Research and Practice
400472.1 Exercise and Health Sciences Honours Seminar

1H session

400559.2 Honours Thesis in Health Science (P/T Year 1)

2H session

400559.2 Honours Thesis in Health Science (P/T Year 1)

Year 2

1H session

400560.2 Honours Thesis in Health Science (P/T Year 2)

2H session

400560.2 Honours Thesis in Health Science (P/T Year 2)

Bachelor of Health Science (Personal Development, Health and Physical Education)

4549.2

The Bachelor of Health Science (Personal Development, Health and Physical Education) course enables students to develop wide ranging skills, which may be applied post graduation in a variety of contexts. Completion of a further Master of Teaching (Secondary or similar qualification) will enable graduates to teach the PDHPE curriculum in secondary schools. The strength of this PDHPE program is the development of graduates with a holistic understanding of the concepts of health and physical activity and its relationship to other components of personal development and physical education.

Study Mode

Three years full-time study.

Location

Campus	Attendance	Mode
Penrith Campus	Full Time	Internal

Accreditation

Graduates of the Bachelor of Health Science (PDHPE) can apply to complete a Masters of Education at University level through UAC. On completion they can apply for teaching status with the Board of Studies NSW.

Admission

Provide details of admission requirements – means what levels of knowledge and/or qualifications students need to have attained prior to enrolling in this course.

Potential students normally apply for admission to the course through the Universities Admission Centre (UAC). Other admission schemes of the University of Western Sydney are available. International applicants should contact UWS International for details on

admission. Contact information for the International Office is available via the UWS website.

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

Full-time

Year 1

Autumn session
400794.1 PDHPE: Exploring Movement Skills
300361.1 Introduction to Human Biology
400780.1 Nutrition, Physical Activity and Mental Health
400781.1 Dynamics of Health

Spring session
400808.1 Outdoor Recreation
100663.1 Foundations of Wellbeing
400136.1 Introduction to the Psychology of Health
400137.1 Introduction to Research for Health Sciences

Year 2

Autumn session
400782.1 Essentials of Health Promotion
400791.1 Drug Use in Society
400796.1 PDHPE: Efficient Movement Principles
And one elective

Spring session
400272.1 Health Care Systems
400792.1 PDHPE: Lifelong Physical Activity and Fitness
400798.1 PDHPE: Games for Diverse Groups
And one elective

Year 3

Autumn session
400797.1 PDHPE: Gymnastics
400795.1 Contemporary Youth Health Issues
400793.1 PDHPE: Invasion Games
And one elective

Spring session
400799.1 PDHPE: Recreational Sports
400280.3 Sexuality
100672.1 Introduction to Dance
And one elective

Elective Units

Elective units in the Bachelor of Health Science 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 Health Science/ PDHPE discipline areas, 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.
100674.1 Drugs in Sport
100675.1 Outdoor Recreation 2
100676.1 Outdoor Recreation 3
100677.1 Outdoor Recreation 4
400283.1 Health Services Information Management
400284.1 Health Services Quality Management
400285.1 Public Health
400286.1 Injury Prevention

Bachelor of Horticulture

3581.3

This degree is designed to provide all students with essential knowledge of horticulture so that all graduates can become effective members of any horticultural enterprise. In conjunction with the core program students can specialise in a wide variety of areas of horticultural activity, including production, landscape horticulture and viticulture and winemaking. The educational approach adopted aims to develop not only the technical skills and knowledge of students, but also makes extensive use of practical exposures and personalised supervision of each student to provide a distinctive approach to tertiary education. The combination of formal instruction, self-directed tasks and commercial enterprise experiences means that a graduate should be productive in the short-run and should be able to move into senior management positions within the industry. Students are strongly encouraged to work closely with industry and society and to spend time off campus gaining relevant experience. The horticultural outdoor laboratory facilities are used throughout the program as study models and to develop skills. Students are encouraged to become involved in the ongoing activities of these facilities and to utilise them for research work.

Study Mode

Three years full-time. A reduced load may also be acceptable, under advice of the Head of Program.

Location

Campus	Attendance	Mode
Hawkesbury Campus	Full Time	Internal

Course Structure

Recommended Sequence

Full-time

Year 1

Autumn session
300221.1 Biology 1
300469.1 Introductory Chemistry
300497.1 Professional Skills for Science
300502.1 Primary Production

Spring session
300535.1 Soils
300451.1 Horticultural Production 2
300222.1 Biology 2
Choose one of
300225.1 Chemistry 2
300342.1 Wines and their Appreciation

Year 2

Autumn session
300328.1 Botany
300452.1 Postharvest
300495.1 The Sustainable Environment
And one elective

Spring session
300333.1 Introductory Plant Physiology
300334.1 Invertebrate Biology
300501.1 Plant Diversity
And one elective

Intersession break:
HT204A.1 Professional Studies H

Year 3

Autumn session
HT304A.1 Alternative Crops (V1)
300336.1 Plant-Microbe Interactions
And two electives

Spring session
HT301A.1 Plant Protection (V2)
300496.1 Plants in the Designed Environment
And two electives

Bachelor of Housing

3635.2

Any two units of mathematics and any two units of science (biology or chemistry recommended) - bridging courses are available.

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 or part-time equivalent.

Location

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

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

Admission
UAI or mature-age entry through the Universities Admissions Centre (UAC). International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website.

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

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

BG101A.1 Building 1
BG105A.1 Graphic Communication and Design (V1)
300461.1 Engineering and Industrial Design Practice
300016.1 Design Science

Spring session

200184.1 Introduction to Business Law
200101.1 Accounting Information for Managers
BG103A.1 Building 2
MG102A.1 Management Foundations

Year 2

Autumn session

BG204A.1 Construction Technology 1 (Civil)
200486.1 Quantity Surveying 1
200472.1 Material Science in Construction
BG303A.1 Development Control (V2)

Spring session

BG207A.1 Construction Technology 2 (Substructure)
200468.1 Estimating 1
200482.1 Construction in Practice 1
And one elective

Year 3

Autumn session

200485.1 Decision Making for Construction Professionals
MG313A.1 Project Management
PL302A.1 Construction Planning (V1)
And one elective

Spring session

BG302A.1 Building Regulation Studies
300053.1 Professional Practice
200292.1 Building Law
And one elective

Electives

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

200469.1 Quality and Value Management
200470.1 Construction Technology 4 (Steel Construction)
200487.1 Quantity Surveying 2
200502.1 Construction Technology 3 (Concrete Construction)
200503.1 Construction Information Systems

Bachelor of Housing students planning to transfer into the Bachelor of Construction Management are advised to take the following electives:

200502.1 Construction Technology 3 (Concrete Construction)
200470.1 Construction Technology 4 (Steel Construction)

Bachelor of Industrial Design

3503.3

This version of 3503 B Industrial Design commences in 2008.

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

Academic Credit and 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)

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
300461.1 Engineering and Industrial Design Practice
300016.1 Design Science
10943.2 Applied Ergonomics
200191.2 Fundamentals of Mathematics

Spring session
300462.1 Engineering and Design Concepts
300302.1 Industrial Graphics 1: Presentation
300304.2 Sustainable Design: Materials Technology
200083.1 Marketing Principles

Year 2

Autumn session
300305.2 Design Studio 1: Themes and Variations
300309.2 Sustainable Design: Life Cycle Analysis
300282.1 Industrial Graphics 2: Transition
And one sub-major alternate unit or one elective

Spring session
300308.2 Design Studio 2: The Design Proposal
300306.2 Sustainable Design: Sustainable Futures
300310.2 Industrial Graphics 3: 3D Solids
And one sub-major alternate unit or one elective

Year 3

Autumn session
300311.2 Design Studio 3: Product Realisation
300014.2 Design Management 3: Organisational Skills for Designers
And two sub-major alternate units or two electives

Spring session
300313.2 Design Studio 4: Simulate to Innovate
300314.1 Designed Inquiry
And two sub-major alternate units or two electives

Year 4

Honours Stream
Pre-requisite: Completed the first three years of the Industrial Design program, including one sub-major.

Autumn session
85032.2 Industrial Design Project (Commencement)
Co-requisite: One alternate unit - selected based on final year theme/issue in consultation with the Unit Coordinator.

Spring session
85033.2 Industrial Design Project (Completion)

Industrial Experience
10915.2 Industrial Experience

Year 4

Coursework Stream
Pre-requisite: Completed the first three years of the Industrial Design program, including one sub-major.

Autumn session
300459.1 Major Project Commencement
Co-requisites:
(1) One co-requisite unit - selected based on the final year project in consultation with the Unit Coordinator
(2) Choose one of
300012.2 Design Management 1: Product Design Audit
300312.2 Industrial Graphics 4: Surface

Spring session
300460.1 Major Project Completion
Co-requisite:
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
86301.2 Automated Manufacturing

Industrial Experience
10915.2 Industrial Experience

Majors

Interactive Industrial Graphics Major
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 alternate/elective units:
300312.2 Industrial Graphics 4: Surface
300315.1 Industrial Graphics 5: Integrated

101180.1 Web and Time Based Design
100789.1 Interactive Design I
100949.1 Interactive Design II

International Design Management Major

The following are core units:
200083.1 Marketing Principles
300014.2 Design Management 3: Organisational Skills for Designers
The following are drawn from alternate/elective units:
300012.2 Design Management 1: Product Design Audit
300013.2 Design Management 2: Corporate Image and Identity
300015.2 Design Management 4: Design Process
200088.1 Brand and Product Management
61671.1 International Management
200154.1 Entrepreneurial Management and Innovation

Innovation Design Management Major

The following are core units:
200083.1 Marketing Principles
300014.2 Design Management 3: Organisational Skills for Designers
The following are drawn from alternate/elective units:
300012.2 Design Management 1: Product Design Audit
300013.2 Design Management 2: Corporate Image and Identity
300015.2 Design Management 4: Design Process
200163.1 Innovation and Product Development
100800.2 Consumer Psychology
200154.1 Entrepreneurial Management and Innovation

Sub-majors

Industrial Graphics Sub-major

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 alternate/elective units:
300312.2 Industrial Graphics 4: Surface
300315.1 Industrial Graphics 5: Integrated

Sustainable Design Sub-major

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 is drawn from alternate/elective units:
86301.2 Automated Manufacturing

Design Management Sub-major

The following is a core unit:
300014.2 Design Management 3: Organisational Skills for Designers
The following are drawn from alternate/elective units:
300012.2 Design Management 1: Product Design Audit
300013.2 Design Management 2: Corporate Image and Identity
300015.2 Design Management 4: Design Process
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 Technology (Honours)

3613.1

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

Accreditation

This program is accredited with the Australian Computer Society.

Course Structure

The award is a year long 80 credit point 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).

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 Medical Science

3577.3

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
Hawkesbury Campus	Full Time	Internal
Campbelltown Campus	Full Time	Internal
Campbelltown Campus	Part Time	Internal
Hawkesbury Campus	Part Time	Internal

Admission

At least two of biology, chemistry, mathematics and physics.

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
300319.1 Introduction to Anatomy and Histology
300320.1 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
300224.1 Chemistry 1
Choose one of
300539.1 Biodiversity
300222.1 Biology 2
Choose one of
300550.1 Medicinal Chemistry
300225.1 Chemistry 2
And two Alternate units (Note 1)

Note 1
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
200191.2 Fundamentals of Mathematics
200192.1 Statistics for Science

Year 2
300323.1 Pathological Basis of Disease
Choose one of
300555.1 Proteins and Genes
300219.1 Biochemistry 1
And four Major units
And two electives

Year 3
Four Major units
And four electives

Majors

Biomedical Science Major

Year 2
300300.1 Microbiology 1
300321.1 Microbiology 2
Choose one of
300548.1 Human Metabolism and Disease
300220.1 Biochemistry 2
And one unit from Schedule A

Year 3
300233.1 Medical Microbiology
Choose one of
300549.1 Human Molecular Biology
300234.1 Molecular Biology
And two units from Schedule A

Schedule A Units:
300307.1 Analytical Microbiology
300326.1 Topics in Physiology
300407.1 Mammalian Molecular Medicine
300408.1 Mammalian Cell Biology and Biotechnology
300505.1 Pharmacology
300552.1 Molecular Biology of the Immune System
300556.1 Analytical Protein Science
BC306A.1 Human Physiology 3.1
BI201A.1 Genetics 2.2
SC301A.1 Laboratory Quality Management

Medicinal Chemistry Major
(This major only offered at Campbelltown)

Year 2
300548.1 Human Metabolism and Disease
300553.1 Molecules of Life: Synthesis and Reactivity
300297.1 Analytical Chemistry 2
Choose one of
300545.1 Coordination Chemistry
300540.1 Biomolecular Dynamics

Year 3
300546.1 Drug Design and Synthesis
300537.1 Advanced Chemical Analysis
300324.1 Pharmacological Chemistry
Choose one of
300538.1 Advanced Inorganic Chemistry
300475.1 Molecular Pharmacokinetics

Human Bioscience Major
(This major only offered at Campbelltown.)

Year 2
300548.1 Human Metabolism and Disease
300317.1 Anatomy of the Thorax and Abdomen
300325.1 The Appendicular Skeleton
300505.1 Pharmacology

Year 3
300322.1 Neuroanatomy
Three units from Schedule B

Schedule B Units:
300233.1 Medical Microbiology
300307.1 Analytical Microbiology
300316.1 Anatomy of the Head and Neck
300321.1 Microbiology 2
300549.1 Human Molecular Biology
400138.1 Pathophysiology 1
400267.1 Pathophysiology 2
Choose one of
300326.1 Topics in Physiology
BC306A.1 Human Physiology 3.1

Bachelor of Medical Science (Honours)

3610.1

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.

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

Recommended Sequence

Full-time

Year 1

Autumn session

300412.2 Science, Technology and Environment Honours Project

Choose one of

300410.1 Advanced Topics and Research Skills

300411.2 Research Methodology and Experimental Design

Spring session

300412.2 Science, Technology and Environment Honours Project

Choose one of

300410.1 Advanced Topics and Research Skills

300411.2 Research Methodology and Experimental Design

Part-time

Year 1

Autumn session

Choose one of

300410.1 Advanced Topics and Research Skills

300411.2 Research Methodology and Experimental Design

Spring session

Choose one of

300410.1 Advanced Topics and Research Skills

300411.2 Research Methodology and Experimental Design

Year 2

Autumn session

300412.2 Science, Technology and Environment Honours Project

Spring session

300412.2 Science, Technology and Environment Honours Project

Bachelor of Medicine, Bachelor of Surgery

4641.1

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.

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

Academic Credit and 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

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 for 2008 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

For more information on entry requirements and how to apply please see the School of Medicine web page:

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
400737.1 Scientific Basis of Medicine 1
400738.1 Health Practice 1

2H Session
400737.1 Scientific Basis of Medicine 1
400738.1 Health Practice 1

Year 2

1H Session
400739.1 Scientific Basis of Medicine 2
400740.1 Health Practice 2

2H Session
400739.1 Scientific Basis of Medicine 2
400740.1 Health Practice 2

Year 3
400810.1 Integrated Clinical Rotations 1

Year 4
Integrated Clinical Rotations 2

Year 5
Integrated Clinical Rotations 3
Please Note; the curriculum for years 4 and 5 is subject to approval, and therefore may be altered.

Bachelor of Nursing

4642.1

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.

Academic Credit and 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

Admission
Students would normally apply through UAC and enter via achievement of minimal UAI ranking. International applicants should contact UWS International for details on admission. Contact information for the International Office is available via the UWS website: http://sites.uws.edu.au/international

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
400745.1 Nursing for Health and Wellbeing
400746.1 Understanding Good Health
400747.1 Behavioural Foundations of Nursing Practice
400748.1 Becoming a Nurse

Spring session
400749.1 Nursing and Health Breakdown
400750.1 Introduction to Health Breakdown
400751.1 Nursing and Healthy Communities
400752.1 Knowing Nursing

Year 2

Autumn session
400753.1 Medical-Surgical Nursing 1
400754.1 Understanding Alterations in Nutrition and Elimination
400755.1 Evidence-Based Nursing 1
400756.1 Family Health Care: Health Issues and Australian Indigenous People

Spring session
400757.1 Medical-Surgical Nursing 2
400758.1 Alterations in Breathing, Sexuality, Work/Leisure and Mobility
400759.1 Mental Health Nursing 1
400760.1 Family Health Care: Child and Adolescent Nursing

Year 3

Autumn session
400761.1 Family Health Care: High Acuity Nursing
400762.1 Mental Health Nursing 2
400763.1 Family Health Care: Chronicity and Palliative Care Nursing
And one elective

Spring session
400764.1 Transition to Graduate Practice
400765.1 Evidence-Based Nursing 2
400766.1 Leadership in Graduate Practice
400767.1 Family Health Care: Older Adult Nursing

Bachelor of Nursing Studies

4646.1

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
1 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. Contact information for the International Admissions Office is available via the UWS website: http://www.uws.edu.au

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

400816.1 Critical Thinking and Reflective Nursing Practice
400818.1 Leadership and Management in Graduate Practice
400820.1 Community Health and the Nurse
Choose one of
400823.1 Nursing and the Older Person
E1250.1 Drugs on Line
HC318A.1 Women's Health

Autumn Session

400817.1 Evidence Based Nursing Practice
400819.1 Child and Adolescent Nursing Studies
400821.1 Issues in Chronic and Palliative Nursing Care
400822.1 Contemporary Issues in Health and Nursing

Bachelor of Nursing - Graduate Entry

4643.1

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.

Academic Credit and 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

Following approval and accreditation by the Nurses and Midwives Board of NSW graduates holding a Bachelor of Nursing (Graduate Entry) degree would be considered eligible to apply to the Board to join the Register of Nurses. The application to register will require applicants to disclose any impairment or academic misconduct.

Admission

To be eligible to undertake the course applicants must satisfy one of the following entry criteria:

- Completed an undergraduate degree with a focus in the biological sciences, or
- Completed an undergraduate degree with a focus in the arts/ behavioural sciences, or
- hold an overseas, 3 year post secondary school qualification as a registered nurse

In addition

- all international students must meet a satisfactory English Language requirement in line with UWS policy

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 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

400776.1 Introduction to Nursing Practice

Autumn session

400753.1 Medical-Surgical Nursing 1
400754.1 Understanding Alterations in Nutrition and Elimination
400755.1 Evidence-Based Nursing 1
400756.1 Family Health Care: Health Issues and Australian Indigenous People

Spring session

400757.1 Medical-Surgical Nursing 2
400758.1 Alterations in Breathing, Sexuality, Work/ Leisure and Mobility
400759.1 Mental Health Nursing 1
400760.1 Family Health Care: Child and Adolescent Nursing

Year 2

Autumn session

400761.1 Family Health Care: High Acuity Nursing
400762.1 Mental Health Nursing 2
400763.1 Family Health Care: Chronicity and Palliative Care Nursing

Spring session

400764.1 Transition to Graduate Practice
400765.1 Evidence-Based Nursing 2
400766.1 Leadership in Graduate Practice
400767.1 Family Health Care: Older Adult Nursing

Bachelor of Nursing (Honours)

4529.2

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

Academic Credit and Advanced Standing

The University recognises that knowledge, skills and understanding can be acquired from a wide range of formal and informal learning experiences. The Bachelor of Nursing (Honours) program is consistent with the University's policy on recognition of prior learning and advanced standing.

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
400803.1 Research in Nursing Practice
400202.1 Nursing Honours Thesis A (Full-time)
400201.2 Readings and Methodology

Spring session
400203.1 Nursing Honours Thesis B (Full-time)

Part-time

Year 1

Autumn session
400803.1 Research in Nursing Practice

Spring session
400201.2 Readings and Methodology

2H session
400204.1 Nursing Honours Thesis (Part-time)

Year 2

1H session
400204.1 Nursing Honours Thesis (Part-time)

2H session
400204.1 Nursing Honours Thesis (Part-time)

Bachelor of Science (Biological Science)

3517.2

This version of the course commences in 2008. For students commencing in 2007 please refer to the following course version:

The Bachelor of Science (Biological Science) prepares students for a professional career in science with particular emphasis on the biological sciences. A wide range of topics may be studied, but the principal focus is on areas relevant to analytical, clinical, environmental and forensic sciences, biotechnology and molecular biology. Students will develop fundamental skills in quantification and analysis and the capacity for critical analysis, problem solving and independent thought, as well as practical skills in the biological sciences. The program consists of core studies in biology, chemistry, microbiology and biochemistry, with a choice of more advanced units, including molecular biology, immunology, advanced biochemistry, biotechnology, environmental biology, plant science and medical and food microbiology. Students may maximise the biological science content of their degree or may combine their biological studies with another scientific discipline, or a discipline from the arts, humanities, social science or commerce. The flexible structure of the Bachelor of Science course enables the student to obtain a broad-based degree while keeping various options for specialisation open. This flexibility also allows students to transfer between key areas of study within the Bachelor of Science.

Study Mode
Three years full-time.

Academic Credit and Advanced Standing
A completed TAFE approved associate diploma or diploma in an appropriate area of science will enable a student to apply for up to one year of advanced standing.

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, Mathematics or Physics.

Course Structure
Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below. At least 60 credit points must be at Level 3 and no more than 100 credit points at Level 1. The program of study must include, at Level 1, a unit from four out of the following discipline areas: Biology, Chemistry, Computer Science, Geology, Mathematics and Physics.

Recommended Sequence

Full-time

Year 1
300221.1 Biology 1
300224.1 Chemistry 1
300222.1 Biology 2

300225.1 Chemistry 2
And two additional Level 1 core or alternate units [as listed in 3516 - Bachelor of Science (General Science)] EXCEPT that students in course 3517 may not enrol in 300331 General Microbiology.
And two electives

Year 2
300219.1 Biochemistry 1
300300.1 Microbiology 1
300220.1 Biochemistry 2
300321.1 Microbiology 2
And two additional core or alternate units [as listed in 3516- Bachelor of Science (General Science)]
And two electives

Year 3
Four Level 3 Biology core units
And four electives

Majors/Sub-majors

Biochemistry and Molecular Biology Major

Level 1
300221.1 Biology 1
Choose one of:
300224.1 Chemistry 1
300225.1 Chemistry 2

Level 2
300219.1 Biochemistry 1
300220.1 Biochemistry 2

Level 3
300234.1 Molecular Biology
And choose three of (at least two of which must be Level 3 units):

Level 1
300222.1 Biology 2
300224.1 Chemistry 1
300225.1 Chemistry 2

Level 3
300407.1 Mammalian Molecular Medicine
300408.1 Mammalian Cell Biology and Biotechnology
300544.1 Cell Signalling
300552.1 Molecular Biology of the Immune System
300556.1 Analytical Protein Science

Biochemistry and Molecular Biology Sub-major

Level 1
300221.1 Biology 1
Choose one of:
300224.1 Chemistry 1
300225.1 Chemistry 2

Level 2
300219.1 Biochemistry 1
300220.1 Biochemistry 2

Level 3
300234.1 Molecular Biology
Choose one of:
300407.1 Mammalian Molecular Medicine
300408.1 Mammalian Cell Biology and Biotechnology
300544.1 Cell Signalling
300552.1 Molecular Biology of the Immune System
300556.1 Analytical Protein Science

Microbiology Major

Level 1
300221.1 Biology 1
Choose one of:
300224.1 Chemistry 1
300225.1 Chemistry 2

Level 2
300219.1 Biochemistry 1
300300.1 Microbiology 1
300321.1 Microbiology 2

Level 2 and 3
Choose three of:

Level 2
MI205A.1 Food Microbiology 2.2 (V1)

Level 3
300307.1 Analytical Microbiology
300233.1 Medical Microbiology
300234.1 Molecular Biology
J3705.1 Industrial Microbiology
MI303A.1 Environmental Biotechnology (V1)
SC301A.1 Laboratory Quality Management

Microbiology Sub-major

Level 1
300221.1 Biology 1
Choose one of:
300224.1 Chemistry 1
300225.1 Chemistry 2

Level 2
300300.1 Microbiology 1
300321.1 Microbiology 2
Choose two of:

Level 2
MI205A.1 Food Microbiology 2.2 (V1)

Level 3
300307.1 Analytical Microbiology
300233.1 Medical Microbiology
J3705.1 Industrial Microbiology

Environmental Science Major

Level 1
300221.1 Biology 1
300224.1 Chemistry 1

Level 2
Choose one of:
300300.1 Microbiology 1
300321.1 Microbiology 2
Choose five of (at least three of which must be level 3 units):

Level 1
300222.1 Biology 2

Level 2
14405.1 Animal Physiology
14409.1 Plant Physiology
300219.1 Biochemistry 1
300297.1 Analytical Chemistry 2
EY210A.1 Ecology 2.1

Level 3
14403.1 Environmental Biology
14455.1 Biotechnology
300234.1 Molecular Biology
300327.1 Australian Plants
300465.1 Aquatic Ecology
300466.1 Environmental Biology 3.3
300468.1 Green Chemistry 2
300470.1 Vertebrate Biodiversity
80804.1 Environmental Science Project
MI303A.1 Environmental Biotechnology (V1)

Environmental Science Sub-major

Level 1
300221.1 Biology 1
300224.1 Chemistry 1

Level 2
300300.1 Microbiology 1
Choose three of:

Level 3
14403.1 Environmental Biology
300465.1 Aquatic Ecology
300466.1 Environmental Biology 3.3
80804.1 Environmental Science Project
MI303A.1 Environmental Biotechnology (V1)

Anatomy and Physiology Major

This major is only available to students enrolled in Course 3517 B.Sc. (Biological Sciences)

Level 1
300319.1 Introduction to Anatomy and Histology
300320.1 Introduction to Human Physiology

Level 2
300323.1 Pathological Basis of Disease
BC206A.1 Human Physiology 2.2
Choose five of:

Level 2
300317.1 Anatomy of the Thorax and Abdomen
300325.1 The Appendicular Skeleton
400138.1 Pathophysiology 1

Level 3
300316.1 Anatomy of the Head and Neck
300322.1 Neuroanatomy
300326.1 Topics in Physiology
400267.1 Pathophysiology 2
BC306A.1 Human Physiology 3.1

Anatomy and Physiology Sub-major

This sub-major is only available to students enrolled in Course 3517 B.Sc. (Biological Sciences)

Level 1
300319.1 Introduction to Anatomy and Histology
300320.1 Introduction to Human Physiology

Level 2
300323.1 Pathological Basis of Disease
BC206A.1 Human Physiology 2.2
Choose three of:

Level 2
300317.1 Anatomy of the Thorax and Abdomen
300325.1 The Appendicular Skeleton
400138.1 Pathophysiology 1

Level 3
300316.1 Anatomy of the Head and Neck
300322.1 Neuroanatomy
300326.1 Topics in Physiology
400267.1 Pathophysiology 2
BC306A.1 Human Physiology 3.1

Plant Biology Major

Please seek advice from Head of Program regarding units for this Major.

Level 1
300221.1 Biology 1
300222.1 Biology 2

Level 2
300328.1 Botany
300333.1 Introductory Plant Physiology
300336.1 Plant-Microbe Interactions

Level 3
BC302A.1 Plant Biotechnology
300327.1 Australian Plants

General Biology Major

Level 1
300221.1 Biology 1
300222.1 Biology 2
Choose six of (at least three of which must be Level 3 units):

Level 1
Choose one of
300224.1 Chemistry 1
300225.1 Chemistry 2

Level 2
14405.1 Animal Physiology
14409.1 Plant Physiology
300219.1 Biochemistry 1
300220.1 Biochemistry 2
300227.1 General Biochemistry
300228.1 Human Nutrition
300300.1 Microbiology 1
300321.1 Microbiology 2
BI201A.1 Genetics 2.2
EY210A.1 Ecology 2.1
MI205A.1 Food Microbiology 2.2 (V1)
Note: 300227 General Biochemistry is not to be counted with either 300219 Biochemistry 1 or 300220 Biochemistry 2

Level 3
14403.1 Environmental Biology
14455.1 Biotechnology
300229.1 Immunology
300233.1 Medical Microbiology
300234.1 Molecular Biology
300307.1 Analytical Microbiology
300327.1 Australian Plants
300328.1 Botany
300407.1 Mammalian Molecular Medicine
300408.1 Mammalian Cell Biology and Biotechnology
300465.1 Aquatic Ecology
300466.1 Environmental Biology 3.3
300470.1 Vertebrate Biodiversity
300544.1 Cell Signalling
300552.1 Molecular Biology of the Immune System
J3705.1 Industrial Microbiology
MI303A.1 Environmental Biotechnology (V1)
NT306A.1 Nutritional Biochemistry
SC301A.1 Laboratory Quality Management
Note: Unit 300223 Cell Signalling and Molecular Immunology may not be counted with unit 300229 Immunology towards graduation.

Bachelor of Science (Biotechnology)

3518.2

This course prepares students for a professional career in science with particular emphasis on biotechnology. Students will develop fundamental skills in quantification and analysis and the capacity for critical analysis, problem solving and independent thought, as well as practical skills in biotechnology. The program consists of core studies in biotechnology, biology, chemistry, microbiology, biochemistry, fermentation science and molecular biology, with a choice of elective units, including analytical and medical microbiology, laboratory quality management and chemistry (including analytical, environmental, inorganic and organic chemistry). Students may maximise the biotechnology content of their degree, or may combine their biotechnology studies with another scientific discipline, or a discipline from the arts, humanities, social science or commerce. The flexible structure of the Bachelor of Science course enables students to obtain a broad-based degree while keeping various options for specialisation open. The flexibility also allows students to transfer between key areas of study within the Bachelor of Science.

Study Mode
Three years full-time.

Admission
Chemistry is recommended.

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
300221.1 Biology 1
300224.1 Chemistry 1
300050.1 Physics 1
300503.1 Introduction to Biotechnology

Spring session
300225.1 Chemistry 2
300222.1 Biology 2
Choose one of
200189.1 Concepts of Mathematics
200191.2 Fundamentals of Mathematics
200263.1 Biometry
And one elective

Year 2

Autumn session
300219.1 Biochemistry 1
300300.1 Microbiology 1
And two electives

Spring session
300321.1 Microbiology 2
MI204A.1 Principles of Biotechnology
And two electives

Year 3

Autumn session
BC302A.1 Plant Biotechnology
300234.1 Molecular Biology
300504.1 Fermentation Science
And one elective

Spring session
MI303a.1 Environmental Biotechnology (V1)
MI305A.1 Food and Pharmaceutical Biotechnology
And two electives

Bachelor of Science (Chemistry)

3519.2

The Bachelor of Science (Chemistry) prepares students for a professional career in science with particular emphasis on chemical sciences. Students will develop fundamental skills in quantification and analysis and the capacity for critical analysis, problem solving and independent thought, as well as practical skills in chemistry. The program consists of core studies in analytical, inorganic, organic and physical chemistry. The flexible structure of the Bachelor of Science course enables the student to complete a sub-major in geochemistry (as listed below), as well as in other science and non-science areas.

Study Mode
Three years full-time.

Academic Credit and Advanced Standing
A completed TAFE approved associate diploma or diploma in an appropriate area of science will enable a student to apply for up to one year of advanced standing. For students also holding an appropriate TAFE graduate certificate further advanced standing may be granted. Units previously completed at another university may also attract advanced standing.

Admission
There is no specific prerequisite for entry into the course. Preferably, students should have successfully completed the HSC in at least two of the following units: Biology, Chemistry, Mathematics or Physics.

Course Structure
Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below. At least 60 credit points must be at Level 3 and no more than 100 credit points at Level 1. The program of study must include, at Level 1, a unit from four out of the following discipline areas: Biology, Chemistry, Computer Science, Geology, Mathematics and Physics.

Recommended Sequence

Full-time

Year 1
300224.1 Chemistry 1
300558.1 Physics 1
300225.1 Chemistry 2
Choose one of
200191.2 Fundamentals of Mathematics
200189.1 Concepts of Mathematics
And two additional Level 1 core or alternate units [as listed in 3516 - Bachelor of Science (General Science)]
And two electives

Year 2
300297.1 Analytical Chemistry 2
300230.1 Inorganic Chemistry 2
300301.1 Organic Chemistry 2
300236.1 Physical Chemistry 2
300497.1 Professional Skills for Science
And three electives

Year 3
300298.1 Analytical Chemistry 3
300231.1 Inorganic Chemistry 3
300235.1 Organic Chemistry 3
300303.1 Physical Chemistry 3
Choose one of
300299.1 Chemistry Project 3

SC301A.1 Laboratory Quality Management
And three electives

Majors

Chemistry Major

Students must take a minimum of three Level 3 units in this Major.

Level 1
300224.1 Chemistry 1
300225.1 Chemistry 2
Choose at least three of

Level 1
200189.1 Concepts of Mathematics
200191.2 Fundamentals of Mathematics
300497.1 Professional Skills for Science
Note: Unit 200189 Concepts of Mathematics is equivalent to unit 200191 Fundamentals of Mathematics and students may not count both of these units towards graduation.

Level 2
300297.1 Analytical Chemistry 2
300230.1 Inorganic Chemistry 2
300301.1 Organic Chemistry 2
300236.1 Physical Chemistry 2

Level 3
300298.1 Analytical Chemistry 3
300231.1 Inorganic Chemistry 3
300235.1 Organic Chemistry 3
300303.1 Physical Chemistry 3
Choose up to three of:

Level 3
300557.1 Molecular Spectroscopy
300218.1 Applied Aspects of Inorganic Chemistry
300299.1 Chemistry Project 3
SC301A.1 Laboratory Quality Management
Chemistry electives as approved by the Bachelor of Science (Chemistry) Head of Program.

Geochemistry Sub-major

Level 1
14524.1 Introductory Geochemistry: Earth, Resources and Environments
300232.1 Introduction to Earth Sciences

Level 2
14509.1 Chemical Mineralogy
14510.1 Geochemical Systems

Level 3
14526.1 Geochemistry Project
14525.1 Environmental Geochemistry

Bachelor of Science (Food Science)

3626.1

This is a three year full-time course that will prepare students for a professional career in the food industry and associated organisations. Students develop skills to maintain an operating system in accordance with specified regulations and product quality standards. Graduates are qualified in all aspects of handling, storage and control of the preserving and process of meat, fish, cereal, fruit, vegetables, dairy products and formulated foodstuffs. An extended tour of the food industry is optional prior to starting Stage 3. Students are required to obtain a minimum of 10 weeks Approved Industrial Experience SC204A prior to finishing the course.

Study Mode

Three years full-time.

Location

Campus	Attendance	Mode
Hawkesbury Campus	Full Time	Internal

Admission

Recommended chemistry, mathematics and biology.

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

Full-time

Year 1

Autumn session
300221.1 Biology 1
300224.1 Chemistry 1
300498.1 Food Science 1
300503.1 Introduction to Biotechnology

Spring session
300225.1 Chemistry 2
300451.1 Horticultural Production 2
300499.1 Food Science 2
200263.1 Biometry

Year 2

Autumn session
300219.1 Biochemistry 1
300300.1 Microbiology 1

300452.1 Postharvest
And one elective

Industrial Experience:
SC204A.1 Approved Industrial Experience

Spring session
300321.1 Microbiology 2
MI204A.1 Principles of Biotechnology
And two electives

Year 3

Autumn session
FS304A.1 Food Product Development Practicum 3.1
300504.1 Fermentation Science
300500.1 Quality Assurance and Food Safety
And one electives

Spring session
FS328A.1 Packaging Science & Technology
MI305A.1 Food and Pharmaceutical Biotechnology
And two electives

Bachelor of Science (Forensic Science)

3589.2

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.

Course Structure
For this degree, 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
300221.1 Biology 1
300224.1 Chemistry 1
300375.1 Digital Forensic Photography 1
And one elective

Spring session
300222.1 Biology 2
300225.1 Chemistry 2
SC103A.1 Forensic Science
200263.1 Biometry

Year 2

Autumn session
300219.1 Biochemistry 1
300493.1 Forensic and Environmental Analysis
Choose one of
400680.1 Crime and Criminal Justice
400681.2 Crime and Criminology
And one elective

Spring session
300374.1 Crime Scene Investigation
300377.1 Forensic Analysis of Physical Evidence
Choose one of
300376.1 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
EH217A.1 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 (Gene Science)

3590.2

This course is designed so that students can gain a deep understanding of the scientific principles and techniques of gene science and their applications in industry. Gene science has the ability to offer society many benefits such as improved health, a cleaner environment or better food production. However, all of these benefits are associated with potential risks and a diverse range of social, legal and ethical issues. The course aims to produce students who are cognisant of these issues and who are capable of participating in the debate regarding the applications of gene technology to health and food production. The course is also designed to provide students with competencies and understanding of the more traditional aspects of plant and animal production so that they are better able to apply biotechnology to these industries.

Gene scientists pursue careers in the various sectors of the biotechnology industry, including the application of gene science to medicine, agriculture and food production. Graduates may also work in governmental and industry research and development as well as governmental regulatory and environmental monitoring authorities.

Honours is available as an additional year (or part-time equivalent) for meritorious students.

Accreditation

Depending on the electives taken, Gene Science graduates should satisfy the requirements for membership of the Australian Institute of Biology and the Australian Society for Biochemistry and Molecular Biology.

Course Structure

Major Studies
Gene Science looks at the structure and function of genes, how they influence the working and development of biological systems and ways in which they can be exploited for human benefit. By choosing the appropriate units, students can specialise in the application of gene science to mammalian, plant, food or pharmaceutical biotechnologies.
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
300221.1 Biology 1
300224.1 Chemistry 1
300503.1 Introduction to Biotechnology
300497.1 Professional Skills for Science

Spring session
300222.1 Biology 2
300225.1 Chemistry 2
200263.1 Biometry
Choose one of the following:
300320.1 Introduction to Human Physiology
300333.1 Introductory Plant Physiology

Year 2

Autumn session
300219.1 Biochemistry 1
300300.1 Microbiology 1
200295.1 Bioethics
And one elective

Spring session
BI201A.1 Genetics 2.2
300321.1 Microbiology 2
And two electives

Intersession breaks
HT204A.1 Professional Studies H
(0 Credit Points)

Year 3

Autumn session
300234.1 Molecular Biology
300504.1 Fermentation Science

BC302A.1 Plant Biotechnology
And one elective

Spring session
300408.1 Mammalian Cell Biology and Biotechnology
300407.1 Mammalian Molecular Medicine
And two electives

Gene Technology Major

This major is proposed to be taken by students following programs with a biological emphasis. The major should not be taken by Gene Science students. Students attempting this major should have a basic knowledge of biology, chemistry and biochemistry.
This major offers students the opportunity to gain a thorough background in the techniques, principles and issues associated with gene technology. The major provides the option for students to focus on plant, animal or microbial applications of gene technology or to gain a broad understanding of all aspects of this area.
Four compulsory units:
BI201A.1 Genetics 2.2
200295.1 Bioethics
MI204A.1 Principles of Biotechnology
300234.1 Molecular Biology
Choose four of
BC302A.1 Plant Biotechnology
300333.1 Introductory Plant Physiology
300408.1 Mammalian Cell Biology and Biotechnology
300407.1 Mammalian Molecular Medicine
300504.1 Fermentation Science
300320.1 Introduction to Human Physiology
MI303A.1 Environmental Biotechnology (V1)
MI305A.1 Food and Pharmaceutical Biotechnology
300307.1 Analytical Microbiology
please be aware that many of the units in the Gene Technology Major have pre-requisites, and a number of those units also require completion of other pre-requisite units. Please check the individual units in the handbook for details.

Bachelor of Science (General Science)

3516.2

At least two of biology, chemistry and mathematics.

Continuing students should refer to the above version of this course.

A Bachelor of Science prepares students for a professional career in science with a particular emphasis on analytical, chemical, mathematical, physical and/or environmental sciences. Fundamental for the development of science are the skills necessary for quantification and analysis, the capacity for critical analysis, problem solving, and independent thinking. The flexible structure of the Bachelor of Science course allows a large range of unit combinations enabling the student to keep various options for specialisation open. The Bachelor of Science (General Science) is designed for students who do not wish to specialise in a single key area of study, such as biological science, biotechnology or chemistry. Units from a range of scientific and other disciplines may be combined to suit a student's interests and educational aims. General Science includes a core of basic science units (biology, chemistry, mathematics and physics), to which other science units and, if desired, non-science electives can be added.

Study Mode

Three years full-time.

Academic Credit and Advanced Standing

A completed Technical And Further Education (TAFE) approved associate diploma or diploma in an appropriate area of science will enable a student to apply for up to one year of advanced standing.

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, Mathematics or Physics.

Course Structure

For the degree of Bachelor of Science a student must 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 of which 40 have to be core units. Unless otherwise stated, a Science program must include a Level 1 unit from four out of the following discipline areas: Biology, Chemistry, Computer Science, Geology and Mathematics.

Recommended Sequence

Full-time

Year 1
Six Science core or alternate units, including one each of the Biology, Chemistry, Mathematics and Physics units, as listed below.
And two electives (which may include Science alternates)

Year 2
Six Science core or alternate units.

And two electives

Year 3
Four Science core or alternate units
And four electives
Note: At least six units must be taken at Level 3 with a minimum of four units from the Science core or alternate units.

Core Units:

Level 1

Biology Units:
300221.1 Biology 1
or
300543.1 Cell Biology
300222.1 Biology 2
or
300539.1 Biodiversity

Chemistry Units:
300224.1 Chemistry 1
or
300554.1 Principles of Chemistry
300225.1 Chemistry 2
or
300550.1 Medicinal Chemistry

Mathematics Units:
200189.1 Concepts of Mathematics
200191.2 Fundamentals of Mathematics
200042.2 Introduction to Operations Research
200192.1 Statistics for Science
200263.1 Biometry

Physics Units:
300558.1 Physics 1
300559.1 Physics 2

Level 2

Biology Units:
14405.1 Animal Physiology
300219.1 Biochemistry 1
or
300555.1 Proteins and Genes
300220.1 Biochemistry 2
or
300548.1 Human Metabolism and Disease
EY210A.1 Ecology 2.1
MI205A.1 Food Microbiology 2.2 (V1)
BI201A.1 Genetics 2.2
or
300547.1 Human Genetics
300300.1 Microbiology 1
300321.1 Microbiology 2
14409.1 Plant Physiology

Chemistry Units:
300297.1 Analytical Chemistry 2
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

Mathematics Units:
200028.1 Advanced Calculus
200027.1 Linear Algebra
200034.1 Statistical Theory

Physics Units:
no units

Level 3

Biology Units:
14403.1 Environmental Biology
14455.1 Biotechnology
300229.1 Immunology
300234.1 Molecular Biology
300307.1 Analytical Microbiology
300327.1 Australian Plants
300407.1 Mammalian Molecular Medicine
300408.1 Mammalian Cell Biology and Biotechnology
300465.1 Aquatic Ecology
300466.1 Environmental Biology 3.3
300470.1 Vertebrate Biodiversity
300544.1 Cell Signalling
300552.1 Molecular Biology of the Immune System
300556.1 Analytical Protein Science
MI303A.1 Environmental Biotechnology (V1)

Chemistry Units:
300298.1 Analytical Chemistry 3
or
300537.1 Advanced Chemical Analysis
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

Mathematics Units:
200045.1 Quantitative Project

Alternate Units:

Level 1

Biology Units:
300331.1 General Microbiology

Chemistry Units:
300497.1 Professional Skills for Science

Computer Science Units:
300134.1 Introduction to Information Technology

Geology Units:
300232.1 Introduction to Earth Sciences
14524.1 Introductory Geochemistry: Earth, Resources and Environments

Mathematics Units:
200025.1 Discrete Mathematics
300155.1 Programming Principles 1

Physics Units:
no units

Level 2

Biology Units:
300328.1 Botany
300323.1 Pathological Basis of Disease
MI204A.1 Principles of Biotechnology

Chemistry Units:
no units

Geology Units:
14509.1 Chemical Mineralogy
14510.1 Geochemical Systems

Mathematics Units:
200033.1 Applied Statistics
200035.1 Decision Analysis and Statistical Process Control
200030.1 Differential Equations
200029.1 Numerical Analysis
200197.1 Optimisation 1
200043.1 Stochastic Decision Theory

Physics Units:
no units

Level 3

Biology Units:
300226.1 Conservation Biology
300233.1 Medical Microbiology
MI304A.1 Fermentation Practicum
MI305A.1 Food and Pharmaceutical Biotechnology
SC301A.1 Laboratory Quality Management

Chemistry Units:
300218.1 Applied Aspects of Inorganic Chemistry
300299.1 Chemistry Project 3
300557.1 Molecular Spectroscopy

Geology Units:
14525.1 Environmental Geochemistry
14526.1 Geochemistry Project

Mathematics Units:
200022.1 Mathematical Modelling
200023.1 Analysis
200024.1 Mathematical Finance
200036.1 Data Mining and Visualisation
200037.1 Regression Analysis & Experimental Design
200038.1 Time Series and Forecasting
200039.1 Surveys and Multivariate Analysis
200040.1 Probability & Stochastic Processes
200044.1 Simulation Techniques
200171.1 Financial Modelling Methods
200193.1 Abstract Algebra
200198.1 Optimisation 2

Bachelor of Science (Mathematical Science)

3520.2

The Bachelor of Science (Mathematical Science) prepares students for a professional career in mathematics, statistics and/or operations research. Students will develop fundamental skills in problem solving and critical analysis, which will allow them to model and then solve real-world problems using mathematical techniques. The degree program consists of core units in computing, statistics and operations research as well as the more traditional calculus/algebra based units. Students may then specialise in one or more areas by completing majors and/or sub-majors that meet their needs and mathematical interests. The flexible structure of the Bachelor of Science course enables the student to obtain a broad-based degree while keeping various options for specialisation open. Thus, majors and/or sub-majors may be completed in science and non-science areas, while undertaking the key program area in mathematical sciences.

Study Mode

Three years full-time. Please note that students may be required to travel between the Campbelltown and Parramatta campuses as not all units will be offered on the Parramatta and Campbelltown campuses in all semesters.

Location

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

Academic Credit and Advanced Standing

A completed Technical And Further Education (TAFE) approved associate diploma or diploma in an appropriate area of science will enable a student to apply for up to one year of advanced standing.

Admission

There is no specific prerequisite for entry into the course. Preferably, students should have successfully completed the HSC in at least two of the following units: Biology, Chemistry, Mathematics or Physics. To undertake the key program area in Mathematical Science, students should have successfully completed HSC Mathematics Extension 1 or equivalent.

Course Structure

Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below. At least 60 credit points must be at Level 3 and no more than 100 credit points at Level 1. The program of study must include, at Level 1, a unit from four out of the following discipline areas: Biology, Chemistry, Computer Science, Geology, Mathematics and Physics.

Recommended Sequence

Full-time

Year 1
200189.1 Concepts of Mathematics
300155.1 Programming Principles 1
200025.1 Discrete Mathematics
Choose one of
200192.1 Statistics for Science
200263.1 Biometry
Two Science Alternate units
And two electives

Year 2
200028.1 Advanced Calculus
200027.1 Linear Algebra
Choose one of
200034.1 Statistical Theory
200042.1 Introduction to Operations Research
Choose two of
200033.1 Applied Statistics
200035.1 Decision Analysis and Statistical Process Control
200030.1 Differential Equations
200029.1 Numerical Analysis
200034.1 Statistical Theory
200042.2 Introduction to Operations Research
One Science alternate unit
And two electives

Year 3
200045.1 Quantitative Project
Choose three of
200023.1 Analysis
200036.1 Data Mining and Visualisation
200022.1 Mathematical Modelling
200024.1 Mathematical Finance
200037.1 Regression Analysis & Experimental Design
200038.1 Time Series and Forecasting
200039.1 Surveys and Multivariate Analysis
200040.1 Probability & Stochastic Processes
200043.1 Stochastic Decision Theory
200044.1 Simulation Techniques
200193.1 Abstract Algebra
200197.1 Optimisation 1
200198.1 Optimisation 2
And four electives
Note 1:
Not all of these units will be offered each semester. Students may also be required to travel between the Campbelltown and Parramatta campuses to complete some units.
Note 2:
Students wanting to complete a major in a particular mathematical area should select units in Years 2 and 3 according to the list below.
A major comprises a suite of 8 related units with a MAXIMUM of 3 at Level 1 and a MINIMUM of 3 at Level 3. Sub-majors (comprising 6 related units) are also available.

Majors/Sub-majors

Mathematics Major

Level 1
200189.1 Concepts of Mathematics

Level 2
200028.1 Advanced Calculus
200027.1 Linear Algebra

Level 3
Choose one of
200193.1 Abstract Algebra
200023.1 Analysis
Choose four of

Level 1
200025.1 Discrete Mathematics

Level 2
200030.1 Differential Equations
200029.1 Numerical Analysis

Level 3
200022.1 Mathematical Modelling
200023.1 Analysis
200024.1 Mathematical Finance

Mathematics Sub-major

Level 1
200189.1 Concepts of Mathematics

Level 2
200028.1 Advanced Calculus
200027.1 Linear Algebra

Level 3
Choose one of
200193.1 Abstract Algebra
200023.1 Analysis
Choose two of

Level 1
200025.1 Discrete Mathematics

Level 2
200030.1 Differential Equations
200029.1 Numerical Analysis

Level 3
200022.1 Mathematical Modelling
200023.1 Analysis
200024.1 Mathematical Finance

Statistics Major

Level 1
200192.1 Statistics for Science

Level 2
200033.1 Applied Statistics
200034.1 Statistical Theory

Level 3
200037.1 Regression Analysis & Experimental Design
200038.1 Time Series and Forecasting
Choose three of

Level 2
200035.1 Decision Analysis and Statistical Process Control

Level 3
200036.1 Data Mining and Visualisation
200039.1 Surveys and Multivariate Analysis
200040.1 Probability & Stochastic Processes

Statistics Sub-major

Level 1
200192.1 Statistics for Science

Level 2
200033.1 Applied Statistics
200034.1 Statistical Theory

Level 3
200037.1 Regression Analysis & Experimental Design
200038.1 Time Series and Forecasting
Choose one of

Level 2
200035.1 Decision Analysis and Statistical Process Control

Level 3
200036.1 Data Mining and Visualisation
200039.1 Surveys and Multivariate Analysis
200040.1 Probability & Stochastic Processes

Mathematics and Statistics Major

Level 1
200189.1 Concepts of Mathematics
200192.1 Statistics for Science

Level 2
Choose one of
200028.1 Advanced Calculus
200027.1 Linear Algebra
Choose one of
200033.1 Applied Statistics
200034.1 Statistical Theory
Choose four of

Level 2
200027.1 Linear Algebra
200028.1 Advanced Calculus
200029.1 Numerical Analysis
200030.1 Differential Equations
200033.1 Applied Statistics
200034.1 Statistical Theory
200035.1 Decision Analysis and Statistical Process Control

Level 3
200022.1 Mathematical Modelling
200023.1 Analysis
200024.1 Mathematical Finance
200036.1 Data Mining and Visualisation
200037.1 Regression Analysis & Experimental Design
200038.1 Time Series and Forecasting
200039.1 Surveys and Multivariate Analysis
200040.1 Probability & Stochastic Processes

200193.1 Abstract Algebra

Mathematics and Statistics Sub-major

Level 1
200189.1 Concepts of Mathematics
200192.1 Statistics for Science

Level 2
Choose one of
200028.1 Advanced Calculus
200027.1 Linear Algebra
Choose one of
200033.1 Applied Statistics
200034.1 Statistical Theory
Choose two of

Level 1
200027.1 Linear Algebra
200028.1 Advanced Calculus
200029.1 Numerical Analysis
200030.1 Differential Equations
200033.1 Applied Statistics
200034.1 Statistical Theory
200035.1 Decision Analysis and Statistical Process Control

Level 3
200022.1 Mathematical Modelling
200023.1 Analysis
200024.1 Mathematical Finance
200036.1 Data Mining and Visualisation
200037.1 Regression Analysis & Experimental Design
200038.1 Time Series and Forecasting
200039.1 Surveys and Multivariate Analysis
200040.1 Probability & Stochastic Processes
200193.1 Abstract Algebra

Mathematics and Operations Research Major

Level 1
200189.1 Concepts of Mathematics

Level 2
200027.1 Linear Algebra
200028.1 Advanced Calculus
200042.1 Introduction to Operations Research
200197.1 Optimisation 1

Level 3
200193.1 Abstract Algebra
200198.1 Optimisation 2
Choose one of

Level 3
200022.1 Mathematical Modelling
200023.1 Analysis
200024.1 Mathematical Finance
200044.1 Simulation Techniques
200171.1 Financial Modelling Methods

Mathematics and Operations Research Sub-major

Level 1
200189.1 Concepts of Mathematics
Choose five of

Level 2
200027.1 Linear Algebra
200028.1 Advanced Calculus
200042.1 Introduction to Operations Research
200197.1 Optimisation 1

Level 3
200193.1 Abstract Algebra
200198.1 Optimisation 2

Statistics and Operations Research Major

Level 1
200192.1 Statistics for Science

Level 2
200033.1 Applied Statistics
200034.1 Statistical Theory
200042.1 Introduction to Operations Research
200197.1 Optimisation 1

Level 3
200198.1 Optimisation 2
Choose two of

Level 3
200022.1 Mathematical Modelling
200024.1 Mathematical Finance
200036.1 Data Mining and Visualisation
200037.1 Regression Analysis & Experimental Design
200038.1 Time Series and Forecasting
200039.1 Surveys and Multivariate Analysis
200040.1 Probability & Stochastic Processes
200043.1 Stochastic Decision Theory
200044.1 Simulation Techniques
200171.1 Financial Modelling Methods

Statistics and Operations Research Sub-major

Level 1
200192.1 Statistics for Science

Level 2
200033.1 Applied Statistics
200034.1 Statistical Theory
200042.1 Introduction to Operations Research

200197.1 Optimisation 1

Level 3
200198.1 Optimisation 2

Bachelor of Science (Nanotechnology)

3591.2

This course 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.

Study Mode
Three years full-time.

Location

Campus	Attendance	Mode
Campbelltown Campus	Full Time	Internal

Accreditation
Accreditation of this course is not being sought with any professional associations. However, depending on their choice of alternative units, graduates may be eligible for membership of the Royal Australian Chemical Institute or the Australian Institute of Physics.

Course Structure
Qualification for this course requires the successful completion of 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. In the course structure, 170 credit points are from the key program and 70 credit points are made up of five alternatives and two with alternative/elective option. These alternatives and electives will provide the flexibility required in the course. Upon completion of the degree, a student would receive a testamur showing Bachelor of Science (Nanotechnology).

Recommended Sequence

Full-time

Year 1

Autumn session
300558.1 Physics 1
300554.1 Principles of Chemistry
200189.1 Concepts of Mathematics
300417.1 Nanotechnology 1

Spring session
300559.1 Physics 2
300550.1 Medicinal Chemistry
300543.1 Cell Biology
300418.1 Nanotechnology 2

Year 2

Autumn session
300555.1 Proteins and Genes
300540.1 Biomolecular Dynamics
300545.1 Coordination Chemistry
300413.1 Applied Instrumentation in Nanotechnology

Spring session
300419.1 Quantum Properties of Chemical Systems
300553.1 Molecules of Life: Synthesis and Reactivity
300590.1 Nanochemistry

Year 3

Autumn session
300414.1 Biodevices
And two alternate units

Spring session
300415.1 Fabrication of Nanostructured Devices
And three alternate units

Recommended Alternate Units
Students may select seven alternate units during their fourth semester and third year from the following pool of alternates in the fields of nanophysics, nanomaterials and nanobiotechnology offered mainly at Campbelltown and Penrith. Students are also given the opportunity to take two free electives during the fourth and fifth semesters. Option is also given to the students to specialise in the fields of nanophysics, nanomaterials and nanobiotechnology. These specialisations will not appear on testamurs or transcripts.
300557.1 Molecular Spectroscopy
300556.1 Analytical Protein Science
300297.1 Analytical Chemistry 2
300537.1 Advanced Chemical Analysis
200033.1 Applied Statistics

300548.1 Human Metabolism and Disease
300544.1 Cell Signalling
300552.1 Molecular Biology of the Immune System
300114.1 Digital and Analog Fundamentals
300021.1 Electrical Fundamentals
300025.2 Electronics
300310.2 Industrial Graphics 3: 3D Solids
300538.1 Advanced Inorganic Chemistry
200022.1 Mathematical Modelling
200029.1 Numerical Analysis
300300.1 Microbiology 1
300321.1 Microbiology 2
300548.1 Human Metabolism and Disease
300546.1 Drug Design and Synthesis
300324.1 Pharmacological Chemistry
300475.1 Molecular Pharmacokinetics
200192.1 Statistics for Science
300304.2 Sustainable Design: Materials Technology

Students will take up to seven alternates with some flexibility in selecting two free elective units during their fourth semester and third year. Alternates are selected from the following group of units in the fields of nanophysics, nanomaterials and nanobiotechnology.

Possible Alternate Units in Nanophysics specialisation

300557.1 Molecular Spectroscopy
300114.1 Digital and Analog Fundamentals
300021.1 Electrical Fundamentals
300025.2 Electronics
300310.2 Industrial Graphics 3: 3D Solids
200022.1 Mathematical Modelling
200029.1 Numerical Analysis
300304.2 Sustainable Design: Materials Technology

Possible Alternate Units in Nanomaterials specialisation

300557.1 Molecular Spectroscopy
300297.1 Analytical Chemistry 2
300537.1 Advanced Chemical Analysis
300310.2 Industrial Graphics 3: 3D Solids
300538.1 Advanced Inorganic Chemistry
300546.1 Drug Design and Synthesis
300324.1 Pharmacological Chemistry
300475.1 Molecular Pharmacokinetics
300304.2 Sustainable Design: Materials Technology

Possible Alternate Units in Nanobiotechnology specialisation

300557.1 Molecular Spectroscopy
300556.1 Analytical Protein Science
300548.1 Human Metabolism and Disease
300554.1 Principles of Chemistry
300552.1 Molecular Biology of the Immune System
300300.1 Microbiology 1
300321.1 Microbiology 2
300549.1 Human Molecular Biology
300546.1 Drug Design and Synthesis

Bachelor of Science (Nutrition and Food)

3630.1

This is a three year full time course with an emphasis on practical application. The course has a strong biological base with an application to human nutrition and food. Individual units are integrated in order to provide the opportunity for applying theory to experientially based problem solving. The course allows for specialisation in areas such as human nutrition, food studies, community nutrition and consumerism. In addition, it can provide the foundation for further study in dietetics and/or science teaching. Candidates are required to obtain a minimum of ten weeks Approved Industrial Experience prior to finishing the course.

Study Mode

Three years full-time.

Location

Campus	Attendance	Mode
Hawkesbury Campus	Full Time	Internal

Admission

Recommended chemistry and food technology. Mathematics and biology studies are assumed.

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

300221.1 Biology 1
300224.1 Chemistry 1
300498.1 Food Science 1

Choose one of

300558.1 Physics 1
200191.2 Fundamentals of Mathematics
200192.1 Statistics for Science
200263.1 Biometry

Spring session
300225.1 Chemistry 2
300320.1 Introduction to Human Physiology
300499.1 Food Science 2
And one elective

Year 2

Autumn session
300300.1 Microbiology 1
NT201A.1 Nutrition & Health 2.1
Choose one of
300227.1 General Biochemistry
300219.1 Biochemistry 1
And one elective

Spring session
NT202A.1 Nutrition & Health 2.2
Choose one unit from:
300220.1 Biochemistry 2
FS321A.1 Experimental Foods
And two electives

Year 3

Autumn session
FS304A.1 Food Product Development Practicum 3.1
300360.1 Consumer Issues in Nutrition
Choose one of
NT306A.1 Nutritional Biochemistry
BC306A.1 Human Physiology 3.1
And one elective

Spring session
NT307A.1 Applied Nutrition
NT304A.1 Nutrition and Community Health (V1)
FS325A.1 Culinary Studies 3.2
And one elective
Students are required to obtain a minimum of ten weeks Approved Industrial Experience (unit SC204A) prior to finishing the course.

Bachelor of Science (Advanced Science)

3562.2

Students in the Bachelor of Science (Advanced Science) may follow any of the study programs set out for the Bachelor of Science, including General Science (course code 3516, all campuses), Biological Science (3517, Parramatta and Hawkesbury), Biotechnology (3518, Hawkesbury), Chemistry (3519, Parramatta), Forensic Science (3589, Hawkesbury), Gene Science (3590, Hawkesbury), Nanotechnology (3591, Campbelltown) and Mathematical Science (3520, Campbelltown and Parramatta)), as well as the Bachelor of Medical Science (3577.2 Campbelltown) and Bachelor of Biomolecular Science (3632.1 Campbelltown). Each student will have an academic mentor and will participate in additional compulsory activities including research projects. Further details are available from the Bachelor of Science Course Coordinator. To maintain their enrolment in the Bachelor of Science (Advanced Science) students must maintain a greater than 5.000 Grade Point Average (GPA), otherwise they will be transferred to the corresponding standard Bachelor of Science course. A quota will apply to this course. At enrolment students will be required to sign a declaration acknowledging the requirement to maintain a >5.000 GPA.

Location

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

Bachelor of Science (Honours)

3611.1

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.

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

Recommended Sequence

Full-time

Year 1

Autumn session

300412.2 Science, Technology and Environment Honours Project

Choose one of

300410.1 Advanced Topics and Research Skills

300411.2 Research Methodology and Experimental Design

Spring session

300412.2 Science, Technology and Environment Honours Project

Choose one of

300410.1 Advanced Topics and Research Skills

300411.2 Research Methodology and Experimental Design

Part-time

Year 1

Autumn session

Choose one of

300410.1 Advanced Topics and Research Skills

300411.2 Research Methodology and Experimental Design

Spring session

Choose one of

300410.1 Advanced Topics and Research Skills

300411.2 Research Methodology and Experimental Design

Year 2

Autumn session

300412.2 Science, Technology and Environment Honours Project

Spring session

300412.2 Science, Technology and Environment Honours Project

Bachelor of Science (Honours) Mathematics

2711.1

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 3 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
200412.1 Research Proposal and Seminar
200413.1 Mathematics Honours Thesis

Units

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.

200101.1 Accounting Information for Managers

Credit Points 10 **Level** 1

Equivalent Units

61111.1 - Introductory Financial Accounting OR 84458.1 - Engineering Management 3 OR 89109.1 - Management for Engineers 2 OR AC105A.1 - Finance and Accounting OR H1746.1 - Financial and Management Accounting 1 OR MG324A.1 - Management 3.2

For information on this unit please contact the Unit Coordinators: Sharon Taylor (Blacktown and Campbelltown Campuses) and Jean McCartney (Parramatta Campus). This unit provides exposure to financial and management accounting information from a user viewpoint. The unit aims to provide breadth of awareness and knowledge in relevant fields of accounting essential to decision making for managers.

400347.1 Acupuncture 1

Credit Points 10 **Level** 1

Assumed Knowledge

Assumed knowledge equivalent to Traditional Chinese Medicine 1.

Special Requirements

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Persons Declaration; Criminal Record Check Clearance;

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. This unit also expands upon the student's understanding of TCM theory and practice principles.

400350.1 Acupuncture 2

Credit Points 10 **Level** 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;

This unit consolidates and extends students' knowledge of acupuncture theory and practice, and provides further opportunity to develop practical skills. It revises and expands channel theory and point location. 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.

400086.2 Adulthood and Ageing

Credit Points 10 **Level** 3

Assumed Knowledge

Knowledge of sociological and psychological concepts and theories

Special Requirements

80 credit points of completed study.

This unit provides the opportunity for students to develop concepts, theories and issues from sociology, critical psychology, and the social sciences by examining a range of life course themes and the experiences of ageing and adult life. Central to the unit is the notion that the experiences of adult life are individual yet occur in and are impacted upon by a variety of social, cultural & historical contexts. The unit critically explores a variety of topics of relevance to understanding adulthood in the 21st century. This unit aims to explore the dominant discourses of ageing and their impact on adult lives.

200028.1 Advanced Calculus

Credit Points 10 **Level** 2

Assumed Knowledge

Concepts of Mathematics

Equivalent Units

14054 - Mathematics 4; 14379 - Advanced Calculus; 14385 - Calculus 3; J2764 - Mathematics 2.1; J2765 - Mathematics 2.2.

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 OR J3657 - Analytical Chemistry 3 OR CH301A - Analytical Chemistry 3.1

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.

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 OR J3668 - 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.

300410.1 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.

Equivalent Units

14428.1 Advanced Topics in Science or 14402.1 Advanced Topics in Biology

Special Requirements

Students must be enrolled in an honours or postgraduate degree.

This unit will allow students to explore more advanced topics, including wider areas of research and their applications in science, technology 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 & 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

AG 403A Advances in Agronomy

This unit aims to provide students with professional exposure to current state–of- theart 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.

300532.1 Agricultural Risk

Credit Points 10 **Level** 3

Assumed Knowledge

Knowledge of the structure of the agriculture supply chain

Risks in the agricultural production and supply chain take various forms including biological risk (such as avian influenza or fire blight), production risk (including weather and climate), and financial risk (interest rates and commodity price fluctuations). In this unit students will be introduced to Australian Standard 4360 Risk Management and its associated methodology of risk assessment. Through case studies students will examine a range of risks and their management and explore the interrelations between risk factors. Students will consider where in the chain the risk lies, develop an understanding of who carries the risk and how, and methods for communicating and working with risk. Emphasis will be placed on enabling students to develop and interpret risk assessments.

300523.1 Agricultural Supply Chains

Credit Points 10 **Level** 1

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.

300525.1 Agriculture and Animal Systems

Credit Points 10 **Level** 2

Prerequisite

300522.1 - Introduction to Agricultural and Animal Systems

Corequisite

300527.1 - Analysis of Agricultural and Animal Systems

Equivalent Units

AG211a Multi Perspective Analysis of a Farming System and 300423 Animal Production Systems and AG216A Multi Perspective Analysis of a Landscape Management System

Special Requirements

Only 3631 B. Agriculture, 3592 B. Animal Science, 106A & 3571 B. Systems Agriculture, 3572 B Equine Studies students can enrol in this unit.

This unit involves students preparing for and undertaking an industry service learning project with an agricultural production, animal management or other approved environmental management organisation. During the period of fieldwork each student will undertake a university directed and assessed project to observe and collect data on the Agricultural or Animal System. Students will be guided to implement a multidisciplinary approach to data gathering including collecting information on production activities and the ecological, economic and social dimensions within and external to the Agricultural or Animal System. Data collected within this unit is used in Analysis of an Agricultural or Animal System for assessing the performance and sustainability of the system.

300531.1 Agriculture and Animal Systems Project

Credit Points 20 **Level** 3

Prerequisite

300525.1 - Agriculture and Animal Systems AND **300527.1** - Analysis of Agricultural and Animal Systems

Equivalent Units

AG301A Agricultural Systems Project and 300420 Animal Systems Project

Special Requirements

Only 3631 B. Agriculture, 3592 B. Animal Science, 106A & 3571 B. Systems Agriculture, 3572 B. Equine Studies students can enrol in this unit.

This unit requires students to initiate and conduct a major project with clients from industry, research organisations or public utilities involved with the use, service and/or management of agricultural or animals systems. The project work includes a number of activities (eg developing project proposal, methodology, data collection etc) negotiated with the client and a project supervisor. The unit will draw together all of the previous learning in the course as it applies to the agricultural or animal system under review. 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 professional development at the conclusion of the project unit.

300533.1 Agriculture: National and International Context

Credit Points 10 **Level** 3

Assumed Knowledge

A sound understanding of and some experience with analysis of agricultural production systems in Australia

This unit will focus on integrating the production elements of the agricultural supply/value chain into its various governance structures in national and international settings. In doing so this unit will examine the role of ethics and the development and implementation of rural and agricultural policy that relates to various issues associated with production within and the governance of the supply chain including regulatory and social frameworks. Methods for analysis of policy impacts will be presented and examined.

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

Unit was previously coded EH302A.

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.

400758.1 Alterations in Breathing, Sexuality, Work/ Leisure and Mobility

Credit Points 10 **Level** 2

Assumed Knowledge

Knowledge of biophysical principles and concepts addressed in 400746 Understanding Good Health and 400750 Introduction to Health Breakdown

Incompatible Units

400054 Nursing Therapeutics 4 and 400055 Nursing Therapeutics 5

This unit will elaborate the mechanisms of health breakdown and their application to professional nursing practice in supporting people who are affected in breathing, work/leisure, sexuality and mobility.

HT304A.1 Alternative Crops (V1)

Credit Points 10 **Level** 3

This unit integrates a number of areas - botany, ethnobotany, plant production and marketing in a research and development context. It takes case-study approach, using a series of guest presenters in a workshop format as well as visits to experience production, marketing and use of alternative crops, a range of potential and under-utilised plants to develop principles, themes and concepts relating to the study, research and development and exploitation, where appropriate, of such plant species. These will provide opportunities for first-hand tasting/evaluation of a number of products. Crops to be investigated include food and fibre crops, fungi and other non-flowering plants, medicinal and culinary herbs and bush foods.

200023.1 Analysis

Credit Points 10 **Level** 3

Assumed Knowledge

Advanced Calculus

Equivalent Units

14388 - Advanced Mathematical Topics OR 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.

300527.1 Analysis of Agricultural and Animal Systems

Credit Points 10 **Level** 2

Prerequisite

300522.1 - Introduction to Agricultural and Animal Systems

Corequisite

300525.1 - Agriculture and Animal Systems

Equivalent Units

AG212A Systemic Analysis of a Farming system and AG215A Systemic Analysis of a Landscape Management System and 300422 Analysis of an Animal Production System

Special Requirements

Only 3631 B. Agriculture, 3592 B. Animal Science, 106A &3571 B. Systems Agriculture, 3572 B Equine Studies students can enrol in this unit

In this unit students will be shown how to use the multi disciplinary data collected in Agriculture and Animal Systems to assess the performance and sustainability of an Agriculture or Animal System. Principles from the systems sciences will be introduced and used to model the complex patterns of interaction that occur between ecological, economic and social components of the system and between the system and its external environment. The systemic mapping will be used to explain the reasons for the organisations performance in managing its production systems and natural resource base and identifying areas for further research and development.

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 though 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 100 Chemistry

Prerequisite

300224.1 - Chemistry 1 OR **300554.1** - Principles of Chemistry

Equivalent Units

14132 - Chemical Analysis 1 OR CH201A - Analytical Chemistry 2.2 OR 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

Unit was previously coded 14152, CH301A, J3657.

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.1 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.

300316.1 Anatomy of the Head and Neck

Credit Points 10 **Level** 3

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.

300317.1 Anatomy of the Thorax and Abdomen

Credit Points 10 **Level** 2

Equivalent Units

E2320.1 Human Biological Sciences IV

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.

Focussing on a variety of wildlife and companion animal species, his 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.

14405.1 Animal Physiology

Credit Points 10 **Level** 2

Assumed Knowledge

300221 Biology 1 and 300222 Biology 2

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.1 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.

300561.1 Animal Research

Credit Points 10 **Level** 2

Special Requirements

Only students enrolled in 3592 Bachelor of Animal Science may enrol in this unit. 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 animal research projects. From developing report protocols to result analysis and documentation, groups of students will manage projects with a variety of domestic and wildlife species.

300421.1 Animal Science

Credit Points 10 **Level** 2

Assumed Knowledge

Basic knowledge of biology.

Equivalent Units

AG208A.1 Animal Production 1

This unit aims to develop some of the principles and concepts employed in animal production. Topics covered include animal reproduction, animal health, nutrition, animal behaviour, animals and their environment and animal growth and development. 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.

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 Burraga, and some essential integrated hands-on practical work with the relevant analytical instrumentation.

400330.2 Applied Biomechanics of Exercise

Credit Points 10 **Level** 3

Prerequisite

400139.1 - Biomechanics and Kinesiology

This unit builds on the basic principles of Biomechanics that is presented in Biomechanics and Kinesiology, applying this knowledge to the detailed biomechanical principles of human exercise performance. Biomechanics draws on many of the techniques and principles developed in other disciplines such as applied engineering and neuromuscular physiology. 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 will examine advanced methods and concepts in the biomechanical analysis.

10943.2 Applied Ergonomics

Credit Points 10 **Level** 1

Assumed Knowledge

Knowledge related to the successful completion of first semester year 1 would be of advantage and is assumed.

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, Ergonometrics, Human Engineering, Human Factors Engineering and Human Factors.

300413.1 Applied Instrumentation in Nanotechnology

Credit Points 10 **Level** 2

Assumed Knowledge

Physics 1, Chemistry 1, Biology 1, Nanotechnology 1, Physics 2, Chemistry 2, Concepts of Mathematics and 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.

NT307A.1 Applied Nutrition

Credit Points 10 **Level** 3

To develop skills so that students can; analyse a diet or formulation for nutritional value; assess the nutritional studies of individuals; develop nutritional and good products. Dietary assessment, assessment of food formulation, product development based on nutritional guidelines, nutritional status of individuals, computer simulation of dietetic problems.

200041.1 Applied Regression Analysis and Forecasting

Credit Points 10 **Level** 2

This is an intermediate level unit in statistics modelling and forecasting, focusing on applications of linear regression and forecasting techniques to various real-life problems. Topics include: review of simple linear regression and correlation - model assumptions, method of least squares, inferences (confidence intervals and tests of hypotheses), the ANOVA table, test for lack of fit; the multiple regression model - confounding and interaction in multiple regression; polynomial regression models; indicator(dummy) variables and model building; logistic response function; regression diagnostics; residual analysis, multicolinearity, detection of outliers, identification of influential observations, autocorrelation and some remedial measures for autocorrelation; time-series modelling and forecasting - components of time series, forecasting using smoothing techniques, forecasting using regression models, autocorrelation and auto regressive models.

200033.1 Applied Statistics

Credit Points 10 **Level** 2

Prerequisite

200032.1 - Statistics for Business OR **200192.1** - Statistics for Science OR **200263.1** - Biometry

The unit builds on the basic statistical concepts introduced in first year, and also prepares students for broader application of statistics for those majoring in science or business. Topics include 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; and fundamentals of time-series analysis.

SC204A.1 Approved Industrial Experience

Credit Points 0 **Level** 2

This is a "Work Experience in Industry" unit, for which no student contribution or fee is charged. Enrolment in the unit will not consume Student Learning Entitlement (SLE). It will provide students with an insight into industry and provide opportunities for students to gain experience working in industrial situations relevant to their interests. Students are required to complete a total of ten (10) weeks work experience in an approved job or jobs, generally accumulated during University vacation periods.

EH218A.1 Approved Industrial Experience (10Wks)

Credit Points 0 **Level** 2

This is a "Work Experience in Industry" unit, for which no student contribution or fee is charged. Enrolment in the unit will not consume Student Learning Entitlement (SLE). Students in the Bachelor of Applied Science courses are required to obtain at least ten weeks, vocationally relevant, industrial experience during their course of study. The aim of this learning component is to provide students with opportunities to apply theoretical concepts to real world situations. This aims to assist their personal and professional development through the use of various communication genres. Approved industrial experience aims to provide flexibility for students to pursue areas of interest and to assist in their selection of appropriate elective units in their course. Students are required to organise, formalise and validate at least ten weeks of university approved industry experience within an industrial, commercial or government situation during the course of their study.

FS203A.1 Approved Industrial Experience (42Wks)

Credit Points 0 **Level** 2

This is a "Work Experience in Industry" unit, for which no student contribution or fee is charged. Enrolment in the unit will not consume Student Learning Entitlement (SLE). Attendance requirements at university one week each session. Objectives: To involve the students in a number of major aspects in local government, community and health matters. To develop the students' professional interest and attitudes in the widest range of matters, as an active participant (under the direction of qualified inspectors), in the environmental health and regulatory areas of the employing body. To become involved as short term observers at the ancillary functions of councils and commissions. To enable the student to utilise the skills and techniques already gained to carry out a project of

use to the employing authority. To provide an experiential foundation for final year studies in areas of food surveillance, noise control and assessment and practicum studies.

300465.1 Aquatic Ecology

Credit Points 10 **Level** 3

Equivalent Units

BI304A.1 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.

300327.1 Australian Plants

Credit Points 10 **Level** 3

Equivalent Units

BI306A.1 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.

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

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.

400748.1 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.

400747.1 Behavioural Foundations of Nursing Practice

Credit Points 10 **Level** 1

Equivalent Units

400046 Nursing Science 1

This unit introduces the student to psycho-social concepts and principles that underpin human behaviour and inform professional nursing practice.

300219.1 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.

Prerequisite

300221.1 - Biology 1 OR **300543.1** - Cell Biology AND **300224.1** - Chemistry 1 OR **300225.1** - Chemistry 2 OR **300550.1** - Medicinal Chemistry OR **300554.1** - Principles of Chemistry

Equivalent Units

14421 - Biochemistry 1 OR 14437 - Biochemistry 1 OR 300555 - Proteins and Genes OR BC201A -

Biochemistry 2.1 (V1) OR J2820 - Introductory Biochemistry

Incompatible Units

300227 - General Biochemistry

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. Some campus specific topics, such as complex carbohydrate biochemistry and protein glycosylation at Parramatta may be 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 OR 14440 - Biochemistry 2 OR 300548 - Human Metabolism and Disease OR BC202A - Biochemistry 2.2 (V1) OR J2821 - Biochemistry of Metabolism

Incompatible Units

300227 - General Biochemistry

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.

400493.1 Biochemistry for Naturopathy

Credit Points 10 **Level** 1

This module applies a basic knowledge of chemistry and physiology to understanding physiological processes at a chemical level and relates this to Naturopathic principles. Students learn how carbohydrates, proteins and lipids are metabolised, the fundamentals of cellular respiration, the principles of enzyme action and the basics of heredity. They also learn the biochemical processes peculiar to specific organs, including the liver, the brain and the kidneys, with a view to increasing their understanding of the importance of diet, lifestyle, and naturopathic treatment in a wholistic treatment context. The module provides students with the skills to perform simple biochemical tests, and to interpret blood and pathology test results as an important adjunct in the assessment of a client's health status.

300414.1 Biodevices

Credit Points 10 **Level** 3

Assumed Knowledge

Chemistry 1 and Chemistry 2. Biology 1 and Nanotechnology 2

This unit will be offered from Autumn 2006. 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 OR 300222 - Biology 2 OR BI102A - Biological Sciences 1.2 (VI) OR BI108A - Biological Sciences 1.2(X) OR J1761 - General Biology

Incompatible Units

300361 Introduction to Human Biology OR 400130 Human Medical Sciences 1 OR B1904 Biology for Psychologists OR B1905 Genetics and Bioscience for Psychologists OR BI005A Biology 1.1D OR BI106A Biological Sciences OR BI107A Biological Sciences 1.1 (X)

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.

400325.1 Bioenergetics of Exercise

Credit Points 10 **Level** 2

Prerequisite

400130.1 - Human Medical Sciences 1

This unit investigates energy production for exercise in an integrated fashion. It covers energy pathways and their control; determining pathway contributions to exercise of various types; energy, performance, nutrition, exercise, body composition, weight control and obesity links plus metabolic limitations to exercise.

200295.1 Bioethics

Credit Points 10 **Level** 2

Equivalent Units

69161 Bioethics

This unit covers some of the ethical and legal issues associated with medical practice and research, including issues raised by new developments in biotechnology. There is a strong emphasis on clarification of personal values. Topics covered include some of the following: the nature of moral thinking, issues of life and death, experimentation and research involving human and animal subjects, organ transplantation, genetic manipulation, new reproductive technologies, access and rationing of health care resources and ethical issues in psychiatry.

BI107A.1 Biological Sciences 1.1 (X)

Credit Points 10 **Level** 1

This unit will examine the natural history and general biology of living organisms at the cellular level. The following ecological concepts are included in the unit: biological chemistry, cell biology, metabolism, photosynthesis and Mendelian genetics. The unit is designed to introduce the student to biological science and provide a basic understanding of the biological basis of life.

300221.1 Biology 1

Credit Points 10 **Level** 1

Assumed Knowledge

Basic Chemistry and Biology.

Equivalent Units

14430 - Foundation Biology 1 OR 300543 - Cell Biology OR BI101A - Biological Sciences 1.1 (V1) OR J1760 - Fundamentals of Cell Biology

Incompatible Units

300361 - Introduction to Human Biology OR BI904 - Biology for Psychologists OR BI905 - Genetics and Bioscience for Psychologists OR BI005A - Biology 1.1D OR BI106A.1 Biological Sciences 1.2 OR BI107A - Biological Sciences 1.1(X)

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, protistans, 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 OR 300539 - Biodiversity OR BI102A - Biological Sciences 1.2 (V1) OR J1761 -General Biology

Incompatible Units

300361 Introduction to Human Biology OR 400130 Human Medical Sciences 1 OR B1904 Biology for Psychologists OR B1905 Genetics and Bioscience for Psychologists OR BI005A Biology 1.1D OR BI106A Biological Sciences OR BI107A Biological Sciences 1.1 (X)

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.

400139.2 Biomechanics and Kinesiology

Credit Points 10 **Level** 2

Assumed Knowledge

Prior knowledge of structural and functional anatomy of the human body.

Equivalent Units

Unit was previously coded B2085 and E4320

The study of biomechanics (the science that examines forces acting upon a structure) and kinesiology (the study of human movement) is essential to understanding how the human body functions in daily activities, exercise and sport. It is also important when considering where problems may arise with human movement, such as with disease processes (such as rheumatoid arthritis), over exercising and postural pathology. This unit is designed to introduce the student to the principles of biomechanics and kinesiology, by studying the principles of human movement, balance and equilibrium, mechanical and kinesiological factors involved in tissue type and motion and the analysis of human movement.

200263.1 Biometry

Credit Points 10 **Level** 1

Assumed Knowledge

HSC Mathematics

Equivalent Units

200032 - Statistics for Business OR 200192 - Statistics for Science

Incompatible Units

200190 - Finite Mathematics OR 200194 - Engineering Mathematics 3

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 OR J2776 - 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 B.Sc (Biomolecular Science).

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 OR 300299 - Chemistry Project 3 OR J3659 - Biological Science Project OR J3662 - Chemistry Project

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.

14455.1 Biotechnology

Credit Points 10 **Level** 3

Assumed Knowledge

Biochemistry 1 and 2, Microbiology 1

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.

400363.1 Block Clinical Practicum (TCM)

Credit Points 10 **Level** 4

Assumed Knowledge

Equivalent experience and skills to TCM Practice 4.

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 provides the student with intensive, supervised clinical practice experience. Arrangements will be made for students to complete this stage in China at an assigned hospital. 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.1 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.1 - Brand Management

Brand and product management are key elements of a company's marketing strategy. This unit introduces

participants to the major marketing management issues in these areas, including the significance of brand equity, the management of product life-cycles, product and brand positioning, new product development, management of brand and product portfolios, global product management and the relationship with price, channel and promotion strategies.

BG101A.1 Building 1

Credit Points 10 **Level** 1

Aims: To provide students with an overview of building regulations and construction techniques with an emphasis on low rise residential buildings; techniques of surveying land and buildings. Content: General process, local council, building regulations, permits, professions, players and makers, constraints (environmental and regulation), construction process (foundations, footings, framing, structure, cladding, services), history (architectural styles, economy), structural elements (bracing systems), envelope, surveying.

BG103A.1 Building 2

Credit Points 10 **Level** 1

Assumed Knowledge

Basic understanding of residential construction.

Aims: To provide students with an elementary understanding of the construction technology of larger scale buildings. Content: Classification of buildings, Australian Standards, reusing existing developed sites, environmental aspects of construction, refurbishment, construction process for larger buildings (site preliminary work, substructure, structure, servicing, fitout).

200292.1 Building Law

Credit Points 10 **Level** 3

Equivalent Units

LW305A Building Law 2

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

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.

300543.1 Cell Biology

Credit Points 10 **Level** 1

Assumed Knowledge

Basic Chemistry and Biology

Equivalent Units

14430 - Foundation Biology OR 300221 - Biology 1 OR BI101A - Biological Sciences 1.1(X) OR J1760 - Fundamentals of Cell Biology

Incompatible Units

300361 - Introduction to Human Biology OR BI904 - Biology for Psychologists OR BI905 - Genetics and Bioscience for Psychologists OR BI005A - Biology 1.1D OR BI106A - Biological Sciences 1.2 OR BI107A Biological Sciences 1.1(X)

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 OR J3830 - Immunology and Cell Signalling

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

14509.1 Chemical Mineralogy

Credit Points 10 **Level** 2

Prerequisite

300224.1 - Chemistry 1 OR **300554.1** - Principles of Chemistry

This unit covers the composition, structure and parageneses of selected examples from the silicate and non-silicate mineral groups. It deals with the structures of simple ionic compounds, 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. In addition, the application of transmitted and reflected polarising light microscopy and other analytical methods (X-rays, SEM and microprobe) in the study of minerals and their properties is explored.

300224.1 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 OR 300554 - Principles of Chemistry OR CH103A Chemistry 1.1 OR J1753 - Chemistry 1

Incompatible Units

CH101A - Introductory Chemistry 1.1D

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.

300225.1 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 OR 300550 - Medicinal Chemistry OR CH104A - Chemistry 1.2 OR J1716 - Chemistry 1.2

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.

300299.1 Chemistry Project 3

Credit Points 10 **Level** 3

Assumed Knowledge

This unit is aimed at undergraduates with a good grounding in chemistry. Assumed knowledge includes 200-level chemistry units appropriate to the individual project.

Equivalent Units

J3662 Chemistry Project 3, 14117 Chemistry Project

The fundamental aim of this unit is to introduce the student to the research ethos and opportunities in chemical research. The student is encouraged to develop research skills in a particular area of interest. This unit offers a challenge and allows innovation by the student with respect to both method and direction.

400819.1 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 to enrol in this unit.

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 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

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.

101325.1 Children, Wellbeing and Society

Credit Points 10 **Level** 3

Assumed Knowledge

Knowledge of sociological or psychological concepts and theories.

Equivalent Units

25042 Youth, Childhood & Health: Social Perspectives

Special Requirements

80 credit points of completed study.

Childhood is something we all experience yet few of us understand. This unit provides the opportunity for students to develop concepts, theories and issues from within the sociology of childhood and from the social sciences by examining a range of life course themes and experiences of childhood (including adolescence). Central to the unit is the notion that childhood is an individual experience that occurs in and is impacted upon by a variety of social, cultural and historical contexts, which are negotiated through the sense of self fostered in childhood. The subject critically explores a variety of topics of relevance to understanding childhood in the 21st century. This unit aims to explore the dominant discourses of childhood (eg developmental and socialisation theories) and their impact on the lives of children.

400349.1 Chinese Herbal Medicine 1

Credit Points 10 **Level** 1

Assumed Knowledge

Assumed knowledge equivalent to Traditional Chinese Medicine 1.

Special Requirements

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Persons Declaration; Criminal Record Check Clearance;

Herbal medicine is one of the principal therapeutic interventions in TCM. This unit introduces students to the therapeutic and reference organisation of Chinese medicinals, and enables students to commence using the materia medica. It covers the major commonly used medicines in each of the eighteen categories of the Chinese materia medica, including pin-yin name, botanical name, properties, actions, indications, contraindications and combined usage. This unit also expands upon the student's understanding of TCM theory and practice principles.

400351.1 Chinese Herbal Medicine 2

Credit Points 10 **Level** 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;

Herbal medicine is the principal therapeutic intervention in TCM. This unit follows from Chinese Herbal Medicine 1, and begins the study of classical 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.

400353.1 Chinese Herbal Medicine 3

Credit Points 10 **Level** 2

Assumed Knowledge

Assumed knowledge equivalent to Chinese Herbal Medicine 2 and Traditional Chinese 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;

Herbal medicine is the principal therapeutic intervention in TCM. This unit completes the study of classical Chinese herbal formulas, which forms 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. The clinical aspect includes prescription writing and preparation of formulas.

400357.1 Chinese Internal Medicine 1

Credit Points 10 **Level** 3

Assumed Knowledge

Assumed knowledge equivalent to Traditional Chinese Medicine 3, and Acupuncture 2, and Chinese Herbal Medicine 3.

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.

400360.1 Chinese Internal Medicine 2

Credit Points 10 **Level** 4

Assumed Knowledge

Assumed knowledge equivalent to Traditional Chinese Medicine 3, and Acupuncture 2, and Chinese Herbal Medicine 3.

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.

300005.1 Circuit Theory

Credit Points 10 **Level** 2

Assumed Knowledge

Content contained in 200238 Mathematics for Engineers 2. Ordinary Differential Equations, inlcuding 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

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.

400355.1 Classical Texts in Chinese Medicine

Credit Points 10 **Level** 3

Assumed Knowledge

Assumed knowledge equivalent to Traditional Chinese Medicine 3, and Chinese Herbal Medicine 3.

This unit provides learning experiences that enable the students to gain an understanding of the original theories on physiology, pathology, diagnosis, differentiation and treatment of diseases through select periods of Chinese history. Many theoretical concepts, disease syndromes and herb formulas are still in current usage. Major schools of TCM thought will be covered through the study of important classical texts. This unit expands upon the student's understanding of TCM theory and practice principles through study of the classical literature.

400262.1 Clinical Diagnosis

Credit Points 10 **Level** 2

Prerequisite

400130.1 - Human Medical Sciences 1

Equivalent Units

E2323 Clinical Pathology & Diagnosis

This unit is designed to introduce students to detailed knowledge of physical examination skills and diagnostic techniques necessary for the diagnosis of abnormalities. Because of the significance of the primary contact health practitioner and diagnostician role, it is essential that students become competent at disease presentation, various diagnostic methods, selection of appropriate laboratory tests and interpretation of the findings. This unit will also help students to develop crucial clinical reasoning skills required in the medical decision making process.

400166.1 Clinical Neurosciences

Credit Points 10 **Level** 2

Prerequisite

400130.1 - Human Medical Sciences 1

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.

400135.1 Clinical Pharmacology and Microbiology

Credit Points 10 **Level** 2

Prerequisite

400130.1 - Human Medical Sciences 1

Equivalent Units

Unit was previously coded E3325 Medicine and Pharmacology.

This unit explores in greater depth those medical sciences fundamental to the clinical practice of alternative and complimentary medicine. The pharmacology component of this unit is intended to provide students with thorough preparation in the fundamental aspects of this discipline. General introduction of pharmacological concepts will be followed by the discussion of common drugs affecting different body systems. The microbiology component of this course is designed to provide students with the knowledge and skill to identify likely causative organisms, understand the complex relationship between host and pathogen, and select and implement rational clinical and pharmacological therapeutic strategies as required.

300089.1 Commercial Applications Development

Credit Points 10 **Level** 2

Equivalent Units

J2734.1 Commercial Programming 2

This unit is designed to acquaint students with the advanced techniques and practices of commercial programming, using both the object-oriented extensions to the COBOL programming language, and object-oriented design and programming techniques. The unit is the continuation of the unit Procedural Applications Development. It builds on and extends students' knowledge of the procedural COBOL 85 language, providing an introduction to the new object-oriented revisions to COBOL. It provides students with the challenge of developing new applications in a complex object-oriented environment.

300089.2 Commercial Applications Development

Credit Points 10 **Level** 2

Assumed Knowledge

It is assumed that students have an understanding of analysis & design principles and an overview of database operation

Prerequisite

300580.1 - Programming Fundamentals

This unit builds on programming principles to develop commercial software applications based on commonly used off the shelf packages such as Word, Excel and Access. It covers the development of programs for these packages using macro programming techniques and programming language such as Visual Basic. It provides a solid understanding along with practical applications of macro and scripting language usage, development, debugging, security and the possible application interactions. It is a preparation and foundation for the scripting and macros as found in IS systems/packages from operating system shell scripts, web applications to database stored procedures.

300068.2 Communication Electronics

Credit Points 10 **Level** 5

Prerequisite

200238.1 - Mathematics for Engineers 2 AND **300025.1** - Electronics

Equivalent Units

Coded 84488, Advanced Electronics

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. In this unit students develop skills in both written and verbal communication in preparation for work within the health professions. Students will develop self-awareness of their professional, interpersonal and communication skills, enhancing their ability to develop appropriate professional relationships with clients and colleagues.

300007.1 Communication Systems

Credit Points 10 **Level** 3

Prerequisite

300057.1 - Signals and Systems

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.

300283.1 Community Environmental Health Action

Credit Points 10 **Level** 2

Assumed Knowledge

A basic understanding of problem-based and experiential learning. A grounding in community perspectives in environmental management/health practice.

Equivalent Units

EH220A.1 Environment and Community Studies 2 EH323A.1 Environmental Health Education

This unit aims to introduce students to the application of change management strategies in a community setting. Specifically, students will explore the role of community development, communication and education in shaping community empowerment, values and behaviour in relation to human health and environmental management.

400820.1 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 to enrol in this unit.

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

14957.1 Compiler Theory & Practice

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 unit is on offer from Spring 2006. 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

14949.1 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

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

14956.1 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

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.

300095.1 Computer Networks and Internets

Credit Points 10 **Level** 3

Prerequisite

300094.1 - Computer Networking Fundamentals OR **300086.1** - Applied Data Communications and Networking

Equivalent Units

14961.1 Data Communications 2 or J3748.1 Advanced Networks and Internetworking

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.

300095.2 Computer Networks and Internets

Credit Points 10 **Level** 3

Prerequisite

300094.1 - Computer Networking Fundamentals 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.

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.

300096.2 Computer Organisation

Credit Points 10 **Level** 2

Assumed Knowledge

Basic programming ability in a high level language, including pseudo-code, familiarity with fundamental high level programming constructs.

Prerequisite

300125.2 - Fundamentals of Computer Science OR **300018.1** - Digital Systems 1

Equivalent Units

Formerly coded 14990 Computer Organisation.

This unit is designed for computer science students, particularly those interested in systems programming and hardware development. The students will learn about the interface between the hardware and software of a computer system. This will involve study of some aspects of computer architecture and low level interfacing to gain an insight into CPU organisation at the assembly language level. After completing this unit students will be able to write procedures in an assembly language and use their understanding of the relationship between the instruction set architecture and the implementation of high level languages to write efficient programs.

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.

Equivalent Units

300163 Structured Analysis and Design

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

Restriction to Honours students.

The seminar program in 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

Restriction to Honours students.

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.

300365.1 Computing Research Process and Practice

Credit Points 10 **Level** 7

Equivalent Units

300244.1 Information Technology Research Methodology

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.

Incompatible Units

200031.1 - Mathematics for Business OR 200195.1 - Mathematical Methods A OR 200196.1 - Mathematical Methods B OR 200237.1 - 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

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.

85251.2 Concrete Structures (UG)

Credit Points 10 **Level** 3

Assumed Knowledge

Knowledge of engineering mechanics and statistics

Prerequisite

85006.2 - Introduction to Structural Engineering

Corequisite

85010.1 - Structural Analysis

This unit provides the foundations of knowledge and understanding for the design of concrete structures. The lectures are focused on structural behaviour, whilst the tutorials address design aspects of relevance to concrete structures. A major component of the unit involves design projects, in which the students are set the task of designing simple but realistic structures using the information gained in lectures and tutorials.

400184.1 Conducting Medicolegal Assessments

Credit Points 10 **Level** 3

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.

300226.1 Conservation Biology

Credit Points 10 **Level** 7

Assumed Knowledge

First year biology units or equivalent.

Equivalent Units

BI805A.1 Conservation Biology

This unit provides an advanced understanding of the concepts involved in single-species conservation by enhancing students' appreciation of the issues involved in the establishment of plans of management of endangered species, and developing the professional skills needed in establishing plans of management.

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.

The unit provides students with an understanding of economic principles and how the national and international economies function in relation to the construction industry, individual construction firms, sub-contractors and suppliers. An understanding of how economic reasoning may be applied to various problems in the construction industry. The impact of globalisation on the construction industry. Government policy and the construction industry. Measuring the degree of competition in the construction 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

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.

200484.1 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

MG313A.1 - Project Management AND **PL302A.1** - Construction Planning (V1) AND **200482.1** - Construction in Practice 1

Equivalent Units

BG408A Building in Practice 3

This unit provides a vehicle to enable students to learn how to integrate and develop knowledge gained earlier in the course by tackling assignments related to complex construction projects that simulate industry practice. Areas covered include - analysis of existing buildings, analysis of market influences with regard to leasing/sale of buildings, financial planning, contract planning, project management, specification writing, quantity surveying, estimating, costing for tendering purposes, tendering procedures.

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.

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 and overview of information management, data collection and storage, information classification systems, communications, specialist computer applications and artificial intelligence.

PL302A.1 Construction Planning (V1)

Credit Points 10 **Level** 3

Assumed Knowledge

Understand estimating preliminaries for multi storey construction.

Prerequisite

200468.1 - Estimating 1 AND **MG313A.1** - Project Management

Aims: This unit is intended to give students the ability to organise the resources required for a major construction project, to plan the sequence and timing of construction operations, to assess the risk inherent to achieving a construction schedule, and to evaluate emerging trends in construction planning. Content: resource allocation, probilistics scheduling, systems simulation, multi project scheduling

BG204A.1 Construction Technology 1 (Civil)

Credit Points 10 **Level** 2

Prerequisite

BG101A.1 - Building 1 AND **BG103A.1** - Building 2

Aims: The development of the students' knowledge and skills in appraising the site requirements for construction purposes both at the pre tendering and construction phase of a project. Content: Soil classification, site investigation, retaining walls, trenches, detention/retention pits and basins, temporary structures, settlements, demolition, site dewatering, surveying.

BG207A.1 Construction Technology 2 (Substructure)

Credit Points 10 **Level** 2

Prerequisite

BG204A.1 - Construction Technology 1 (Civil)

Aims: This unit will aim to further develop students' knowledge of substructures. Content: Strip footings, piling, piering, rafts, waffle structures, materials handling, load bearing capacity, impact of structure on surface and sub surface drainage, underpinning and temporary substructures, waterproofing techniques, materials science (concrete and masonry).

200502.1 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)

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.

200470.1 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)

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.

200471.1 Construction Technology 5 (Envelope)

Credit Points 10 **Level** 4

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.

BG406A.1 Construction Technology 6 (Services)

Credit Points 10 **Level** 5

Aims: To examine mechanical, electrical, gas, hydraulic, fire protection, communication, transportation, maintenance and security services applicable to conventional and intelligent building systems Content: Heating, ventilating, air conditioning, electrical reticulation, gas reticulation, water reticulation, sewer plumbing and drainage, stormwater plumbing and drainage, active fire systems, communication systems, elevators, escalators, building management systems.

300360.1 Consumer Issues in Nutrition

Credit Points 10 **Level** 2

Equivalent Units

FS204A.1 Food and Nutrition Practicum 2.1

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.

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.

400822.1 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.

400795.1 Contemporary Youth Health Issues

Credit Points 10 **Level** 2

Equivalent Units

100668 The Health of Young People

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 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

200238.1 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 **300020.1** - Dynamics and 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 utlilized 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 OR J2758 - 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.

400680.1 Crime and Criminal Justice

Credit Points 10 **Level** 1

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

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.

300374.1 Crime Scene Investigation

Credit Points 10 **Level** 2

Assumed Knowledge

Successful completion of SC103A Forensic Science and/or 300375 Digital Forensic Photography 1.

Special Requirements

This unit is only available to students who are enrolled in 3589 Bachelor of Science (Forensic Science).

The detection and collection of forensic evidence is a pivotal function in forensic science. This unit examines the practice of crime scene investigation including detection, collection and preservation of physical evidence gained from crime scenes. It also explores the legal requirements of evidence continuity, evidence integrity and court presentation of evidence. Crime scene investigation topics covered in this unit include: documenting the crime scene, controlling the crime scene, shoe and tyre impression comparisons, tool mark evidence, fingerprints, blood stains and blood splatter evidence, GSR (gun shot residue), image analysis of physical evidence, DVI (disaster victim identification), hairs and fibres evidence and others.

400088.2 Critical Qualitative Research

Credit Points 10 **Level** 2

Methods in critical qualitative research deals with research methodologies and skills in a way which challenges the idea that there is a divide between theory and practice, between debates conducted on the pages of academic journals and those which emerge in mainstream media or in the workplace. This unit creatively explores a number of different methods that social researchers use to conduct their research. Students will also have the opportunity to conduct a research project on a topic of their choice.

400816.1 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.

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

FS325A.1 Culinary Studies 3.2

Credit Points 10 **Level** 3

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.

200036.1 Data Mining and Visualisation

Credit Points 10 **Level** 2

Assumed Knowledge

200192 Statistics for Science or 200032 Statistics for Business or 200263 Biometry

Equivalent Units

J3763 Data mining and Visualisation

This unit introduces a systematic approach to gaining insight into large data sets through appropriate data extraction processing and representation, using mathematical, statistical and visualisation techniques. It demonstrates how visualisation tools and techniques, created through interdisciplinary work, are used to generate visuals from large and complex data sets to help interpretation. The data mining techniques section illustrates how to extract information and data

in order to understand a given problem with a given set of requirements.

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

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

84355.1 Data Communication & Computer Networks or 89038.1 Data Communications & Network Technology

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

300156.1 - Programming Principles 2 OR **300125.1** - Fundamentals of Computer Science

Equivalent Units

J2741.1 Data Structures & File Organisations or 14906.1/14945.1 Data Structures

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.

300104.1 Database Design and Development

Credit Points 10 **Level** 2

Assumed Knowledge

Knowledge of entity-relationship modelling and one programming language.

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

200035.1 Decision Analysis and Statistical Process Control

Credit Points 10 **Level** 2

Assumed Knowledge

Basic or introductory knowledge of statistics or mathematics.

This unit provides a selection of statistical techniques useful in business, industry, technology and many other disciplines, with particular emphasis on the analysis of decisions and quality processes and management. Topics include elements of decision theory; decision making with experimental information; definition of quality control, quality assurance and total quality; control charts for variables and attributes; acceptance sampling; and process capability improvement.

200485.1 Decision Making for Construction Professionals

Credit Points 10 **Level** 2

Assumed Knowledge

Communications for Construction Professionals

Prerequisite

300461.1 - Engineering and Industrial Design Practice

The unit will examine a range of methods that can be applied to problem solving. The unit will prepare students for independent research work and comprise an introduction to the project based units. Content: Problem definition, option development, investigation planning, information technology, data analysis, critical interpretation.

300012.2 Design Management 1: Product Design Audit

Credit Points 10 **Level** 2

Equivalent Units

10884.1 Design Management 1: Corporate Image

This unit focuses on the development of the product/ service audit process and study of a corporation's image and identity as perceived by the target groups it aims to reach. Students will study the approach taken to develop a strategic design management plan that pursues established aims and controls the way a corporation presents itself to its target audience(s) and differentiates itself against its competition in the targeted market(s).

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

10885.1 Design Management 2: Corporate Identity

Special Requirements

The Company chosen by a student as a case study in 300012.2 Design Management 1, on which the assignments are based, should be followed through to 300013.2 Design Management 2.

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

10886.1 Design Management 3B: Professional Practice

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

10887.1 Design Management 4: Corporate Design

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

Prerequisite

300040.1 - Mechanics of Materials AND **300480.1** - Dynamics of Mechanical Systems

Equivalent Units

300064.1 Thermo-fluids Engineering

This unit will be offered from 2006. This unit is intended to introduce students to servo-systems in general including pneumatic and hydraulic servo control systems as applicable to manufacturing and process machinery. All aspects of such systems and their integration in automated applications in industry will be discussed including the fluid circuit design, equipment selection and becoming familiar with industry standards. Project based design to be tested in the laboratory under the supervision of technical officers, will form part of the unit to provide practical experience with servo-systems.`

300016.1 Design Science

Credit Points 10 **Level** 1

Assumed Knowledge

Any two units of HSC Mathematics

Equivalent Units

J1807.1 Engineering Science

This unit provides an introduction to physical units, tolerancing, statics, dynamics and optics for students studying Industrial Design. It also covers basic electricity and magnetism, concepts of momentum, energy, work, power and operation of motors and machines.

300305.2 Design Studio 1: Themes and Variations

Credit Points 10 **Level** 2

Assumed Knowledge

It is assumed students are enrolled in Industrial Graphics 2 or are proficient in engineering drawing allowing them to complete the engineering drawing component of the assessment.

Prerequisite

300462.1 - Engineering and Design Concepts

Equivalent Units

Unit was previously coded 10953, J2815, and J2869.

Global markets and continuing fragmentation of market segments now demand that designers understand sub-cultural groups and changing lifestyle trends in niche markets. This unit delivers creative design concepts and technical development methodologies to enhance product-form related aspects ('aesthetics') of design that are inspired and driven by cultural research.

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

Unit was previously coded 10954, J2870, and J3804

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 and 300310 Industrial Graphics 3: 3D Solids.

Equivalent Units

Unit was previously coded 10955, J3765, J3805 and J3825

Students explore design perspectives within an industry interactive project theme including user centred design; reduced environmental impact guided by sustainable design principles; discuss technological and cultural viewpoints; experience 'designer as

manager' client relations; value analysis and production technologies. Research is conducted in groups and proposals define a strategy of activities that contribute to the detailing of a product system - realisation. The focus is on the most cost-effective user centred criterion-based design for manufacture whilst observing social, economic and environmental balances. Integration of prior knowledge and reporting of this synthesis is essential to progression in this unit.

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

Unit was previously coded 10855.

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.

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.

BG303A.1 Development Control (V2)

Credit Points 10 **Level** 2

Assumed Knowledge

Basic understanding of residential construction.

Objectives: Students will be able to: discuss current issues related to development control; relate the law to the development application process; assess applications for approval for development as an integrated process; evaluate impact assessment issues; consider urban design, streetscape, heritage and conservation issues; discuss parking, traffic landscape and services.

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.

300114.1 Digital and Analog Fundamentals

Credit Points 10 **Level** 1

Equivalent Units

14732 - Logic Circuits OR J1750 - Digital Systems OR J1810 - Electronic Circuits & Devices

This unit provides students with a fundamental working knowledge of digital and analog systems, which is essential for further study in the field of data communications and computer engineering. The unit covers elementary analog topics such as DC and AC circuit principles, BJT and FET, op amps; and elementary digital topics such as basic gates, Boolean principles, codes, memory devices, introduction to the hardware level of digital communications, analog-to-digital and digital-to-analog conversion, state machines and programmable digital logic devices.

300370.2 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.

Prerequisite

300009.2 - Control Systems

Equivalent Units

84465.1 Real Time Control

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).

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.

300376.1 Digital Forensic Photography 2

Credit Points 10 **Level** 2

Assumed Knowledge

Successful completion of 300375 Digital Forensic Photography 1.

Special Requirements

This unit is only available to students who are enrolled in 3589 Bachelor of Science (Forensic Science).

This unit is on offer from Autumn 2006. This unit provides more advanced photography applications specifically for forensic investigation. The unit provides the learner with theoretical knowledge and practical skills to perform a number of forensic investigation tasks to current industry competencies. Various lighting applications are explored including studio lighting for exhibits, shadowless lighting and invisible radiation (ultraviolet and infrared). The unit will also explore photography techniques which can 'detect' evidence, such as art fraud, latent wounds and fingerprints. Photomacrography and close-up photography is also comprehensively covered in this unit. A field trip to a mortuary to witness autopsy procedures and recording is included as a component of pathology and medical photography.

300069.2 Digital Signal Processing

Credit Points 10 **Level** 3

Assumed Knowledge

Studen's should be able to apply knowledge from 300005 Circuit Theory: Employ the basic principles of analysing an AC electric circuit; Apply Kirchhoff's Voltage and Current laws and their use in electric circuits; Apply Nodal analysis, mesh analysis and superpositiion 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

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 Kirchhoff's Voltage and Current laws and their use in electric circuits; Understand the concept of operational amplifier and its circuit.

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.

300019.2 Digital Systems 2

Credit Points 10 **Level** 2

Prerequisite

300018.1 - Digital Systems 1

This unit covers modern digital design techniques and the process of creating a digital circuit from design specifications to the implementation of more complex digital circuits and systems. Specific topics include a review of logic design techniques; hardware description languages, HDL; digital circuit modeling using an HDL; logic simulations; state-of-the-art digital circuit design tools; programmable logic devices; digital circuit implementation rapid circuit prototyping; integration of HDL, a digital circuit design tool and programmable logic devices in a single design process.

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, and 14323 Maths for Computing.

This level 100 unit introduces set theory, symbolic logic, graph theory and some counting problems. It serves as a grounding for further study in mathematics or computing.

300115.1 Distributed Systems and Programming

Credit Points 10 **Level** 3

Prerequisite

300167.1 - Systems Programming 1 AND **300094.1** - Computer Networking Fundamentals

Equivalent Units

14978.1 Introduction to Distributed Systems

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

300461 - Engineering and Industrial Design Practice and 300027 - Engineering Computing.

Prerequisite

85009.1 - Water Engineering

Equivalent Units

85017.1 Foundation and Drainage or 85025.1 Hydrometeorology

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

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.

400791.1 Drug Use in Society

Credit Points 10 **Level** 3

Equivalent Units

100667 An Introduction to Drug Use in Society

This unit examines drug issues in the context of Australian society. It will focus on exploring factual information and common misconceptions (including personal attitudes and values), societal expectations and responses, drug education, drug education programs and health promotion, and community resources. It encourages students to appreciate the many and varied social contexts of drug use and to think critically and analytically about creative alternatives to drug use issues in contemporary society.

100674.1 Drugs in Sport

Credit Points 10 **Level** 3

This unit examines the dominant issues and discourse around the use of drugs in sport. The focus will be on exploring the socio-cultural, political and personal reasons why drugs are used in sport from the perspective of athletes, coaches, administrators and educators. Students will need to continually reflect upon their own practices and beliefs around drug use and sport. The unit offers challenging and relevant theoretical and practical experiences to students from a variety of professional backgrounds.

E1250.1 Drugs on Line

Credit Points 10 **Level** 1

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, pain management, mood altering drugs and megavitamins.

101319.1 Drugs, Addiction and Society

Credit Points 10 **Level** 2

Equivalent Units

25033 Dependency & co-dependency in health care
C3424 Drug and alcohol studies

Special Requirements

40 credit points of completed study.

The use of alcohol and other drugs is a highly controversial issue within the community. Most people use drugs of some kind yet particular drugs are demonised. This unit acquaints students with the complexity of studying alcohol and drug misuse from both an individual and a social perspective. Contemporary patterns of alcohol and drug use are initially placed within a structural, cultural and historical perspective and various conflicting approaches to the definition and consequent management of problematic drug use and drug dependence are studied. Distinctions among the various levels of problematic use are introduced and questions of basic pharmacology motivations for drug use and theories of dependence are examined.This subject aims to explore the discourses surrounding drugs as well as the reasons for drug use and forms of dependence. Students will also critically examine different kinds of policy and therapeutic practice within the drug field.

400781.1 Dynamics of Health

Credit Points 10 **Level** 1

Equivalent Units

400270 Meanings of health & models of care

Incompatible Units

400164 Introduction to Sociology of Health

This Unit introduces students to understandings about the nature of health through history and across cultures as well as to current conceptions regarding the various determinants of health and illness. Types of health issues encountered nationally and globally are considered, and used to provide an introduction to basic concepts of epidemiology.

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

300020.1 Dynamics and Mechanical Systems

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.

EY210A.1 Ecology 2.1

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.

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.

300526.1 Ecosystems and Agriculture

Credit Points 10 **Level** 2

Assumed Knowledge

Basic knowledge of plants, animals, soils and climate would be an advantage.

Equivalent Units

EY103A Ecosystems and Agriculture

Special Requirements

Students will need closed in shoes for field work and closed in shoes, laboratory coats and safety glasses for laboratory work.

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.

300567.1 e-Health

Credit Points 10 **Level** 3

Assumed Knowledge

Students need knowledge in design and implementation of Web Applications before undertaking e-Health Students need the background knowledge of the application of computing and IT within the context of healthcare before undertaking e-Health.

Prerequisite

300582.1 - Technologies for Web Applications AND 300566.1 - Introduction to Health Informatics

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.

300070.1 Electrical Drives

Credit Points 10 **Level** 1

Prerequisite

300071.1 - Electrical Machines 1

Corequisite

300026.1 - Energy Systems

The subject covers various types of Electrical drive systems, their applications and control. It also covers application considerations and modern developments in high performance drive systems.

300021.1 Electrical Fundamentals

Credit Points 10 **Level** 1

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.

300071.1 Electrical Machines 1

Credit Points 10 **Level** 3

Prerequisite

300052.1 - Power and Machines

Equivalent Units

89010 Electrical Machines AND Electrical Machines 1 (under unit codes 84742, 81441, 84140, 84232, 84240, 84243) AND Electrical Machines 2 (under 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

300075.2 Instrumentation and Measurement AND 300069.2 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. The unit introduces students to Nanotechnology or the 'Molecular electronics' field.

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.

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 ar 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

300011.1 Design Issues and Principles, J1803.1 Impact of Design and Technology, J1757.1 Design Issues, J1758.1 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.

300461.1 Engineering and Industrial Design Practice

Credit Points 10 **Level** 1

Equivalent Units

300034.1 Introduction to Professional Practice

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.

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.

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

300022.1 Electromagnetics or 300073.1 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

85002.1 Engineering Geophysics or 300039.1 Mechanics and Materials

This unit will be offered from 2006. This is an introductory unit in Geology and Concrete Materials and will cover plate tectonics, common minerals and rocks, weathering of rocks, geomorphology and site stability as applied to engineering. This unit also addresses aggregates of concretes, concrete mix design, durability and construction issues of concrete structures.

300483.1 Engineering Project

Credit Points 20 **Level** 4

Prerequisite

300053.1 - Professional Practice

Corequisite

81999.1 - Industrial Experience (Engineering)

Equivalent Units

85018.1 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 81999 Industrial Experience. Cannot co-enrol in 300484 Engineering Thesis.

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.

300484.1 Engineering Thesis

Credit Points 40 **Level** 5

Assumed Knowledge

Honours level across the students' key programs.

Prerequisite

300053.2 - Professional Practice

Corequisite

81999.1 - Industrial Experience (Engineering)

Equivalent Units

300037.1 Major Investigation & Report 2

Incompatible Units

300483.1 Engineering Project and 300668.1 Advanced Engineering Thesis

Special Requirements

Students should have achieved at least 240 credit points. Must have completed and/or be co-enrolled in 81999 Industrial Experience. Cannot co-enrol in 300483 Engineering Project.

This unit provides honours level students with the opportunity to undertake research on a specialist topic with their key program of undergraduate study. Please note that you need to enrol in both sessions 1H and 2H to achieve a total of 40 credit points.

300029.1 Engineering Visualization

Credit Points 10 **Level** 1

Assumed Knowledge

C++ Programming and 3-D Geometry

Equivalent Units

80151.1 Computer Graphics

This unit discusses the graphic functions of visual C++ and techniques for object drawing. On completion of this unit, students will be able to apply the knowledge to the design of graphic drawing software.

300029.2 Engineering Visualization

Credit Points 10 **Level** 2

Assumed Knowledge

C++ Programming and 3-D Geometry

Prerequisite

300027.1 - Engineering Computing

Equivalent Units

80151.1 Computer Graphics

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.

300117.1 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.

Equivalent Units

J3716.1 Database or 14954.1 Database or 61234.1 Database or 48506.1 Database

This unit exposes students to the process and techniques of the development of enterprise databases. The 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; and understanding of emerging technologies in distributed databases, object-oriented databases, and the World Wide Web.

200154.1 Entrepreneurial Management and Innovation

Credit Points 10 **Level** 2

Corequisite

MG102A.1 - Management Foundations

This unit examines the theory, practise 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 understanding of problem-based and experiential learning. A grounding in contemporary public health issues.

Equivalent Units

E1236.1 Environment and Health

The health and well being of a society is affected by its environment. This unit teaches students to recognise and identify external physical, chemical, biological and social influences which impact upon the individual and the community. Related social and ethical issues will also be explored. The actual and/or perceived effects of such environmental influences will be investigated by analysing documented case studies.

300449.1 Environment, Health & Emergency Management

Credit Points 10 **Level** 3

Equivalent Units

BG301A.1 Building Construction 2

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).

14403.1 Environmental Biology

Credit Points 10 **Level** 3

Assumed Knowledge

It is assumed that students have a good knowledge of general biology at first-year university level, together with a knowledge of second-year plant biology and microbiology.

Prerequisite

300222.1 - Biology 2 OR **300539.1** - Biodiversity

This unit covers physical and biological components of the ecosystem; energy and nutrient flow in the ecosystem; relationship between biodiversity and habitat; bio-geochemical cycles; the food web and bio-magnification; the population problem; industrialisation and the greenhouse effect; renewable and non-renewable energy sources; water, wetlands and coastal marine ecosystems; agriculture, forestry, land use and species extinction; urban land and water use.

300466.1 Environmental Biology 3.3

Credit Points 10 **Level** 3

Assumed Knowledge

Knowledge of first year university biology equivalent to satisfactory completion of 300221 Biology 1 and 300222 Biology 2.

Equivalent Units

BI303A.1 Environmental Biology 3.1 (V1)

This unit will develop a sound understanding of the dynamics and characteristics of a range of Australian ecosystems encompassing natural and modified systems. The critical underpinning concepts are based upon international biodiversity conventions and the Australian Biodiversity Strategy. These divide biodiversity into three levels: within species, species and ecosystem diversity. Whilst revising basic ecological concepts, emphasis will be placed on understanding the Australian terrestrial biota at each diversity level. Other concepts covered include conservation of wildlife, not only associated with the more traditional wildlife management practices but also the emerging area of urban wildlife and their management. There will also be an emphasis on measurement of biodiversity and associated bioindicators. Students will be introduced to best practice in environmental monitoring.

MI303A.1 Environmental Biotechnology (V1)

Credit Points 10 **Level** 3

Assumed Knowledge

Microbiology/Chemistry equivalent to MI201A, MI204A and CH104A. Microbiology laboratory skills.

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. 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.

85021.2 Environmental Engineering

Credit Points 10 **Level** 4

Prerequisite

200237.1 - Mathematics for Engineers 1

This unit outlines the essential issues of the environment that a civil engineer will address as a personal and professional contributor to the development of Australia. It has a bias towards water-related environmental issues.

14525.1 Environmental Geochemistry

Credit Points 10 **Level** 3

Prerequisite

300224.1 - Chemistry 1 AND **300225.1** - Chemistry 2

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, related laboratory work and modelling of selected environmental systems. A three-day field excursion is undertaken.

LW212A.1 Environmental Health Law

Credit Points 10 **Level** 2

Environmental Health Law will provide a broad understanding of the legal system and the statutes that control the functions of Local Government. The understanding the student gains from this unit material will provide them with the skills to utilise various statutes to perform the functions of an Environmental Health Officer in accordance with the legal authority vested in that position. Students will study a wide variety of legislation including the NSW Public Health Act 1902, the Environmental Planning and Assessment Act, 1979, the Food Act 1989 and the Local Government Act 1993. The diverse nature of the statutes provides the student with a broad understanding in the fields of public health protection, food surveillance, food premises construction, local government administration, serving of orders and the general operation of legal compliance requirements in state and local spheres of government.

EH324A.1 Environmental Planning

Credit Points 10 **Level** 3

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 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.

300286.1 Environmental Practice 1

Credit Points 10 **Level** 3

Assumed Knowledge

Current professional practice in Environmental Health/ Environmental Management.

Corequisite

EH218A.1 - Approved Industrial Experience (10Wks) OR **FS203A.1** - Approved Industrial Experience (42Wks)

Special Requirements

This unit is available to students enrolled in 3569 (405A) Bachelor of Applied Science (Environmental Health), or 3570 Bachelor of Applied Science (Environmental Management) or 3620 Bachelor of Environmental Management and Science, or 406A Bachelor of Applied Science (Occupational Health & Environment). THE CO-REQUISITE WORK EXPERIENCE IS ONLY REQUIRED FOR STUDENTS ENROLLED IN COURSE 3569 BAS (ENVIRONMENTAL HEALTH) WHO MUST HAVE ALSO HAVE ENROLLED IN THE WORK EXPERIENCE UNIT EH218A OR FS203A IN THE SAME SESSION AS STUDYING THIS UNIT.

This unit aims to challenge students to integrate and apply their combined knowledge of environmental health/ environmental management/ occupational health and safety in a professional setting. Students will engage in learning that embraces a broad spectrum of professional issues, in conjunction with an industry “client”. The focus of this first practice unit is for students to develop an inquiry process in concert with their industry partner and to undertake a detailed literature review. This unit prepares students for Environmental Practice 2 that focuses on students putting their knowledge into action.

300287.1 Environmental Practice 2

Credit Points 10 **Level** 3

Assumed Knowledge

Current professional practice in Environmental Health/ Environmental Management.

Special Requirements

Must be enrolled in course code 3569, 3570, 3620, 405A, or 406A.

This unit builds on Environmental Practice 1 and extends students in the integration and application of their combined knowledge of environmental health/ environmental management/ occupational health and safety in a professional setting. The unit aims to put knowledge into action within a client/student professional project setting. Students are required to produce an agreed project product for their industry client and evaluate their professional and personal learning throughout their engagement in this activity.

EH325A.1 Environmental Regulations

Credit Points 10 **Level** 3

Equivalent Units

Unit was previously coded as EH312A

The unit aims to provide students with a broad understanding of the current environmental statues available to State Environment Protection Officers both at State level and Local Government level to protect the environment from broad ranging pollution damage. It is a suitable unit for students entering Government or industry in the capacity of an Environmental Health Officer.

300284.1 Environmental Risk Management

Credit Points 10 **Level** 3

Equivalent Units

EH309A.1 Environmental Management 1

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.

80804.1 Environmental Science Project

Credit Points 20 **Level** 3

EH214A.1 Epidemiology

Credit Points 10 **Level** 2

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 workplace and the general environment. The practical component involves a small area field study selected by the student, and analysis using computer applications. This unit meets a variety of needs while introducing the epidemiological method for risk assessment and research.

400168.1 Ergonomics and Work Occupations

Credit Points 10 **Level** 3

Equivalent Units

E3025 Ergonomics 2

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.

400782.1 Essentials of Health Promotion

Credit Points 10 **Level** 2

Equivalent Units

400271 Introduction to Health Promotion

Special Requirements

To enrol in this unit students must complete a Criminal Record Check and for students enrolled in course 4545 Bachelor of Medical Science must also complete NSW Health Immunisations.

Health promotion is a process that seeks to enable individuals, communities and populations to increase control over their health by addressing the determinants of health, resulting in improved health outcomes. Theoretical underpinnings of health promotion are explored, factors enhancing and limiting activity reviewed and the levels of health promoting actions demonstrated. Health promotion competencies including conducting a needs analysis, planning and evaluating an intervention are explored. Satisfactory completion of OH&S for student placements is a requirement.

200468.1 Estimating 1

Credit Points 10 **Level** 2

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.

BG412A.1 Estimating 2 (V2)

Credit Points 10 **Level** 5

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.

Unavailable at time of publication.

400249.1 Ethical and Legal Issues in Health Care

Credit Points 10 **Level** 3

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.

400817.1 Evidence Based Nursing Practice

Credit Points 10 **Level** 3

Incompatible Units

400755 Evidence based practice 1 OR 400765 Evidence based practice 2

Special Requirements

Students must be enrolled in the Bachelor of Nursing Studies to enrol in this unit.

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

400755.1 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 to enrol in this unit.

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.

400765.1 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

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.

400471.1 Exercise and Health Science Research and Practice

Credit Points 10 **Level** 5

Corequisite

400473.1 - Therapeutic Recreation Thesis A OR **400483.1** - Sport Management Thesis C OR **400479.1** - Sport and Exercise Science Thesis C OR **400475.1** - Therapeutic Recreation Thesis C OR **400481.1** - Sport Management Thesis A OR **400477.1** - Sport and Exercise Science Thesis A OR **400558.1** - Honours Thesis in Health Science (F/T) OR **400559.1** - Honours Thesis in Health Science (P/T Year 1)

This unit develops knowledge, understanding and application of the process and the practice of inquiry in the exercise and health sciences. Students develop a research question, design and operationalise it with appropriate procedures. Students are able to select

from a range of research methods appropriate to their discipline area. A major outcome of the unit is the development of a formal project proposal for conducting the students 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.

400472.1 Exercise and Health Sciences Honours Seminar

Credit Points 10 **Level** 5

Corequisite

400473.1 - Therapeutic Recreation Thesis A OR **400477.1** - Sport and Exercise Science Thesis A OR **400481.1** - Sport Management Thesis A OR **400475.1** - Therapeutic Recreation Thesis C OR **400479.1** - Sport and Exercise Science Thesis C OR **400483.1** - Sport Management Thesis C

This seminar program is an integral part of the School of Exercise and Health Sciences end on Honours programs. This unit will provide students with a professional forum in which to discuss and present major aspects of their research project. Through active participation in this seminar students will contribute to one another's projects. Students will present various stages of their own work for peer review and critical appraisal, whilst also critically reviewing the research work of others. Students will be encouraged to articulate their experiences and reflection upon their project work within a supportive and challenging learning environment.

400327.2 Exercise in Musculo-Skeletal Injury Rehabilitation

Credit Points 10 **Level** 3

Prerequisite

400326.1 - Exercise Prescription for General Populations

Special Requirements

To undertake this unit, students must comply with the following special requirement: Completion of a Prohibited Persons Declaration;

This unit considers the role of exercise in the rehabilitation of musculoskeletal injuries including work and sporting injuries. Including: injury and reinjury prevention strategies; mechanisms of injury; pathophysiology 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 Sport and Exercise Scientist in the Sports Medicine Team and Workers Compensation Team.

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;

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.

400328.2 Exercise Prescription for Special Populations

Credit Points 10 **Level** 3

Prerequisite

400326.1 - Exercise Prescription for General Populations

Special Requirements

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Persons Declaration;

Exercise Prescription for Special Populations is concerned with teaching students how to develop exercise programs for special populations (High risk). Emphasis will be placed on: understanding the underlying condition(s), its impact on quality of life as well as exercise and how exercise can be used for prevention and management of the condition(s). Students will be involved in the design and implementation of these exercise programs, for such special populations, with emphasis on using a scientific manner that allows participants to achieve optimum results whilst maintaining a high regard for safety, adherence and motivation.

100680.1 Exercise Psychology

Credit Points 10 **Level** 2

Prerequisite

100678.1 - Introduction to Sport Psychology OR **101184.1** - Psychology: Human Behaviour

Special Requirements

Pre-requisites will not apply to students enrolled in course codes 1630 Graduate Diploma in Psychological Studies and 1501 Graduate Diploma in Psychology. Enrolment in these awards requires graduate status; hence the students have demonstrated proficiency in tertiary studies. Each applicant in these awards is assessed individually and provided with an individual study sequence by the Course Advisor.

Exercise psychology is a topic of particular relevance to those working in health and fitness industries. Although it is the aim of the Australian Sports Commission to increase participation in physical activity amongst the general population, there remains only a small percentage that actually does exercise on a regular basis. As a result, there is a growing interest in exercise adherence, and the related development of the discipline of Exercise Psychology in its own right. Exercise Psychology involves the study of psychological processes and behaviours related to exercise participation. This unit will cover the range of age groups and special populations to which the study of Exercise Psychology pertains.

FS321A.1 Experimental Foods

Credit Points 10 **Level** 3

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.

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 Introductioln to Analysis and Design OR 300404 Formal Software Engineering. Plus one unit from the following: 300156 Programming Principles 2 OR 300167 Systems Programming 1.

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

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

This unit will be offered from Spring 2006. 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.

400760.1 Family Health Care: Child and Adolescent Nursing

Credit Points 10 **Level** 2

Incompatible Units

400408 Child and Family Health OR 400643 Child and Family Health Practice

Special Requirements

Students must be enrolled in the Bachelor of Nursing to enroll in this unit.

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 underpines this unit.

400763.1 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

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.

400756.1 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 Bachelor of Nursing (Graduate Entry) to enroll in this unit.

This unit provides the student with opportunities to investigate and discuss health issues as they relate to Aboriginal and Torres Strait Islander Peoples.

400761.1 Family Health Care: High Acuity Nursing

Credit Points 10 **Level** 3

Assumed Knowledge

Completion of all Year One units 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 Persons Employment Declaration (PPED), Criminal Record Check (CRC); Adult Health Immunisation and Workcover accredited Senior First Aid Certificate.

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.

400767.1 Family Health Care: Older Adult Nursing

Credit Points 10 **Level** 3

Assumed Knowledge

Years 1 and 2 knowledge and skill.

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 Persons Employment Declaration (PPED); Criminal Record Check (CRC); Adult Health Immunisation and Workcover accredited Senior First Aid Certificate.

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.

101322.1 Family Life, Health and Leisure

Credit Points 10 **Level** 2

Assumed Knowledge

Knowledge of sociological concepts and theories or 40 credit points of completed study.

Equivalent Units

25008 Family Studies and Health

This unit is designed to expand student's understanding of the relationship between society, family life and people's experiences of health, leisure and fitness. The unit provides the opportunity for students to explore the role of the family as a social institution and examining its importance in the development of identity, the reproduction of social structure & culture and in the experience of health, illness & leisure. Central to this unit is the notion that the family occurs in and is impacted upon by a variety of social, cultural and historical contexts. The unit develops these themes from a sociological perspective and students are actively involved in exploring these issues.

MI304A.1 Fermentation Practicum

Credit Points 10 **Level** 3

Assumed Knowledge

A sound knowledge of Microbiology and basic Biotechnology

Prerequisite

MI204A.1 - Principles of Biotechnology

The aim of this practicum is to familiarise students with the different stages involved in the development of a fermentation process. Students will work in groups, in a problem-solving situation, through different stages of a fermentation process. The unit consists of: screening, selection, isolation, maintenance of microorganisms, liquid culture in shake flasks and fermentors, product assay, optimisation of parameters for product maximisation, monitoring of fermentation processes, downstream processing.

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.1 Fermentation Practicum

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.

200171.1 Financial Modelling Methods

Credit Points 10 **Level** 3

This unit provides an introduction to financial mathematics, together with an introduction to the mathematical modelling techniques associated with investment. The unit initially focuses on a cash flow whose amounts and terms are known. It then considers the modelling of the situation in which the series of cash flows is characterised by random variables. Topics include: interest, annuities and business investment decision-making; portfolio theory, futures and options; and the capital asset pricing model and arbitrage, as these relate to equities and other investments.

MI305A.1 Food and Pharmaceutical Biotechnology

Credit Points 10 **Level** 3

Assumed Knowledge

A sound knowledge of Microbiology, Biochemistry and basic Biotechnology.

This unit deals with the principles and applications of biotechnology and highlights its latest developments in these areas. The following topics relating to foods and pharmaceuticals will be studied: biotechnology opportunities; fermentations and downstream processing; enzymes; bioactive compounds; antibiotics; vaccines; plant cell culture and its applications; role of genetic engineering; genetically modified foods; legal and ethical issues.

MI205A.1 Food Microbiology 2.2 (V1)

Credit Points 10 **Level** 2

Corequisite

MI201A.1 - Microbiology 2.1 (V1)

This is an introductory unit in food microbiology. It aims to introduce students to microbiological aspects of food processing. Topics include: preservation of food by heat, low temperatures, chemicals, irradiation and fermentation; extrinsic and intrinsic parameters affecting microbes in food; sampling techniques; microbiological standards and specifications; food spoilage organisms; food-borne pathogens; and hazard analysis.

FS304A.1 Food Product Development Practicum 3.1

Credit Points 10 **Level** 3

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.

FS323A.1 Food Safety A

Credit Points 10 **Level** 3

Equivalent Units

Unit was previously coded ENX305 and SFSB38

The overall objective of this unit is to equip students with the necessary skills to identify, evaluate and control hazards confronting food and to enable students to better protect the safety and quality of the food supply. Food Safety is a dynamic field with the emergence of new food borne diseases, evolving approaches to risk analysis and changes in regulatory requirements. Content addresses: Microbial contamination and food spoilage, preventing and monitoring contamination, foodborne hazards, principles and methods of preservation, the Hazard Analysis and Critical Control Point concept, risk analysis, food legislation and foodborne disease surveillance.

300498.1 Food Science 1

Credit Points 10 **Level** 1

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

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

This unit is only available to students who are enrolled in 3589 Bachelor of Science (Forensic Science).

'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.

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

This unit is only available to students who are enrolled in 3589 Bachelor of Science (Forensic Science).

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.

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.

SC103A.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.

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

14948.1 Formal Languages and Automata or 14909.1 Formal Languages and Automata

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 **300122.1** - Formal Methods

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

85017.1 Foundation and Drainage

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.

400324.2 Foundations of Exercise Prescription

Credit Points 10 **Level** 2

Assumed Knowledge

Students should have a working knowledge to meet the objectives prescribed in Human Medical Sciences 2 & 3. Students will need to obtain or possess a current level1 - Sports trainers certificate. Resuscitation, first-aid and emergency care skills are a imperative from a safety perspective

Prerequisite

400282.2 - Introduction to Sports Medicine

Two foundation areas of exercise prescription are treated in this unit. Students will be introduced to: the science of body measurement (anthropometry) which includes the correct measurement of skinfolds, girths and bone widths that make up the Restricted Profile, the calculation and interpretation of measures such as percentage body fat and body density; AND the principles of training, types of training, exercise analysis leading to the design of basic exercise programs and exercise prescription.

100663.1 Foundations of Wellbeing

Credit Points 10 **Level** 1

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 and 4521.

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.

200191.2 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

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, probability and calculus, which are particularly relevant to first year mathematics and statistics core subjects. The algebra section revises basic arithmetic manipulation before introducing series, functions, 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 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 2 Unit Mathematics are recommended to take this unit as an elective.

300463.1 Fundamentals of Mechanics

Credit Points 10 **Level** 1

Equivalent Units

300063.1 Statics and Materials

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.

101318.1 Gender and Society

Credit Points 10 **Level** 3

Equivalent Units

B3975.1 Gender and Society 25028.1 Gender Relations

Using contemporary and historical sociologies we will explore notions of gender, the body, sex and the self in a variety of social and cultural spheres and at different stages of life. The unit moves beyond patriarchy to explore intersections of, for example, class, race/ ethnicity and gender - locally and globally. This unit's main focus is on the question: What is the nature of gender relations today and what changes are desirable and possible?

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 OR 300220 - Biochemistry 2 OR 300548 - Human Metabolism and Disease OR 300555 - Proteins and Genes

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, pharmaceutics, 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.

300331.1 General Microbiology

Credit Points 10 **Level** 1

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.

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.

This is a unit in general microbiology designed for students in applied science degrees. It will provide an overview of the nature of micro-organisms and their significance. The unit will emphasise 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 will focus on the applications of microbiological concepts in these applied areas.

BI201A.1 Genetics 2.2

Credit Points 10 **Level** 2

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.

14510.1 Geochemical Systems

Credit Points 10 **Level** 2

Prerequisite

300224.1 - Chemistry 1 OR **300554.1** - Principles of Chemistry AND **300225.1** - Chemistry 2 OR **300550.1** - Medicinal Chemistry

This unit covers 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; and dispersion of elements in the weathering environment.

14526.1 Geochemistry Project

Credit Points 10 **Level** 3

Prerequisite

14524.1 - Introductory Geochemistry: Earth, Resources and Environments AND **14509.1** - Chemical Mineralogy AND **14510.1** - Geochemical Systems AND **300232.1** - Introduction to Earth Sciences

Depending on individual student interests, this unit involves a field or laboratory study of a particular geochemical system. Areas of study include dispersion of heavy metals in the environment, mineralogical controls on metal concentrations, use of geochemical methods in mineral exploration, remote sensing, structures and stabilities of minerals, biogeochemistry of mineral-plant or mineral-animal interactions, biomineralisation.

400153.1 Gerontology and Neurology

Credit Points 10 **Level** 3

Assumed Knowledge

As the unit deals with foot and related lower limb disorders within specific populations, the content in units: Podiatric Medicine; Introduction to Radiology; Pathophysiology 1 and Human medical Sciences 3 is assumed.

This unit contains two discrete subjects. Neurology focuses on disease processes that affect the nervous system including CVA, myopathies and advanced neural assessment. Gerontology is a significant area of practice for the podiatrist, and has recently experienced a rapid development in scholarly activity, as the importance of this area of knowledge is becoming appreciated by podiatrists and others members of the health care team.

BG105A.1 Graphic Communication and Design (V1)

Credit Points 10 **Level** 1

Aims: 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 real life design problem.

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

This unit is available from 2006. 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 1st year 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.

101351.1 Health and Personality

Credit Points 10 **Level** 2

Assumed Knowledge

80 credit points of completed study in Social Sciences, Health, Humanities or Psychology.

Equivalent Units

25050 Health and Personality

Personality theory is integrally linked to notions of health and illness. Not only can personality theory be applied in health settings, but also many of our ideas about personality are actually derived from working with people with various forms of illness. Through an exploration of some psychological approaches to the mind-body connection, the subject provides an overview of personality theories, with a specific focus on some contemporary issues.

400272.1 Health Care Systems

Credit Points 10 **Level** 2

The tools of economic appraisal and decision making permeate all aspect of modern life. Reliance on economic analysis is highly evident in contemporary health care systems. The funding and provision of health care/services is continuingly changing and subject to ever increasing demand for limited and finite resources. The unit explores, examines and reviews the impact these limitations have on selected health care systems. Students are encouraged to research and examine their own and other health care systems and investigate the differences in access, equity, and efficiency. Practical, contemporary and applied case studies/examples are continuously utilised and students are encouraged to channel the knowledge gained into key areas of interest at the macro and micro level.

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.

400273.1 Health Politics, Policy and Planning

Credit Points 10 **Level** 2

Special Requirements

CRC 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

This unit is restricted to students 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.

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.

400740.1 Health Practice 2

Credit Points 20 **Level** 2

Prerequisite

400738.1 - Health Practice 1 AND **400737.1** - Scientific Basis of Medicine 1

Corequisite

400739.1 - Scientific Basis 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.

The corequisite for this unit is 400739 Scientific Basis of Medicine 2. 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 2 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.

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

CRC and NSW Health Immunisations

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.

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

400274.1 Advanced Health Promotion

Special Requirements

CRC and NSW Health Immunisations

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.

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

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.

400283.1 Health Services Information Management

Credit Points 10 **Level** 3

This unit is designed to introduce future health services managers to the process of planning, scheduling, implementing and evaluating an information management system in a health care facility. The unit explores the range and sources of information required for the effective management of health care facilities. Data, methods and desired outcomes for information management are discussed. Issues related to records management, medical-legal requirements and the use of information technology are examined.

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

Restricted to 4545 students only CRC and NSW Health Immunisations

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.

400284.1 Health Services Quality Management

Credit Points 10 **Level** 3

The need to improve quality while reducing expenditure has forced health services to re-evaluate their strategies. For these reasons many have embraced the philosophies of Total Quality Management (TQM). Central to its practice is a focus on flexible, consultative management, with the needs of the customer seen as vital to guiding a continuous process of improvement. TQM is a whole system concept, which recognizes the need to manage sets of interacting technical, cultural and political issues. This unit explores the various aspects of TQM and in particular its application within the health services.

400788.1 Health Services Workforce Management

Credit Points 10 **Level** 3

Prerequisite

400277.1 - Health Services Management 1

Special Requirements

CRC 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.

400361.1 Herbal Pharmacognosy

Credit Points 10 **Level** 4

This unit introduces the basic principles of pharmacognosy: botany, phytochemistry, plant identification, and pharmacology. Some of the major known constituents of common Chinese and European herbal medicinal substances, the pharmacological basis of their therapeutic use, mechanisms of action, pharmacokinetics (absorption, metabolism, and elimination), toxicity and adverse effects are explored.

400496.1 Homoeopathic Principles

Credit Points 10 **Level** 1

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 provides the fundamental principles and philosophical basis and origins of Homoeopathy. The theory and practice of Homoeopathy are explored using acute and general case histories, materia medica, first aid, acute cases and the preparation and storage of the remedies.

400159.1 Honours Research Thesis (Podiatry)

Credit Points 20 **Level** 5

Prerequisite

400137.1 - Introduction to Research for Health Sciences AND **400148.1** - Quantitative Research

This year long unit will involve the student, under direction from a supervisor or supervisors nominated from within the College, University or external professional/clinical sources, undertaking a research project. Utilising the skills gained in previous units, and by exploring, extending and consolidating their understanding of an area of knowledge, the student will be in a position to contribute to the corpus of knowledge of the profession. Time constraints dictate that the size of the project must be limited, however the student should identify the research question, undertake a literature review, collect data, and evaluate that data (the data gathering and analysis is expected to be modified or truncated due to time constraints), and discuss the results, making conclusions as appropriate.

400558.2 Honours Thesis in Health Science (F/T)

Credit Points 60 **Level** 5

Corequisite

400548.2 - Honours Pathway

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.

400559.2 Honours Thesis in Health Science (P/T Year 1)

Credit Points 20 **Level** 5

Corequisite

400548.2 - Honours Pathway

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.

400560.2 Honours Thesis in Health Science (P/T Year 2)

Credit Points 40 **Level** 5

Corequisite

400548.2 - Honours Pathway

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.

300451.1 Horticultural Production 2

Credit Points 10 **Level** 1

Equivalent Units

300329.1 Floriculture; 300330.1 Fruit Production

This unit provides an overview to the fruit and cut flower industries from Australian and world perspectives. Production systems and techniques are studied from planning to propagation, crop management, pest and disease monitoring and management, harvesting and postharvest treatments. The production of a range of fruit and flower crops are studied in detail as well as a number of issues pertinent to the industry. A major feature of the unit is a large practical component where students gain 'hands on' experience in the production of fruit and flower crops.

300448.1 Housing for Public Health

Credit Points 10 **Level** 2

Equivalent Units

BG201A.1 Building Construction 1

This unit aims to familiarise students with environmental controls for development, building waste management and public safety around development sites. Concepts of sustainable housing are introduced through studies of dwelling deign in urban, rural and remote communities and housing subdivision planning. Performance planning and building principles are examined together with energy efficient building design, minimum requirements for services for sustainable living in dwellings and principles of graphic design. The unit examines rural and remote housing needs, urban well being and provides an introduction to emergency planning principles for these locations.

300426.1 Human Animal Interactions

Credit Points 10 **Level** 1

Special Requirements

This unit is only available to students who are enrolled in 3592 Bachelor of Animal Science.

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

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, oncocytogenetics, 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 1

Incompatible Units

E1241 Human Medical Sciences I

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.

400256.1 Human Medical Sciences 2

Credit Points 10 **Level** 1

Corequisite

400130.1 - Human Medical Sciences 1

This unit will explore in greater depth those topics fundamental to the practice of health sciences. This unit is intended to equip students studying health sciences with a detailed knowledge of the regional anatomy of the entire body. Knowledge of embryology will complement studies in anatomy and physiology and help students to understand the correlation of structure in relation to function.

400134.1 Human Medical Sciences 3

Credit Points 10 **Level** 1

Prerequisite

400130.1 - Human Medical Sciences 1

Equivalent Units

E1237 Human Biology 2

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 OR 14440 - Biochemistry 2 OR 300220 - Biochemistry 2 OR J2821 - Biochemistry of Metabolism

Incompatible Units

300227 - General Biochemistry OR BC202A - Biochemistry 2.2

Special Requirements

Space limitations – 192 max

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 OR 300234 - Molecular Biology OR BI305A Molecular Biology OR J3678 - Molecular Genetics

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 & 2 or equivalents, General Biochemistry or equivalent.

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.

BC206A.1 Human Physiology 2.2

Credit Points 10 **Level** 2

Equivalent Units

300320 - Introduction to Human Physiology

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.

BC306A.1 Human Physiology 3.1

Credit Points 10 **Level** 3

Equivalent Units

300326 - Topics in Physiology

This unit complements the 200 Level 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.

300570.1 Human-Computer Interaction

Credit Points 10 **Level** 2

Equivalent Units

300154 Procedural Applications Development

Incompatible Units

300160 Software Interface Design

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.

300136.2 I.T. Support Practicum

Credit Points 10 **Level** 3

Assumed Knowledge

This is a capstone unit which assumes that students have completed all core units in the Bachelor of Computing (Service and Support) or the Bachelor of Technology (IT Support).

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) course or the Bachelor of Computing (Service and Support).

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, project management and team work.

300229.1 Immunology

Credit Points 10 **Level** 3

Assumed Knowledge

Microbiology 1, Biochemistry 1

Incompatible Units

300223 - Cell Signalling and Molecular Immunology OR 300552 - Molecular Biology of the Immune System

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.

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

Must mave passed 240 credit points including the core units in course code 3502.

The final year program provides students with the opportunity to synthetise their knowledge in relation to professional practice. This unit is the research initiation stage of the student's final year program that culminates with the final year graduation exhibition. The aim for a student is through research to identify opportunities and propose possible solutions to a given design problem supported by documentation that will be used in the Industrial Design Project (Completion) unit to guide the subsequent project design realisation.

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)

This unit is the project realisation component of the student's final year program. The unit offers students the chance to consolidate the range of methodologies and processes developed and evaluated in Industrial Design 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 is supported by documentation that was presented and submitted for Industrial Design Project: (Commencement) as an identified solution(s) to a given design problem.

10915.2 Industrial Experience

Credit Points 0 **Level** 3

Assumed Knowledge

Successful completion of 160 credit point (minimum) in either course 3502 or 3503 or 3504.

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".

81999.1 Industrial Experience (Engineering)

Credit Points 0 **Level** 3

This is a "Work Experience in Industry" unit, for which no student contribution or fee is charged. Enrolment in the unit will not consume Student Learning Entitlement (SLE). As a formal requirement of the Institution of Engineers (Australia) and the engineering course, each student must complete 12 weeks of industrial

experience in an approved engineering work environment prior to graduation.

300302.1 Industrial Graphics 1: Presentation

Credit Points 10 **Level** 1

Equivalent Units

J3764.1 Industrial Graphics (Presentation)

The presentation and promotion of designs in the form of 2D graphics is an essential part 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 unit is to introduce students to the industry standard software and hardware employed to generate this type of material, and more importantly 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

J1756.1 Industrial Graphics (2D Drawing) or J1759.1 Industrial Graphics (Transition) or 10940.1 Technical Presentation 2

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 fromoutside 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 OR J2814 - Industrial Graphics (3D Modelling)

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

Unit was previously coded 10963, and J2868.

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

It is assumed students have 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

J3824.1 Industrial Graphics (Integration)

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.

J3705.1 Industrial Microbiology

Credit Points 10 **Level** 3

Prerequisite

J2029.1 - Basic Microbiology OR **D2029.1** - Basic Microbiology OR **D2766.1** - Microbiology 2.1

This is an overview of the science and technology of exploiting the metabolic capabilities of micro-organisms to produce goods and services. The integration of microbiology, biochemical engineering and economics is emphasised, reflecting the real world use of specific information or skills. Topics covered include cell as production units, the culture of cells, bio-reactors and bio-reactions, processing, yield optimisation, economics, and examples of fermentation processes. The laboratory component emphasises developing skills in interpreting and reporting data. Students gain specific knowledge and ability in fermentation technology, and generic ability in integrating knowledge, critical appraisal, interpretation of data, and written scientific communication.

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, 200031, 200190 AND one pre-requisite from the following three units: 300103, 300156, 300125.

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 2502.1 - Bachelor of Laws (Non graduate entry) must obtain permission to enrol in this unit.

To give students an appreciation of the ethical and legal issues surrounding the use of information systems. Including: ethics and society; the role of information in society; privacy; the information needs of business and government; international communication networks and the transfer of information; commonwealth and state laws; electronic records and the rules of evidence; professional responsibilities.

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

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

Equivalent Units

85007.1 Civil & Environmental Engineering Construction or 85008.1 Engineering Urban Environments or 300296.1 Road & Traffic Engineering

This unit is offered in alternate years. This is an intense unit which will provide students with introductory material to assist them with civil engineering construction and urban development/town planning projects. It covers construction equipment, some construction methods, subdivision design and traffic engineering.

400286.1 Injury Prevention

Credit Points 10 **Level** 3

Prerequisite

400782.1 - Essentials of Health Promotion

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.

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 OR 300545 - Coordination Chemistry OR CH206A - Chemistry 2.2 OR J2758 - Inorganic Chemistry 2

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

This unit is built on the foundations laid in the unit 300230 Inorganic Chemistry 2. 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.

300075.2 Instrumentation and Measurement

Credit Points 10 **Level** 2

Equivalent Units

300005 Circuit Theory

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, analog multiplexers and sample/hold amplifiers. The application of these modules in modern measurement equipment-multimeters, digital CRO's, and PLC/PC interfacing modules is discussed.

400810.1 Integrated Clinical Rotations 1

Credit Points 80 **Level** 3

Assumed Knowledge

400739 Scientific Basis of Medicine 2; 400740 Health Practice 2. Entry into Year 3 of course 4641 Bachelor

of Medicine, Bachelor of Surgery requires the knowledge skills and attitudes gained in Years 1 and 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: 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.

Integrated Clinical Rotations 1 is the first major clinical year of the Bachelor of Medicine, Bachelor of Surgery 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.

300332.1 Integrated Pest Management

Credit Points 10 **Level** 3

Equivalent Units

HT810A.1 Physical and Biological Approaches to Pest and Disease Management

This unit is designed to develop in students an understanding of the principles and practices of reducing plant pests and their damage by strategies other than the use of pesticides. In particular, the aim is to acquaint students with current and likely future developments in integrated pest management and will develop their ideas on short, medium and long-term strategies for the control of pests, diseases and weeds.

400154.1 Integrating Evidence into Practice

Credit Points 10 **Level** 5

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

Programming

Prerequisite

200025.1 - Discrete Mathematics

Equivalent Units

300087.1 Artificial Intelligence or 300137.1 Knowledge Based Systems

This unit provides a broad and comprehensive study on the concepts, history and development of artificial intelligence and intelligent systems; concepts of problem-solving, search techniques and game playing, logics, knowledge representation and reasoning; intelligent planning and learning systems; applications and implementations of intelligent systems and intelligent agents.

100789.1 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

101019.1 - Digital Design Production

Equivalent Units

100778 Designing Multimedia

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.

100949.1 Interactive Design II

Credit Points 10 **Level** 2

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 design professional context.

100949.2 Interactive Design II

Credit Points 10 **Level** 2

Prerequisite

100789.1 - Interactive Design I

Equivalent Units

100799 Online Design

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.

61671.1 International Management

Credit Points 10 **Level** 3

Prerequisite

MG102A.1 - Management Foundations OR **61611.1** - Management Studies OR **H1727.1** - Business Management

Equivalent Units

This unit replaced by 200623.1 International Management in 2008

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 internation business strategy; the internationalisation of the firm, and organisation and control of international operations.

300130.1 Internet Programming

Credit Points 10 **Level** 3

Assumed Knowledge

Basic knowledge on internet browsing and any object-oriented programming language.

Equivalent Units

300246.1 Internet Computing 14020

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

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.

300522.1 Introduction to Agricultural and Animal Systems

Credit Points 10 **Level** 1

Equivalent Units

AG109A Professional Practice, and AG104A Analysis of Farming Systems, and 300429 Enterprise Management & Analysis

Special Requirements

Only 3631 B. Agriculture, 3592 B. Animal Science, 106A & 3571 B. Systems Agriculture, 3572 B Equine Studies students can enrol in this unit.

The unit will introduce students to some basic concepts and frameworks that can be applied in the analysis of agricultural production or animal systems. Students will than apply this knowledge & techniques during a week long case study of an agricultural production or animal system.

300319.1 Introduction to Anatomy and Histology

Credit Points 10 **Level** 1

Assumed Knowledge

School level Biology

Equivalent Units

E1231 Human Biology 1

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 or 3589 to enrol in this unit. Students undertaking UT001 or UT002 UniTrack may enrol with permission of the unit co-ordinator.

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.

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.

300503.1 Introduction to Biotechnology

Credit Points 10 **Level** 1

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.

200184.1 Introduction to Business Law

Credit Points 10 **Level** 1

Equivalent Units

61511.1 - Introduction to Legal Principles OR F1011.1 - The Australian Legal System OR F1012.1 Introduction to Business Law OR LW110A.1 - Business Law

Special Requirements

Students enrolled in course 2502.1 - Bachelor of Laws (Non graduate entry) must obtain permission to enrol in this unit.

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, legal reasoning and problem solving. The main areas of law covered include contracts, torts and agency.

E1022.1 Introduction to Complementary Medicine

Credit Points 10 **Level** 1

Health care workers are increasingly required to work with alternative health care practitioners in providing expanded care options for their patients. This unit explores the philosophy and theories behind the most popular branches of alternative therapy. The unit is valuable for students to understand the traditions, aims and current research in this area of health care practice.

100672.1 Introduction to Dance

Credit Points 10 **Level** 3

Equivalent Units

10068 Introduction to Dance OR 10720 Introduction to Dance

This unit provides students with an introduction to dance practice and theory. Students gain basic competencies in a range of styles of dance and through creative work address aspects of improvisation, composition, performance and dance analysis. Historical and cultural contexts of selected dance styles are also explored. The unit prepares students for the Bronze Medallion in ballroom dancing.

300232.1 Introduction to Earth Sciences

Credit Points 10 **Level** 1

Equivalent Units

14511 - Geology 1

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.

400750.1 Introduction to Health Breakdown

Credit Points 10 **Level** 1

Assumed Knowledge

Content equivalent to 400746 Understanding Good Health

Equivalent Units

400051 Nursing Science 4

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

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.

300361.1 Introduction to Human Biology

Credit Points 10 **Level** 1

Equivalent Units

400130 Human Medical Sciences 1

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.

300320.1 Introduction to Human Physiology

Credit Points 10 **Level** 1

Equivalent Units

E1237.1 Human Biology 2 or BC206A.1 Human Physiology 2.2

Incompatible Units

400130 Human Medical Sciences 1, 400256 Human Medical Sciences 2, 400134 Human Medical Sciences 3

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

B1582.1 Introduction to Computers or J1742.1 Computer Fundamentals or 61211.1 Information Technology

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.

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.

400492.1 Introduction to Naturopathy

Credit Points 10 **Level** 1

This unit introduces the history, philosophy, principles and social context of naturopathic medicine. The unit provides a comprehensive exploration of the naturopathic and allopathic approaches to healing, health and disease, and the current socio-political expectations of health care providers in Australia.

400776.1 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

400640.1 Foundations of Nursing Practice 400462.1 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.

400160.1 Introduction to Occupational Therapy

Credit Points 10 **Level** 1

Equivalent Units

E1309 Occupational Therapy 1

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.

200042.1 Introduction to Operations Research

Credit Points 10 **Level** 1

This unit introduces the ideas of systems and their mathematical modeling, with special reference to allocation, inventory, scheduling, queuing and other processes taking place within social systems. It introduces modeling 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 on the mathematical development of algorithms and their computerisation.

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.

400137.1 Introduction to Research for Health Sciences

Credit Points 10 **Level** 1

Equivalent Units

E1235 Research Methods in Health Care

Incompatible Units

63235 Introduction to Social Research

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.

101336.1 Introduction to Sociology

Credit Points 10 **Level** 1

Equivalent Units

400164 Introduction to the Sociology of Health B1948 Introduction to Sociology 1

This unit introduces students to the central concepts, theories and methodologies of sociology, and demonstrates the ways in which sociological thought contributes to a systematic and critical understanding of contemporary society. The unit draws upon case studies from Australia and other societies.

400164.1 Introduction to Sociology of Health

Credit Points 10 **Level** 2

Equivalent Units

E2231 Social Dimensions of Health & Illness OR 25006 Introduction to Sociology of Health

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.

100678.1 Introduction to Sport Psychology

Credit Points 10 **Level** 1

Equivalent Units

B1080 Introduction to Sport Psychology

The field of Sport Psychology is primarily concerned with the study of psychological factors and skills that impact on sport performance which include: personality, motivation, confidence, attention, anxiety and arousal, self-regulation of arousal, performance enhancement strategies, group dynamics, leadership, causal attributions; as well as the study of youth in sport and psychology of exercise.

400282.2 Introduction to Sports Medicine

Credit Points 10 **Level** 2

Prerequisite

400130.1 - Human Medical Sciences 1 OR **300361.1** - Introduction to Human Biology

Special Requirements

Work Cover Approved First Aid Certificate

This unit is an introduction to basic sports medicine with an emphasis on the management and prevention of sports injuries.

85006.2 Introduction to Structural Engineering

Credit Points 10 **Level** 2

Prerequisite

300040.1 - Mechanics of Materials

This unit covers the basic concepts in analysing and designing simple structural members. It covers 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

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.

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

300224.1 Chemistry 1, 80800 Introductory Chemistry 1, and CH101A Introductory Chemistry 1.1D.

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.

14524.1 Introductory Geochemistry: Earth, Resources and Environments

Credit Points 10 **Level** 1

Assumed Knowledge

HSC Chemistry or Equivalent.

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. A four-day field excursion is undertaken.

300333.1 Introductory Plant Physiology

Credit Points 10 **Level** 2

Equivalent Units

BI104A.1 Plant Science and Physiology

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.1 Biology of Non-Plant Organisms

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.

400821.1 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 to enrol in this unit.

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.

300571.1 IT Product Support and Services

Credit Points 10 **Level** 3

Assumed Knowledge

A good understanding of Computer Systems.

Prerequisite

300150.2 - PC Workshop

This unit builds up the knowledge and skills necessary for help desk professionals and system administrators. Students will be provided with the key information for user support professionals, including decision making, communicating successfully with clients, determining clients' specific needs and writing for end users. An emphasis will be make to the latest trends in support industry, such as Web-based support and online services. Students will conduct a series of case studies with real-world scenarios of working professionals and issues in the workplace.

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

86222.1 Engineering Mechanics 2

This 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 a single rigid body moves in two and in three dimensions, and how forces and couples cause its movement. In addition, the movement of multi-body mechanisms, and gear trains and the geometry of gear teeth and cams are studied.

400752.1 Knowing Nursing

Credit Points 10 **Level** 1

Assumed Knowledge

400748 Becoming a Nurse

Equivalent Units

400049 Nursing Context 2

This unit introduces students to further constructs that inform professional nursing and nursing practice related to health breakdown.

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 OR SSCB34 - Practicum 6 (Nata Regn)

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.

DN207A.1 Landuse and the Environment

Credit Points 10 **Level** 2

Assumed Knowledge

A basic understanding of the role of sustainable land use practices in minimising human impact on the environment. Basic word processing and web skills.

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.

400818.1 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 OR 400766 Leadership in Graduate Practice

Special Requirements

Students must be enrolled in the Bachelor of Nursing Studies to enrol in this unit.

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.

400766.1 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) to enroll in this unit.

This unit introduces the student to the role of the professional nurse as leader and manager.

400789.1 Leisure Education Programming and Mental Health

Credit Points 10 **Level** 1

Equivalent Units

400090 - Leisure Education 400247.1 - Programming in Therapeutic Recreation

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.

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

Must have passed 220 credit points.

The final year program provides the student with the opportunity to synthetise their knowledge in relation to professional practice. Major Project Commencement is the project initiation stage of the student's final year program that culminates with the final year graduate exhibition. The aim for a student is to identify opportunities and propose possible solutions to a given design problem, supported by documentation that will be used in the Major Project Completion unit to guide the subsequent project design realisation.

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

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 is supported by documentation that was presented and submitted for Major Project Commencement as an identified solution(s) to a given design problem.

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

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 OR 300318 - Mammalian Cell Biology and Biotechnology

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.

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.

MG102A.1 Management Foundations

Credit Points 10 **Level** 1

This is an entry-level management unit that focuses on the development of an understanding of managing in an organisational context. The objectives of the unit are: to acquire knowledge of management processes, to analyse classical and contemporary management theories and to describe the dynamic nature of managerial practice in changing social and economic environments. This unit will explain how management theory is evolving and owes much to modern and post-modern thinking as well as economic planning principles and the behavioural, social and political sciences. This unit is a foundation unit for students of management and allied degrees and can be taken as an elective by students from other courses wishing to learn more about management policies and practice.

EY104A.1 Management of Aquatic Environments

Credit Points 10 **Level** 1

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.

200083.1 Marketing Principles

Credit Points 10 **Level** 1

Equivalent Units

61711.1 - Marketing Principles OR H2808.1 Principles of Marketing OR MK104A.1 - Marketing Fundamentals

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).

200472.1 Material Science in Construction

Credit Points 10 **Level** 2

Assumed Knowledge

Contents covered in Building 1,

This unit deals with the behaviour of building materials within the construction context. An introduction will be given on material behaviour and how properties are affected by the micro-structure and composition. Emphasis will be given to the application of various materials in construction. Physical properties of each material will be discussed in detail and the degradation effect of environment and the effect of use. The impact of the manufacturing processes for these building materials/products on the environment will also be addressed. Materials covered in this unit include concrete, timber, metal, composite and polymer. Emphasis will be given to the application of composite, polymer and ceramics which have not been covered by other units in the course.

200024.1 Mathematical Finance

Credit Points 10 **Level** 3

Prerequisite

200026.1 - Advanced Mathematics for Business OR **200030.1** - Differential Equations

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 OR J3674 - Mathematical Modelling OR 14407 - Differential Equations Modelling

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.

200237.1 Mathematics for Engineers 1

Credit Points 10 **Level** 1

Equivalent Units

14505.1 - Engineering Mathematics 1 OR 200195.1 - Mathematical Methods A OR 200196.1- Mathematical Methods B

Incompatible Units

200031.1 - Mathematics for Business OR 200189.1 - Concepts of Mathematics

Special Requirements

HSC Mathematics at band 5 or 6.

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, bectors 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

14506.1 - Engineering Mathematics 2

This is a level 100 unit to be undertaken by students enrolled in an Engineering degree. It covers the following topics: Ordinary Differential Equations and Multivariable Calculus.

200242.1 Mathematics for Engineers 3

Credit Points 10 **Level** 2

Assumed Knowledge

Successful completion of 200238 Mathematics for Engineers 2 or 14506 Engineering Mathematics 2.

Equivalent Units

200194 - Engineering Mathematics 3

The unit covers the topics of Advanced Calculus including Vector Calculus, Complex Analysis, Fourier Series, Heat Wave Equations, Fourier Integrals and Transforms; Discrete Mathematics including logic, set theory, graphs and trees and Random Processes including mean correlation and covariance functions, ergodicity, ensemble averages, Gaussian processes and Rayleigh and Rice distribution.

200413.1 Mathematics Honours Thesis

Credit Points 40 **Level** 5

300589.1 Mathematics Toolbox

Credit Points 10 **Level** 1

Special Requirements

This unit should only be taken by students who have a General Mathematics background, or a HSC Mathematics background achieved at band 2 or 3 or equivalent. TAFE students and students who have not studied mathematics for several years may also be potential candidates required to take this unit. Only those 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 Mathematics Toolbox and any other mathematics/ statistics unit. Due to the requirements above, permission is required to enrol in this unit. Please contact the unit coordinator.

Mathematics Toolbox 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.

300040.1 Mechanics of Materials

Credit Points 10 **Level** 2

Prerequisite

300463.1 - Fundamentals of Mechanics

Equivalent Units

300039.1 Mechanics and Materials

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

300041.1 Mechatronic Design 1 300042.1 Mechatronic Design 2

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.

300233.1 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

J3814.1 Medical Microbiology MI308A.1 Medical Microbiology

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.

400753.1 Medical-Surgical Nursing 1

Credit Points 10 **Level** 2

Assumed Knowledge

Content and achievement of learning outcomes derived from Year One nursing units.

Corequisite

400754.1 - Understanding Alterations in Nutrition and Elimination

Incompatible Units

400058 - Nursing Therapeutics 6, 400059 - Nursing Therapeutics 7, 400642 - Medical-Surgical Nursing Therapeutics

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 eating, drinking, nutrition and elimination.

400757.1 Medical-Surgical Nursing 2

Credit Points 10 **Level** 2

Assumed Knowledge

Content and achievement of learning outcomes related to Year One nursing units and 400753 Medical-Surgical Nursing 1 (MSN1) and 400754 Understanding Alterations in Nutrition and Elimination (ANE) units from Year 2 Autumn.

Corequisite

400758.1 - Alterations in Breathing, Sexuality, 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 and 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 OR J1574 - Organic Chemistry 1

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 organic 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.

400759.1 Mental Health Nursing 1

Credit Points 10 **Level** 2

Assumed Knowledge

Content and achievement of learning outcomes for Year One nursing units.

Equivalent Units

400054 Nursing Therapeutics 3

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.

This unit will extend students' 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.

400762.1 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.

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 OR BI106A - Biological Sciences OR J2029 - Basic Microbiology OR MI201A - Microbiology 2.1 (V1)

Incompatible Units

300331 - General Microbiology

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 OR J2028 - Microbial Physiology and Genetics OR MI202A - Microbiology 2.2

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

86402.1 Microprocessor Applications in Mechanical Engineering or 89025.1 Computers in Real Time Control

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 microcontrollers 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 300027.1 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

84137.1 Microprocessor Systems

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.

101352.1 Mind, Body and Emotion

Credit Points 10 **Level** 2

Assumed Knowledge

40 credit points in social sciences, humanities, health or psychology.

Equivalent Units

25733 Mind, Body and Emotion

This unit introduces students to theories and methods in the study of the mind, body and emotions in social science. It employs the study of multi-disciplinary work from psychology, sociology and philosophy as ways of understanding the links, relationship and interactions between the self and society in illness, disability and health. This unit has special relevance for health and community workers, assisting them to develop their understanding of the dynamics and politics of health, illness and care.

300043.2 Mobile Robotics

Credit Points 10 **Level** 4

Prerequisite

300463.1 - Fundamentals of Mechanics

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

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 MolecularBiology OR 300549 - Human Molecular Biology OR B1305A - Molecular Biology OR J3678 -Molecular Genetics

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.

300552.1 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

300555.1 - Proteins and Genes OR **300219.1** - Biochemistry 1

Incompatible Units

300223 - Cell Signalling and Molecular Immunology OR J3830 - Immunology and Cell Signalling

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

This unit will be offered from 2008. 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

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 OR J3830 - Immunology and Cell Signalling

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.

100679.1 Motor Control and Learning

Credit Points 10 **Level** 2

Assumed Knowledge

Students will possess a working knowledge equivalent to the content of Human Meical Sciences 1,2 & 3.

Motor Control and Learning 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.

300046.1 Multimedia Signal Processing

Credit Points 10 **Level** 4

Prerequisite

300069.1 - Digital Signal Processing

Equivalent Units

84492.1 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

300416.1 - 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 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.

300417.1 Nanotechnology 1

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.

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 engineering sciences and information sciences pertinent to nanotechnology. Because the technology is advancing so fast, activities that encourage creative and critical thinking and life-long learning will be achieved by various small group projects.

300418.1 Nanotechnology 2

Credit Points 10 **Level** 1

Assumed Knowledge

Physics 1, Chemistry 1, Biology 1, Nanotechnology 1

This unit provides a broad knowledge in various areas of nanotechnology. The unit covers three main areas: synthesis of nanomaterials including carbon tubes, coatings, metals, polymers and inorganic materials and their properties; applications of nanomaterials and nanotechnology in environment and energy industry, computers and electronic devices, optics, sensors, nanomachines and other engineering areas; and computing, lithography, imaging and measurement techniques.

400497.1 Naturopathic Nutrition 1

Credit Points 10 **Level** 2

Prerequisite

400130.1 - Human Medical Sciences 1 AND **400493.1** - Biochemistry for Naturopathy

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;

Nutrition 1 is the first unit in a series of three units designed to provide a professional education in nutrition. The student will learn the Naturopathic approach to the understanding of nutrition generally and foods in particular. This first unit provide the student with the knowledge of the major components (the macronutrients) of foods and how to utilise these in the promotion of health. The knowledge obtained through this unit will provide a base for students continuing onto the more clinical aspects of Nutrition 2 and 3.

400499.1 Naturopathic Nutrition 2

Credit Points 10 **Level** 1

Prerequisite

400497.1 - Naturopathic Nutrition 1 AND **400493.1** - Biochemistry for Naturopathy

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 builds on the knowledge gained in Nutrition 1 and develops the skills students need to understand and utilise the specific nutrient supplements in Naturopathic clinical applications. The therapeutic role of nutrients, vitamins, minerals and amino acids are learnt in depth. The problems associated with deficiency and toxicity levels and the dosages and the balance of these nutrients needed for optimal health, are discussed in detail. Accurate client assessment and interpretation of nutritional status through diagnostic procedures, interviews and questionnaires is a focus of this unit. The unit further develops the individual nutritional requirements of differing populations. Students will be taught the skills to recognise the influence that environmental issues have on nutritional status, and how to correct this in their clients.

400501.1 Naturopathic Nutrition 3

Credit Points 10 **Level** 3

Prerequisite

400499.1 - Naturopathic Nutrition 2 AND **400262.1** - Clinical Diagnosis

This unit is designed to further extend the knowledge and skills gained in Naturopathic Nutrition 1 and 2. In this third unit, the students will focus more on putting together Naturopathic dietary and supplementation programs for specific illnesses of the human body. The nutritional knowledge in this unit is taught in relationships within systems of the body, as this is consistent with the holistic philosophy followed by complementary medicine practitioners. Case studies and diagnosis will form a large part of their

assessment and these will also be used as teaching tools to increasingly develop student skills in the clinical application of Naturopathic nutrition.

400502.1 Naturopathic Practice

Credit Points 10 **Level** 3

Prerequisite

400500.1 - Western Herbal Medicine 3 AND **400501.1** - Naturopathic Nutrition 3

Special Requirements

This unit is only available to those students enrolled in 4597 Bachelor of Applied Science (Naturopathic Studies)

This unit provides students with supervised practical experience in a clinical setting. It enables the student to integrate theory with practice and demonstrate professional conduct. It expands the students' knowledge base of theoretical Phytotherapy, Nutrition, Homoeopathy, Counselling and Massage, with practical experience in communication, case taking, observation, diagnostics, dispensing, clinic management and occupational health and safety.

300143.1 Network Security

Credit Points 10 **Level** 3

Prerequisite

300128.1 - Information Security

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.

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

Equivalent Units

300112 Digital Communication Technology

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

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

Incompatible Units

300138 LAN Workshop

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.

300322.1 Neuroanatomy

Credit Points 10 **Level** 3

Assumed Knowledge

The outcomes of: 300221 Biology 1; 300224 Chemistry 1; 300319 Introduction to Anatomy and Histology; 300320 Introduction to Human Physiology or equivalent units.

Equivalent Units

E2321.1 Human Biological Sciences V: Neuroanatomy

Special Requirements

This unit is only available to core students enrolled in courses: 3577 Bachelor of Medical 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 functional neuroanatomy, with particular emphasis on the central nervous system. Cadaver specimens are used to facilitate the learning of spatial relationships between structures.

EH205A.1 Noise Assessment & Control

Credit Points 10 **Level** 2

Equivalent Units

Unit was previously coded SENB24.

This unit has been designed to provide a practical and theoretical base to assist in the development of environmental and occupational noise assessment programs and in implementing noise control procedures. On successful completion of this unit, students should be able to: undertake measurement and assessment procedures for environmental and occupational noise problems; gather primary noise evidence for litigation purposes and be able to present the information in court; prepare and assess environmental and occupational noise reports; recommend noise control measures; consider the range of noise issues which confront the community, and assess noise in the occupational environment to protect employees.

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

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.

300488.1 Numerical Methods in Engineering

Credit Points 10 **Level** 3

Prerequisite

200238.1 - Mathematics for Engineers 2 AND **85010.1** - Structural Analysis AND **85012.1** - Soil Engineering

Equivalent Units

85019.1 - Civil & Environmental Engineering Pass/ Honours Elective 1

The finite element method is a powerful tool for the numerical analysis of 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 its application in the area of structural and soil mechanics.

400749.1 Nursing and Health Breakdown

Credit Points 10 **Level** 1

Assumed Knowledge

Year One Autumn units

Corequisite

400750.1 - Introduction to Health Breakdown

Equivalent Units

400052 Nursing Therapeutics 2

Incompatible Units

400640 Foundations of Nursing Therapeutics OR 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 Persons Employment Declaration (PPED), Criminal Record Check (CRC); Adult Health Immunisation and Workcover accredited Senior First Aid Certificate.

This unit introduces students to professional nursing concepts and practices that promote, maintain and support people who are affected by health breakdown.

400751.1 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

This unit introduces the student to psychosocial concepts and principles that promote and sustain the health of communities and informs professional nursing practice.

400823.1 Nursing and the Older Person

Credit Points 10 **Level** 3

Incompatible Units

400767 Family Health Care: Older Adult Nursing OR 400644 Gerontic Practice

Special Requirements

Students must be enrolled in the Bachelor of Nursing Studies to enrol in this unit.

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.

400745.1 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 to enroll in this unit.

This unit introduces the student to nursing concepts, principles and skills that identify, promote, maintain and support health and wellbeing across the lifespan.

400204.1 Nursing Honours Thesis (Part-time)

Credit Points 60 **Level** 5

Assumed Knowledge

A basic knowledge of research methods at undergraduate leve 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.

400202.1 Nursing Honours Thesis A (Full-time)

Credit Points 20 **Level** 5

Assumed Knowledge

A basic knowledge of research methods at undergraduate leve 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.

400203.1 Nursing Honours Thesis B (Full-time)

Credit Points 40 **Level** 5

Assumed Knowledge

A basic knowledge of research methods at undergraduate leve 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.

NT201A.1 Nutrition & Health 2.1

Credit Points 10 **Level** 2

To present the basic 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.

NT202A.1 Nutrition & Health 2.2

Credit Points 10 **Level** 2

To apply the basic concepts of human nutrition to the various stages of the life span 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.

NT304A.1 Nutrition and Community Health (V1)

Credit Points 10 **Level** 3

The aims and objectives of this unit are 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.

400780.1 Nutrition, Physical Activity and Mental Health

Credit Points 10 **Level** 1

Special Requirements

Students should be aware that it is a requirement of this unit to satisfactorily complete a child protection awareness training program and attain a 3-year, work cover-approved senior first aid qualification within the time-frame of this unit.

Australian Society is currently facing critical challenges in the areas of mental health, nutrition and physical activity. This unit examines the interdependence between these areas, and how the personal and sociocultural health issues can be addressed in a pro-active, holistic and sensitive manner. Completion of a child protection awareness training program and senior first aid qualification is required and will be at student's own expense, in own time.

NT306A.1 Nutritional Biochemistry

Credit Points 10 **Level** 3

Prerequisite

300227.1 - General Biochemistry OR **300219.1** - Biochemistry 1

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 body emphasising the utilisation of macronutrients for energy.

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, D2783, J2783

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.

400176.1 Occupation and Ageing

Credit Points 10 **Level** 5

Incompatible Units

E2043 Occupational Therapy 3 (Unit 3): Older Adult; AND E2045 Lifespan Development.

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.

400171.1 Occupation and Neurology

Credit Points 10 **Level** 3

Incompatible Units

E2047 Occupational Therapy 4: Unit 1 Neurology.

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.

400170.1 Occupation and Social Participation

Credit Points 10 **Level** 3

Equivalent Units

E3026 Occupational Therapy 5

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 Occuptational 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.

400733.1 Occupational Analysis

Credit Points 10 **Level** 1

Special Requirements

Enrolment is restricted to students enrolled in course codes 4520 OR 4521. This is a specialist professional unit for occupational therapy practice so is not suited to students from other programs.

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.

300288.1 Occupational Environment

Credit Points 10 **Level** 1

Equivalent Units

EH204A.1 Intro to the Occupational Environment
EH105A.1 Environments in Context: Occupational Environment

This unit aims to introduce students to independent learning at a tertiary level through the study of the ways in which various environments interact, are impacted upon and provide the context for the study of issues within and around the occupational environment. The specific aims of this unit are to introduce students to the study of issues from an occupational environment perspective, to examine the interactions between the occupational environments and the wider environment, to assist students to develop a methodology and a context for problem solving and to encourage students to become responsible for their own learning. The focus of the unit is on experiential learning using observation, reviews of the occupational environment literature, research, planning, communication techniques and different methods of interpretation.

400161.1 Occupational Therapy Clinical Practice 1

Credit Points 10 **Level** 1

Equivalent Units

E1311 Occupational Therapy 2 (Unit 4)

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

This unit aim introduces students to the principles and practices of clinical and community fieldwork. 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. Professional competencies addressed include manual handling, assisted mobility, infection control, time management, goal setting, professional communication, professional and ethical behaviour and writing learning contracts. A two-week block placement is conducted at the end of the teaching period.To enrol in this unit students must have a current first aid certificate and have undertaken the special requirements for NSW Health Dept. ie. criminal record check and occupational screening and vaccinations

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

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 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

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 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

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.

400179.1 Occupational Therapy Clinical Practice 4

Credit Points 20 **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 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

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.

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 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

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 Pathophsyiology 1.

Equivalent Units

E2043 Occupational Therapy 3

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

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.

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

rolesTechnical skills of data collection, management, analysis and interpretation in health practiceApplication of this knowledge and skill in research project development in specialist health fields. Students must be enrolled in course 4521 to be eligible to enrol in this unit

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

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.

400178.1 Occupational Therapy Qualitative Project

Credit Points 10 **Level** 5

Equivalent Units

E4126 Investigative Project (Occupational Therapy)

The aim of this unit is for students to apply their knowledge of professional theory, practice, research and evaluation skills to the investigation of an occupational therapy problem. Students will apply qualitative methods to investigate their chosen topic. Students develop an extensive knowledge of their chosen topic through literature review and will apply qualitative methods of data collection and analysis to their investigation. Ethical considerations in qualitative research will be analysed and applied to the investigation process. Students will complete a project report and present this at a professional standard student conference at the completion of the semester.

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

14944.1 Operating Systems or J2789.1 Operating Systems

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.

200197.1 Optimisation 1

Credit Points 10 **Level** 2

Assumed Knowledge

Linear algebra.

Equivalent Units

J3638 Operations Research 3.1, 14346 Linear Programming

This unit presents the fundamental mathematical aspects of operations research and develops skills in quantitative approaches to decision making. Students learn how quantitative approaches work and how they can be applied and interpreted by the decision-maker in order to generate efficient solutions. The unit focuses on problem formulation and solution methods, and covers linear programming, integer programming and the Kalman filter.

200198.1 Optimisation 2

Credit Points 10 **Level** 3

Prerequisite

200197.1 - Optimisation 1 AND **200189.1** - Concepts of Mathematics

This unit covers a substantial range of theory and methodology for solving optimisation problems in various practical applications. Topics include dynamic programming, integer programming and nonlinear programming.

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

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

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.

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.

400808.1 Outdoor Recreation

Credit Points 10 **Level** 1

Equivalent Units

100666.1 Outdoor Recreation 1

Special Requirements

Child Protection and Criminal Record Check

Outdoor Recreation introduces students to the development of Outdoor Recreation in Australia and overseas. In particular, it examines the role of Outdoor Recreation in the School system. It considers the concepts of leisure and outdoor activity in relation to the needs of society, and provides a conceptual background to the more practical components of outdoor recreation, with an emphasis on soft skills and bush walking competence. The unit will allow students to clearly demonstrate a sound understanding of knowledge and skills in a broad range of outdoor recreation competencies at this level. Fieldwork is an integral component of the unit. The unit also requires students to have a current Remote Area First Aid certificate. Components are completed at the student's own expense.

100675.1 Outdoor Recreation 2

Credit Points 10 **Level** 2

Equivalent Units

20069 Outdoor Recreation Management

This unit examines the concepts of administration and managerial aspects of Outdoor Recreation and Outdoor Education. This is undertaken through addressing elements of administration, group dynamics, land use management, environmental impact and risk evaluation as they relate to Outdoor Recreation Management. Knowledge, technical skills and values of a range of fieldwork activities with an emphasis on repelling is developed by the student. The emphasis is on the use of scholarly means to achieve practical ends, and students will be evaluated on their ability to conduct their own investigation into topics and to apply the outcome in a safe and practical manner. Completion of an approved Remote Area First Aid certificate is required of students at their own expense and in their own time. The unit addresses the National Outdoor Recreation Competency Standards. Field work is an integral component of the unit and is conducted in block, flexible time periods on weekends and mid session breaks. The field work is completed at the students own expense.

100676.1 Outdoor Recreation 3

Credit Points 10 **Level** 3

Equivalent Units

20070 Outdoor Recreation Design

This unit allows students to gain knowledge, technical skills and enhances values needed in the planning and developing of an outdoor recreation site or facility. The unit examines site analysis, safety audits, activity planning and delivery, coordination of others, and emergency procedures with specific reference to aquatic environments. The unit requires students to be participants in the planning and implementation of expeditions. The unit will provide for further understanding of the National Outdoor Recreation Competency Standards in both a theoretical and

practical context. The unit will allow students to clearly demonstrate a sound understanding of knowledge and technical skills in a broad range of Outdoor Recreation areas. Fieldwork is an integral component of the unit and as such is compulsory. Fieldwork is undertaken at students' own expense.

100677.1 Outdoor Recreation 4

Credit Points 10 **Level** 3

Equivalent Units

20071 Investigative Project in Outdoor Recreation

The unit allows students to develop knowledge, technical skills and values in a range of Outdoor Recreation activities through researching different forms of Recreation program delivery modes. The unit involves students researching, developing and displaying leadership attributes in Outdoor Recreation areas through an examination of a theoretical and practical base. Assessment of current practices, outcomes and difficulties associated with outdoor recreation in wilderness environments is undertaken. Approaches to enhance best practice, deliver outcomes and meet and overcome difficulties associated with technology developments, and their practical application in the field. The unit, through research and fieldwork, will allow students to clearly demonstrate a sound understanding of knowledge, technical skills and values in a broad range of outdoor recreation competencies. Field work is an integral component of the unit and as such is compulsory. The field work is completed at the students' own expense.

FS328A.1 Packaging Science & Technology

Credit Points 10 **Level** 3

Topics in this unit include the following. Packaging material: paper/board, glass, metals, plastics. Choice of materials for food packaging including coatings and cushionings. Packaging operations, including closing, printing and labelling. Package design. Shelf life prediction. Testing of packaging materials and packages. Microwave packaging, aseptic packaging. Modified atmospheric packaging. Active packaging. Package evaluation. Recycling and packaging waste management. Covenant and other issues.

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.

400138.1 Pathophysiology 1

Credit Points 10 **Level** 2

Prerequisite

400130.1 - Human Medical Sciences 1 OR **300320.1** - Introduction to Human Physiology

Equivalent Units

E3320 - Pathophysiology I OR E2042 - Clinical Medicine

This unit will equip students with detailed knowledge of pathology and pathophysiology. The lectures and tutorials apply a systemic approach to the study of a range of disease categories, providing a foundation of pathophysiological knowledge for Osteopathy, TCM, podiatry, OT, and TR students. This unit aims at preparing the future practitioner with: an in-depth knowledge base of diseases; the ability to prescribe the most accurate response as a result of a diagnosis made, and making appropriate referral if necessary.

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.

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.

400796.1 PDHPE: Efficient Movement Principles

Credit Points 10 **Level** 3

Equivalent Units

100670 Human Movement 4

Special Requirements

Level 1 Coaching and a Level 1 Sport Trainer Certificate

This unit examines efficient human movement principles. An understanding of the principles of efficient movement and how they apply to performance is examined through a range of movement tasks required for track and field athletics and aquatics. Laboratory activities will focus upon the basic movement tasks of throwing, jumping, balancing, striking, running, buoyancy and rotary activities. An examination of the instruments used in efficient movement analysis is undertaken. A compulsory requirement of this unit is for students to successfully demonstrate competencies and to undertake and gain the RLSSA's Bronze Medallion award. Students who are not strong swimmers are encouraged to gain swim experience and coaching from outside agencies through the semester, so that they will be in a position to successfully undertake the theory and practical tests associated with the RLSSA's Bronze Medallion award. Students will also be given the opportunity to obtain the SLSA's Surf Rescue award. These components will be completed in the student's own time and at their own expense and will be additional requirements to the formal lecture and teaching program for the unit.

400794.1 PDHPE: Exploring Movement Skills

Credit Points 10 **Level** 1

Equivalent Units

100664 Human Movement 1

The focus of this unit will be on teaching games for understanding through the development of fundamental movement skills. This unit will allow students to expand their theoretical knowledge and practical experience in a selection of invasion/territorial sports through a game sense and fundamental movement skills approach. The subject focuses on motor learning and the acquisition of skill. Skills and activities included are designed to promote their performance in and understanding of the teaching process in this area of physical education.

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 1coaching 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.

400797.1 PDHPE: Gymnastics

Credit Points 10 **Level** 3

Equivalent Units

100671 Human Movement 5

This unit focuses on the development of knowledge, understandings and technical skills of gymnastic commensurate with the requirements of the PDHPE years 7-10, Board of Studies syllabus and the Gymnastics Australia. Various aspects of fundamental and specialised movement skills development such as body control (including momentum, locomotion, balance and stability), anticipation and timing of movement, object manipulation and control, and gymnastic skills technique will be introduced through utilisation of different types of safe and progressive programming structures ranging from Kindergym and Gym Fun through to more formal structured programs of Artistic and Rhythmic Gymnastics as well as Sport Aerobics and Acrobatics. Understanding of features and elements of movement composition will be developed through participation in a variety of individual and group movement activities. Students will undertake practicum placements to complete requirements equivalent to the National Level 1 Gymnastics Coaching Certificate. These placements are in addition to the full lecture program of the unit and do not replacement the unit content or form in any way. Practicum placements will be at the students own expense and in students own time. Resources are required for this unit and students will need to pay for these. They include but are by no means limited to: Gymnastic coaching manual and worksheets, and Level one accreditation and certificate.

400793.1 PDHPE: Invasion Games

Credit Points 10 **Level** 2

Equivalent Units

100669 Human Movement 3

Special Requirements

Level 1 General Principles, Level 1 Coaching and a Level 1 Sport Trainer Certificate

This unit will provide students with the opportunity to further develop practical skills and coaching expertise in invasion/territorial games. Students will be required to instruct, demonstrate and evaluate movement skills in more complex and challenging environments, and provide meaningful feedback specific to the context and stage/level of performance. The unit will build upon some key concepts introduced in Invasion Games 1 but will also explore other aspects important to the planning, implementation and evaluation of teaching invasion/territorial games. Other factors important to training and performance during competition will be explored during the course of this unit. Students will be given the opportunity to complete a Level 1 General Principles, Level 1 Coaching, and a Level 1 Sport Trainer Certificate. These components will be completed in the student's own time and at their own expense and will be additional requirements to the formal lecture and teaching program for the unit.

400792.1 PDHPE: Lifelong Physical Activity and Fitness

Credit Points 10 **Level** 2

Prerequisite

400780.1 - Nutrition, Physical Activity and Mental Health

Equivalent Units

100665 Human Movement 2

This unit investigates the functioning of the human body during physical activity and exercise and its acute and chronic responses to the demands of regular, vigorous physical activity. The unit involves a series of laboratory sessions looking at strategies to promote participation in physical activity, and the principles of exercise, exercise testing and exercise prescription. Various measurement techniques for assessing physical capacities are examined along with the application of their results to exercise prescription and activity involvement for children, adolescents and adults specific to the individual. Students undertaking this unit will be expected to complete some units of competence towards a Level 1 Fitness Trainers Accreditation in their own time, at their own expense.

400799.1 PDHPE: Recreational Sports

Credit Points 10 **Level** 3

Equivalent Units

100673 Human Movement 6

Special Requirements

Child protection, criminal check

This unit focuses on advanced principles of sports coaching through an examination of a variety of Net/ Wall and Target sport and recreational activities. This unit further builds upon teaching games for understanding through a games sense approach introduced and developed in earlier units. Through presentation of a variety Net/Wall games (from Tennis, Table tennis, Volleyball, handball, badminton, squash), Target games (from Archery, Bowls, Bowling, Golf, Pool, Croquet) and Indigenous games (from) students will acquire knowledge and skills of how tactical

(games sense approach) and technical (traditional approach) can form a powerful basis from which Coaches can deliver meaningful, impacting sport and recreational programs. Specific coverage of tactical and technical advanced sports coaching principles are examined, and then implemented through developed coaching programs for community sporting groups or as part of the Active After-school Communities Program. Students will be given the opportunity at their own expense and in their own time to complete the National Level 1 Community Coach program, the National Level 2 General Principles Coaching course and a variety of Level O and Level 1 Coaching certificates in Net/Wall and Target sports and recreations. These components, while compulsory,

300324.1 Pharmacological Chemistry

Credit Points 10 **Level** 3

Assumed Knowledge

300301.1 Organic Chemistry 2. This unit is aimed at undergraduates with a grounding in chemistry and biochemistry.

Equivalent Units

J3649.1 Pharmacological Chemistry

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

This unit will be on offer from 2007. 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 equiv); 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 OR 300540 - Biomolecular Dynamics OR CH205A - Chemistry 2 OR J2776 - Physical Chemistry 2

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.

300558.1 Physics 1

Credit Points 10 **Level** 1

Assumed Knowledge

2 units of HSC mathematics or equivalent

Equivalent Units

14201 - Foundation Physics 1 OR 14227 - Engineering Physics OR 300050 - Physics 1 OR 300077 - Physics 1D OR EN102A - Engineering Science OR J1733 - Physics 1.1 OR 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.

300050.1 Physics 1

Credit Points 10 **Level** 1

Equivalent Units

14201 - Foundation Physics 1 OR 14227 - Engineering Physics OR 300077 - Physics 1D OR 300558 - Physics 1 OR EN102A - Engineering Science OR J1733 - Physics 1.1 OR J1763 - Fundamentals of Physics

After an introductory module discussing basic ideas and some interesting topics in physics, this unit covers the following areas: mechanics (including Newton's laws, friction, momentum and energy conservation, work and power); thermal physics (including thermal expansion and stresses, specific and latent heat, conduction, convection, radiation and the first law of thermodynamics); introduction to waves (including intensity, inverse-square law, reflection, interference, diffraction, refraction, light, electromagnetic spectrum, sound waves, pitch and decibels); and DC electricity (including voltage, current, resistance, Ohm's law, electric power, resistors in series and parallel, meters and safety).

300559.1 Physics 2

Credit Points 10 **Level** 1

Assumed Knowledge

Physics 1 or equivalent.

Equivalent Units

14202 - Foundation Physics 2 OR 300051 - Physics 2 OR J1734 - Physics 1.2 OR PH103A - Physics 1.2 (v2)

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

14227.1 Engineering Physics

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.

400323.1 Physiology of Exercise

Credit Points 10 **Level** 2

Prerequisite

400130.1 - Human Medical Sciences 1 AND **400256.1** - Human Medical Sciences 2

This unit is designed to provide the student with an understanding of the physiological basis of physical activity. Physiological factors influence and limit our exercise ability while participation in exercise and

training influences physiological factors. This unit will explore the responses of the Cardiovascular, Respiratory, Muscular, Hormonal and Nervous systems responses to exercise and training; Environment and exercise interactions, Physiological factors that may limit exercise performance; Gender and lifespan differences in exercise responses; Physiological basis for fitness tests and Working safely within the exercise physiology laboratory environment.

BC302A.1 Plant Biotechnology

Credit Points 10 **Level** 3

Assumed Knowledge

Yes, basic knowledge in biology, botany and chemistry.

This unit introduces theories and techniques of plant biotechnology that are applicable to crop production and improvement. These techniques are applied to higher plants as well as fungi, yeasts and bacteria. This unit 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 emphasised. Topics include: introduction to applied microbiology; advanced tissue culture including micro grafting; production of haploids and triploids, mutation breeding; use of cell suspension cultures; in vitro germplasm conservation; protoplast culture and fusion; techniques used for the handling and analysis of DNA; methods for the genetic engineering of plants; and achievements of and prospects for genetic engineering.

300501.1 Plant Diversity

Credit Points 10 **Level** 2

Assumed Knowledge

Basic botanical knowledge in plant anatomy and morphology

Equivalent Units

HT105A.1 Horticultural Plant Identification

This unit will be first offered in 2007. 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.

14409.1 Plant Physiology

Credit Points 10 **Level** 2

Assumed Knowledge

300221 Biology 1 and 300222 Biology 2

This unit covers aquatic and terrestrial plants, photosynthesis, regulating gas exchange, transport and support in terrestrial plants, vegetative and sexual reproduction, plant growth, water movement and transpiration, nitrogen uptake and fixation, plant symbiosis, auxins and plant growth, cytokinins, cell division hormones, abscisic acid, growth-slowing hormone, flowering hormones.

HT301A.1 Plant Protection (V2)

Credit Points 10 **Level** 3

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; field recognition of pests and damage assessment.

300336.1 Plant-Microbe Interactions

Credit Points 10 **Level** 3

Equivalent Units

BI203A.1 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 rood 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.

300496.1 Plants in the Designed Environment

Credit Points 10 **Level** 3

Equivalent Units

DN306A.1 Planting Design; HT302A.1 Landscape Plants

This unit will be first offered in Spring 2008. This unit provides an understanding of planting selection for the constructed environment in terms of environmental

sustainability and aesthetics. Relevant issues explored include plant adaptability, soil and climatic requirements, longevity and maturation rates, management aspects including pest and disease susceptibility, drought tolerance, fire susceptibility, potential weediness, plant toxicity and training of plants. Regulatory requirements are also addressed. Specific issues addressed include development of xeriscaping, the fixed landscape, planting for climate zones within Australia, planting environmentally degraded areas (mined, disturbed dunes, intertidal areas, wetlands etc) and bioremediation. Planting for urban environmental modification and for therapeutic purposes is also explored.

400152.1 Podiatric Practice 4

Credit Points 10 **Level** 3

Assumed Knowledge

As student will be involved in functional assessment clinics an understanding of the content of Podiatric Medicine and pathomechanics of Human Locomotion is assumed.

Prerequisite

400149.1 - Podiatric Practice 3 AND **400147.1** - Paediatrics and Sports Medicine for Podiatry

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

The aim of the unit is to further develop areas of assessment techniques, the appropriate selection of these techniques and management of foot pathologies. Furthermore, the students will be introduced to the assessment and management of paediatric patients. Podiatric Practice 4 is the fourth clinical unit of the six clinical practice units. As such, it will continue to focus on the development of appropriate assessment, diagnosis and management skills, and introduce you to the unique skills in the management of children with foot problems. Activities will be divided into five areas: General Medicine Clinic, Paediatrics Clinic, Clinical Tutorials, Clinical Therapies and External Clinical Placement.

400155.1 Podiatric Practice 5

Credit Points 10 **Level** 5

Assumed Knowledge

As students will be involved in functional assessment clinics an understanding of the content in units: Podiatric Medicine; Pathomechanics of Human Locomotion and Paediatrics and Sports Medicine for Podiatry is assumed.

Prerequisite

400152.1 - Podiatric Practice 4 AND **400150.1** - Surgery for Podiatrists

Podiatric Practice 5 is the penultimate clinical unit of the six clinical practice units. As such, it will continue to focus on the consolidation of appropriate assessment, diagnosis and management skills, with emphasis on paediatric, simple surgical and high risk patients. Clinical activities will be divided into five areas: Paediatrics Clinic, Diagnostic and Surgical Clinic, General Clinic, Weekly External Clinical Placement and Clinical Therapies.

400158.1 Podiatric Practice 6

Credit Points 10 **Level** 5

Assumed Knowledge

As students will be involved in functional assessment clinics an understanding of the content in units: Podiatric Medicine; Pathomechanics of Human Locomotion and Paediatrics and Sports Medicine for Podiatry is assumed.

Prerequisite

400152.1 - Podiatric Practice 4 AND **400150.1** - Surgery for Podiatrists AND **400151.1** - The High Risk Foot

The aim of Podiatric Practice 6 is to further develop assessment techniques. This will include foot pathologies of people with good general health and high-risk patients through patient management at weekly public sector placements. At the University's clinic, the student will further develop assessment and management skills associated with the treatment of functional assessment patients at the University's clinic and consolidate specialist diagnostic and surgical skills.

400157.1 Podiatry Professional Practice Studies

Credit Points 10 **Level** 3

Podiatrists may function as a primary contact provider, as part of a multidisciplinary team, in the public or private health care setting. As such, they require extensive knowledge of many aspects of the management of a practice or business. This unit

introduces to students principles of specific professional, ethical and legal issues associated with working as a podiatrist and practice and workplace administrative policies and procedures.

300452.1 Postharvest

Credit Points 10 **Level** 2

Equivalent Units

HT203A.1 Introduction to Postharvest

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

84239.1 Introduction to Power and Machines

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.

101370.1 Power, Control and Decision Making

Credit Points 10 **Level** 3

Equivalent Units

61621 Power Control and Decision Making

The purpose of this unit is for students to develop an understanding of power as an interaction between historical, economic, structural and individual contingencies that impinge upon and affect decision-making processes. Within organizations and the broader social environment, the processes by which decisions are made can range on a spectrum from clear to vague and sometimes, seemingly, random or even non-existent. Recognition of the strategic contingencies within a situation and their interactions enables identification of the dynamics and processes of decision-making. Applying this knowledge to corporate and social situations will enable students to identify the political machinations that result in decisions that have lead to corporate successes and failures and social gains and losses.

400156.1 Practice Management for Health Professionals

Credit Points 10 **Level** 3

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.1 Farming Systems; 300450.1 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.

MI204A.1 Principles of Biotechnology

Credit Points 10 **Level** 2

Assumed Knowledge

A good knowledge of Microbiology and Biochemistry.

Prerequisite

300300.1 - Microbiology 1

Corequisite

300321.1 - Microbiology 2

This unit provides an overview of biotechnology and introduces students to the basic principles involved in the operation of commercial microbial processes. The unit will introduce the interdisciplinary nature of biotechnology. It also introduces the multi disciplinary nature of biotechnology and will illustrate some of the

current developments in the field. Products of biotechnology: scope, impact and selection, maintenance and preservation of industrial microorganisms; strain improvement, including genetic manipulation; microbial growth kinetics; control and regulation of microbial metabolism; fermentation processes; manipulation of environmental factors for optimisation of fermentation; commercial exploitation of living organisms; social and legal aspects of biotechnology.

300554.1 Principles of Chemistry

Credit Points 10 **Level** 1

Equivalent Units

300224 - Chemistry 1 OR J1753 - Chemistry 1

Incompatible Units

300469 - Introductory Chemistry

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.

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 AND 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.

200040.1 Probability & Stochastic Processes

Credit Points 10 **Level** 3

Assumed Knowledge

Concepts of Mathematics, and Statistical Theory.

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.

300578.1 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 of their course.

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.

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 3506 Bachelor of Computer Science, or 3634 Bachelor of Computer Science (Advanced), or the following key programs of the Bachelor of Computing; Health Informatics, Information Systems, Mathematics and I.T and Networking

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.

400783.1 Professional Pathways in Health Science

Credit Points 10 **Level** 1

Equivalent Units

400769 Foundations of Health Sciences

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.

300053.1 Professional Practice

Credit Points 10 **Level** 3

Prerequisite

85007.1 - Civil and Environmental Engineering Construction

Equivalent Units

85013.1 Civil and Environmental Engineering Practice 2

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.

300053.2 Professional Practice

Credit Points 10 **Level** 3

Prerequisite

300461.1 - Engineering and Industrial Design Practice

Equivalent Units

85013.1 Civil and Environmental Engineering Practice 2

Special Requirements

Enrolment restricted to B Eng students only. Students must have attained 160 credit points.

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.

AG109A.1 Professional Practice 1B

Credit Points 10 **Level** 1

This unit is based around two major activities: 1) students working with a group of their peers carrying out a case study, and 2) preparation by individual students for an Off Campus Experience (OCE) to be undertaken in the third semester of their course. Activities will include: 2 hours of lectures/workshops (varies during the semester) and 2 hours facilitation each week, one day case study visit in week three, a five day trip in week seven, 10 hours of reading theory to inform the learning and case study analysis and 20 hours writing documents and presentations. Students will be expected to maintain a learning portfolio/journal on a regular basis. Three days will be spent working, meeting and negotiating with the OCE host over the mid-semester break.

400790.1 Professional Practice in Aged Care and Disability

Credit Points 10 **Level** 2

Equivalent Units

400248 - Professional Practice in Aged Care

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.

400802.1 Professional Practice in Sport and Exercise Science 1

Credit Points 10 **Level** 1

Equivalent Units

400320 Professional Practice in Sports Studies 1

Special Requirements

This professional unit is restricted to students enrolled in course 4558 B App Sc (Sport & Exercise Science). Two Special Requirement forms are required to be completed prior to enrolment in this unit - the Prohibited Persons (Child Protection) check, and the Criminal Records Check. Immunisation requirements must also be met before this unit can be studied.

This unit provides students with experiences in the Science of Exercise & Sport helping them to determine a career direction. Students meet people from a variety of jobs in the sport, exercise and fitness industries, visit workplaces, and receive career counselling. This helps students identify preferences for professional practice placement. As there is strong competition for sport and exercise science-based employment, it is important to choose the placement agency carefully

400650.1 Professional Practice in Sport and Exercise Science 2

Credit Points 10 **Level** 2

Prerequisite

400802.1 - Professional Practice in Sport and Exercise Science 1 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; Criminal Record Check Clearance; Provide evidence of compliance with the occupational screening and immunisation policy of NSW Health.

Experience in the field of study is an essential ingredient in marketing an individual for employment either during the period of study or after graduation. Some professional associations require an applicant to have achieved a set number of hours in the workplace before membership can be conferred. Professional Practice provides students with an opportunity to observe 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 sport/exercise-related settings. This unit is the first of two Professional Practice units which require a placement which is usually off campus.

400177.1 Professional Reasoning

Credit Points 10 **Level** 5

Equivalent Units

E4114 Ergonomics 3 OR E4116 Occupational Therapy 6

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

Equivalent Units

300270.1 Professional Skills for Science & Technology; HT104A.1 Plants in Society

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.

HT204A.1 Professional Studies H

Credit Points 0 **Level** 2

This is a "Work Experience in Industry" unit, for which no student contribution or fee is charged. Enrolment in the unit will not consume Student Learning Entitlement (SLE). The Professional Studies unit must be

completed before the student is eligible to graduate. The objective of this unit is to provide students with 40 days work experience. There are many varied sectors of the horticultural industry in which work experience can be undertaken. These are as varied as student's interests and can include production, research and development, marketing, administration, parks and recreation, ancillary industries, service providers, councils, retail, wholesale, design, distribution or nurseries.

400786.1 Professional Transition Project

Credit Points 10 **Level** 3

Special Requirements

The unit is for final semester BHS students

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

300580.1 Programming Fundamentals

Credit Points 10 **Level** 1

Equivalent Units

300405, Fundamentals of Programming, 300155, Programming Principles 1, 200122, Business Application Development I

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.

300155.1 Programming Principles 1

Credit Points 10 **Level** 1

Equivalent Units

J1743.1 Programming Principles, 14910, J1743.

This unit is replaced by 300580 Programming Fundamentals in 2008. This unit provides a foundation for future programming studies. It presents the fundamental concepts of algorithms and problem solving, programming constructs, data structures, and internal representation of data. A high level procedural language is employed to solve problems in a structured manner.

300581.1 Programming Techniques

Credit Points 10 **Level** 2

Assumed Knowledge

A working knowledge of structured programming methods and programming concepts including: • iteration • selection • modularity • one dimensional arrays

Prerequisite

300580.1 - Programming Fundamentals

Equivalent Units

300156 Programming Principles 2 300125 Fundamentals of Computer Science

This unit builds on the programming foundations laid in 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, files, sorting and searching, and the fundamental abstract data types linked list, stack and queue.

MG313A.1 Project Management

Credit Points 10 **Level** 3

Assumed Knowledge

An understanding of construction planning and planning techniques (such as critical path method)

Aims: 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 OR J2820 - Introductory Biochemistry

Incompatible Units

14437 - Biochemistry OR 300227 - General Biochemistry OR BC201A - Biochemistry 2.1

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.

400285.1 Public Health

Credit Points 10 **Level** 2

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.

200469.1 Quality and Value Management

Credit Points 10 **Level** 3

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

This unit will be first offered in Autumn 2007. 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.

200045.1 Quantitative Project

Credit Points 10 **Level** 3

Assumed Knowledge

Six units of Mathematics, Statistics and/or Operations Research, at Level 2 or Level 3

This unit provides an opportunity for students to carry out a major project, in the form of a directed investigation under the supervision of an academic staff member. With the assistance of their supervisor, students will define the problem to be studied and then apply and develop the appropriate methodology. The final report presented by the student will consist of an appropriate simple literature review, presentation of analytical and/or theoretical results, analysis and discussion, followed by an appropriate conclusion. Students are also expected to give an oral presentation at the end of the session, outlining the results of their investigation.

400148.1 Quantitative Research

Credit Points 10 **Level** 1

Equivalent Units

E2230 Biostatistics for the Health Sciences OR 25719 Quantitative Research OR 25823 Quantitative Research

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

Building construction including residential, light industrial and small commercial.

This unit is designed to provide students with the basic skills necessary to measure building works for estimates, variations, construction programs and materials ordering.

200487.1 Quantity Surveying 2

Credit Points 10 **Level** 2

Assumed Knowledge

Building construction including residential, light industrial, small commercial and building measurement.

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.

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

14297.1 Satellite Communication

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.

400201.2 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).

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.1 Environmental Management 2

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 or 200192 Statistics for Science and desirably 200033 Applied Statistics.

Equivalent Units

14410 - Regression Analysis and Experimental Design OR J3692 - Regression and Multivariate Analysis OR J3717 - Design and Analysis of Experiments

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.

400491.1 Remedial Massage 1

Credit Points 10 **Level** 1

Corequisite

400130.1 - Human Medical Sciences 1

Special Requirements

To undertake this unit, students must comply with the following special requirements: Completion of a Prohibited Persons Declaration; Criminal Record Check Clearance;

This unit will introduce the students to the practice of remedial massage (RM). The unit will cover the scope and benefits of massage, the role of massage within the health care system (effective common with other health practitioners), the techniques used in RM, how to conduct a client assessment, and how to plan & perform a full massage consultation. The unit will cover OH & S issues including infection control, ethical and medico legal issues.

400494.1 Remedial Massage 2

Credit Points 10 **Level** 1

Corequisite

400256.1 - Human Medical Sciences 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;

This unit will provide a comprehensive study of remedial massage using the principles and skills already developed in Remedial Massage 1. Further detailed postural, orthopaedic and neurological assessment will be undertaken relating to specific conditions. Advanced massage techniques including myofascial release, lymphatic drainage, trigger point therapy, Proprioceptive Neuromuscular Facilitation/ Muscle Energy Technique (PNF/MET) will be taught in relation to specific injuries and disorders. Aspects of practice management will be introduced.

400803.1 Research in Nursing Practice

Credit Points 10 **Level** 5

Assumed Knowledge

A basic knowledge of research methods at undergraduate level.

Incompatible Units

400200.1 Applied Nursing Research

Special Requirements

Unit is restricted to those students enrolled in B. Nursing (Honours).

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.

300411.2 Research Methodology and Experimental Design

Credit Points 20 **Level** 8

Special Requirements

Restriction to students enrolled in postgraduate or honours courses.

400421.1 Research Methods for Humanities and Social Sciences

Credit Points 10 **Level** 7

Assumed Knowledge

Students need to be enrolled in a course at the appropriate level

Equivalent Units

Unit was previously coded 53220.

This unit provides core research training within a range of postgraduate courses. It requires the completion of four research topics in the following areas: research theory and design (e.g. epistemology, qualitative & quantitative) specific approaches (e.g. critical discourse analysis, feminist research); data collection methods (e.g. interviews, questionnaires) and methods of analysis (e.g. quantitative & qualitative). This unit is offered in flexible mode according to topic (typically one day's attendance or equivalent per topic). Topics vary each session depending on student demand.

200412.1 Research Proposal and Seminar

Credit Points 10 **Level** 5

Assumed Knowledge

Students enrolling in this unit will required an understanding and knowledge equivalent to an undergraduate BBus(Honours) degree and normally a grade point average of at least 5.

The seminar Program is an integral part of the BBus (Honours) program. It is structured in such a way that there are extensive links with the other components in the program. 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 the development of skills knowledge and a way of thinking that 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. Students wishing to take this unit as an elective will only be permitted to do so if they are completing a research project.

300290.1 Researching Communities and their Environments

Credit Points 10 **Level** 2

Assumed Knowledge

A basic understanding of problem-based and experiential learning. A grounding in environmental management/health practice.

Equivalent Units

EH213A.1 Environment and Community Studies 1, and EH101A.1 Environment and Community Studies

This unit builds on first year core units in order to further explore the factors that influence the health of both the environment and the community. The major determinants of environmental and community health are addressed along with important interactions between health and the environment. Students will work in small groups in order to investigate the effects of urban development on the health of the community and the environment. The unit includes an introduction to the principles of primary health care and ecological public health. Emphasis will be given to the ongoing development of problem solving and independent learning skills, and to increasing students understanding of contemporary environmental issues and the inextricable links between the health of the community and the health of the environment.

300056.2 Robotics

Credit Points 10 **Level** 4

Prerequisite

300463.1 - Fundamentals of Mechanics

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.

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

This unit is restricted to students 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.

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.

400739.1 Scientific Basis of Medicine 2

Credit Points 60 **Level** 2

Prerequisite

400737.1 - Scientific Basis of Medicine 1 AND **400738.1** - Health Practice 1

Corequisite

400740.1 - Health Practice 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.

The corequisite for this unit is 400740 Health Practice 2. 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 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.

300577.1 Script Programming

Credit Points 10 **Level** 2

Assumed Knowledge

A good understanding of programming concepts, such as selection, iteration, modularization, and one dimensional arrays. Basic knowledge of Windows operation system.

Prerequisite

300150.1 - PC Workshop AND **300580.1** - Programming Fundamentals

This unit aims to help students to build up the basic skills in scripting for Windows system administration, web server maintenance, and network setting. Students will learn scripting techniques through working on a set of common administrative tasks, from simple logon to automated system management, with provided ready-to-use scripting code or the code with similar functionality. This unit also provide students with more training in understanding programming principles for studying other computing-related subjects.

300568.1 Services Computing in Healthcare

Credit Points 10 **Level** 3

Prerequisite

300582.1 - Technologies for Web Applications AND **300566.1** - Introduction to Health Informatics

The IEEE Services Computing Community defines Services Computing as a “crossdiscipline that covers the science and technology of bridging the gap between Business Services and IT Services. The leading edge technology includes Web services and service-oriented architecture (SOA), business consulting methodology and utilities, business process modelling, transformation and integration. The goal of Services Computing is to enable IT services and computing technology to perform business services more efficiently and effectively.” (https://www.ieeecommunities.org/services). In this unit students will learn the concepts underpinning the services computing paradigm as detailed above, and will learn, through the development of practical examples, how to utilise them within a healthcare context.

400280.3 Sexuality

Credit Points 10 **Level** 3

The unit "Sexuality" provides an opportunity to develop awareness and understanding of some facets of human sexuality through considering behaviours, values, gender & concerns from differing perspectives, with a particular focus on issues of adolescent sexuality. It uses a multi-disciplinary approach, drawing primarily from sociology, psychology, anthropology & biology.

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

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

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.

400322.1 Sociological Aspects of Sport and Exercise

Credit Points 10 **Level** 1

The sports and the exercise industries have developed a highly sophisticated place within modern society and culture. This unit will examine sport and exercise from a sociological perspective and study the development, organisation and functioning of sport and exercise in our society. Contemporary issues in the sociology of sport and exercise will be examined within an Australian and international context.

85012.2 Soil Engineering

Credit Points 10 **Level** 2

Prerequisite

200237.1 - Mathematics for Engineers 1

This unit studies soil, and the water in it, as an engineering material. The behaviour of soil under stress is examined, the performance of clay used in a barrier system is discussed and the process of settlement with time under load is analysed.

300535.1 Soils

Credit Points 10 **Level** 1

Equivalent Units

HT102A Soils (V1)

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.

85029.1 Spatial Information Systems

Credit Points 10 **Level** 3

This unit provides: the surveying principles for levelling and feature surveys, descriptions of the components of spatial information systems, various computerised means of obtaining data for these systems, the use and variety of databases for the storage and analysis of the interrelationships of features in the databases, and the methods of integrating these various data forms to assist such professionals as environmental engineers, social and town planners and archaeologists.

400358.1 Specialties in Traditional Chinese Medicine 1

Credit Points 10 **Level** 4

Assumed Knowledge

Assumed knowledge equivalent to Chinese Internal Medicine 1.

Gynaecology and orthopaedics are important fields of clinical practice in traditional Chinese medicine. This unit enables 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.

400364.1 Specialties in Traditional Chinese Medicine 2

Credit Points 10 **Level** 4

Prerequisite

400357.1 - Chinese Internal Medicine 1

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.

400331.1 Sport and Exercise Science in Practice

Credit Points 10 **Level** 3

Prerequisite

400650.1 - Professional Practice in Sport and Exercise Science 2 AND **400329.1** - Sports Physiology AND **400328.1** - Exercise Prescription for Special Populations OR **400327.1** - Exercise in Musculo-Skeletal Injury Rehabilitation

Special Requirements

Students must be enrolled in course code 4558. 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.

The unit Sport and Exercise Science in Practice focuses participation and observation of Sport and Exercise Science activities in the real practice setting. Students will add to their knowledge of important issues in Sport and Exercise Science practice and further develop their ability to use the knowledge and skills developed during their previous Sport and Exercise Science course work and practical experiences. Students will be in placements where they can develop and demonstrate an ability to design, implement and evaluate exercise testing and training programs for a variety of clients in sports, community and clinical settings.

400477.1 Sport and Exercise Science Thesis A

Credit Points 10 **Level** 5

Assumed Knowledge

Completion of the Bachelor of Applied Science (Sport and Exercise Science) or equivalent.

Corequisite

400472.1 - Exercise and Health Sciences Honours Seminar

The aim of this unit is develop student's research skills. Students are to plan and complete a substantive piece of research in the field of Sport and Exercise Science and communicate the results to the professional and academic communities. Students will present the research findings as a thesis with substantial chapters detailing research objectives, literature review, research methods and research outcomes. The project may be a laboratory or field based investigation with human subjects. The project is to be a significant innovative contribution to the Sport and Exercise Science body of knowledge.

400478.1 Sport and Exercise Science Thesis B

Credit Points 40 **Level** 5

Assumed Knowledge

Completion of the Bachelor of Applied Science (Sport and Exercise Science) or equivalent.

Corequisite

400472.1 - Exercise and Health Sciences Honours Seminar

The aim of this unit is develop student's research skills. Students are to plan and complete a substantive piece of research in the field of Sport and Exercise Science and communicate the results to the professional and academic communities. Students will present the research findings as a thesis with substantial chapters detailing research objectives, literature review, research methods and research outcomes. The project may be a laboratory or field based investigation with human subjects. The project is to be a significant innovative contribution to the Sport and Exercise Science body of knowledge.

400479.1 Sport and Exercise Science Thesis C

Credit Points 20 **Level** 5

Assumed Knowledge

Completion of the Bachelor of Applied Science (Sport and Exercise Science) or equivalent.

Corequisite

400472.1 - Exercise and Health Sciences Honours Seminar

The aim of this unit is develop student's research skills. Students are to plan and complete a substantive piece of research in the field of Sport and Exercise Science and communicate the results to the professional and academic communities. Students will present the research findings as a thesis with substantial chapters detailing research objectives, literature review, research methods and research outcomes. The project may be a laboratory or field based investigation with human subjects. The project is to be a significant innovative contribution to the Sport and Exercise Science body of knowledge.

400480.1 Sport and Exercise Science Thesis D

Credit Points 20 **Level** 5

Assumed Knowledge

Completion of the Bachelor of Applied Science (Sport and Exercise Science) or equivalent.

Corequisite

400472.1 - Exercise and Health Sciences Honours Seminar

The aim of this unit is develop student's research skills. Students are to plan and complete a substantive piece of research in the field of Sport and Exercise Science and communicate the results to the professional and academic communities. Students will present the research findings as a thesis with substantial chapters detailing research objectives, literature review, research methods and research outcomes. The project may be a laboratory or field based investigation with human subjects. The project is to be a significant innovative contribution to the Sport and Exercise Science body of knowledge.

400329.2 Sports Physiology

Credit Points 10 **Level** 3

Prerequisite

400326.1 - Exercise Prescription for General Populations AND **400325.1** - Bioenergetics of Exercise

Special Requirements

To undertake this unit, students must comply with the following special requirement: Completion of a Prohibited Persons Declaration

101369.1 Statistical Knowledge and Social Power

Credit Points 10 **Level** 2

Assumed Knowledge

Knowledge of social research at an introductory level

Equivalent Units

63027 Statistical Knowledge and Social Power

This unit aims to make the study of statistics meaningful to students by presenting them in the context of a social issue. It provides students with a critical understanding of the theory and practice of statistical research without complex mathematics. The lectures will examine theoretical, philosophical and social power issues related to the production and usage of statistics. The workshops will allow the students to develop a basic capacity to produce, use and manipulate statistical data.

200034.1 Statistical Theory

Credit Points 10 **Level** 2

Assumed Knowledge

200192 Statistics for Science or 200032 Statistics for Business.

This unit completes an introduction to the basic principles and concepts of statistics. The unit provides a solid foundation in statistical theory, and emphasises the application of the theory to solving practical problems in the real world. There are two strands to the unit: distribution theory and statistical inference. The theoretical basis of the dual arms of classical statistical inference (estimation and hypothesis testing) is discussed, relating the probabilistic half of the unit to the ultimate objective - inference.

200032.1 Statistics for Business

Credit Points 10 **Level** 1

Assumed Knowledge

HSC Mathematics or equivalent.

Equivalent Units

C1022.1 - Introductory Statistics OR J1737.1 - Statistics 1.1 OR J1762.1 Fundamentals of Statistics OR ST202A.1 Business Statistics OR 61811.1 - Inferential Statistics

Incompatible Units

200192 - Statistics for Science, 200263 Biometry

This level 100 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

14324.1 - Statistics 1 OR 14327.1 - Statistical Methods OR 200032.1 - Statistics for Business OR J1730.1 - Mathematics 1.2 OR ST003A.1 - Statistics 1.2D OR ST109A.1 - Statistics 1.1 OR 200263 Biometry

This level 100 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.

85014.2 Steel Structures (UG)

Credit Points 10 **Level** 1

Prerequisite

85006.2 - Introduction to Structural Engineering

Corequisite

85010.1 - Structural Analysis

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.

200043.1 Stochastic Decision Theory

Credit Points 10 **Level** 2

Prerequisite

200192.1 - Statistics for Science OR **200032.1** - Statistics for Business AND **200042.1** - Introduction to Operations Research

This unit investigates models for making optimal decisions under conditions of uncertainty, and presents a number of relevant quantitative techniques. Topics covered include game theory, decision analysis, Markov chain models, queuing models, inventory models and Markov decision models.

85010.1 Structural Analysis

Credit Points 10 **Level** 3

Prerequisite

85006.2 - Introduction to Structural Engineering

This unit introduces students to aspects of structural analysis of trusses, beams and frames. It covers the first-order elastic analysis of statically determinate and indeterminate structures. It 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

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 clinical settings in the early stages of their professional career.

400150.1 Surgery for Podiatrists

Credit Points 10 **Level** 3

Assumed Knowledge

As this unit deals with local anaesthesia an entry level knowledge of the subject content in the Pharamacology component of the Pharamacology and Dermatology unit.

Prerequisite

400145.1 - Podiatric Practice 2 AND **400134.1** - Human Medical Sciences 3

Special Requirements

To be enrolled in this unit students must comply with the following: Hold a current Oxy Viva Resuscitation Certificate: Hold a current , Workcover Authority approved First Aid Certificate.

This unit covers 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, perioperative and post surgical management of the patient and nail and skin surgery, in preparation for student undertaking surgery during Podiatric Practice 5 and 6.

85003.1 Surveying for Engineers

Credit Points 10 **Level** 1

This unit provides: basic surveying principles; surveying practice for levelling, traversing and feature surveys, and the principles for setting out horizontal and vertical curves and buildings; an introduction to maps and map projections; and an introduction to modern surveying hardware and software.

200039.1 Surveys and Multivariate Analysis

Credit Points 10 **Level** 3

Assumed Knowledge

200192 Statistics for Business or 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

J2806.1 Manufacturing Technology and Design, and 10910.1 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 as manufacturing processes, systems and technologies, a designer can minimise the impact products have on the global community.

300304.2 Sustainable Design: Materials Technology

Credit Points 10 **Level** 1

Assumed Knowledge

Knowledge of physical units and tolerancing procedures. An understanding of the concepts of force, momentum, energy, work and power as presented in the units 300016 Design Science, 300050 Physics 1 and 300464 Physics and Materials.

Equivalent Units

300304.1 Sustainable Design 1: Materials Technology or J1758.1 Engineering Design or J2807.1 Materials Technology or J2817.1 Manufacturing Processes and Materials

This unit introduces basic thermodynamics, properties of fluids as well as mechanical and thermal properties of materials. It covers basic physical and chemical properties of metals, ceramics and plastics and discusses in some detail how these materials are chosen for fabrication of particular products as a result of their physical and chemical properties. In addition, the manufacturing methods used to produce various products will be described and justified on the basis of the materials used.

300306.2 Sustainable Design: Sustainable Futures

Credit Points 10 **Level** 2

Assumed Knowledge

300309 - Sustainable Design: Life Cycle Analysis

Equivalent Units

10913.1 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.

300165.1 Systems Administration Programming

Credit Points 10 **Level** 3

Prerequisite

300167.1 - Systems Programming 1

Corequisite

300149.1 - Operating Systems

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

14979.1 Network and Systems Management

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.

300529.1 Systems for Agricultural Production

Credit Points 10 **Level** 2

This unit will focus on the position of the farm production unit within the supply/value chain. In doing so it will also assist the student to develop an understanding of the position of the production unit and its production processes within environmental and social constraints.

300167.1 Systems Programming 1

Credit Points 10 **Level** 2

Prerequisite

300125.1 - Fundamentals of Computer Science AND **300405.1** - Fundamentals of Programming OR **300155.1** - Programming Principles 1 AND **300156.1** - Programming Principles 2 OR **300018.1** - Digital Systems 1 AND **300027.1** - Engineering Computing

Equivalent Units

Previously coded 14943 Systems Programming 1, and J2822 Uni System Programming 1

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

14963.1 Systems

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 AND **300585.1** - Systems Analysis and Design

Equivalent Units

300129 Interactive Web Site Development J2826, 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 and Systems Analysis and Design, this unit introduces students to the basics of developing interactive and dynamic web applications. The unit covers web site design, web site development, user-centred design, web page accessibility, XHTML, CSS, client side and server side scripting, database interaction, web site promotion (SEO), legal issues and web security.

EY101A.1 Terrestrial Environment Management

Credit Points 10 **Level** 1

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.

300325.1 The Appendicular Skeleton

Credit Points 10 **Level** 2

Equivalent Units

Unit was previously coded E2311

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.

400151.1 The High Risk Foot

Credit Points 10 **Level** 3

Assumed Knowledge

As the unit focuses on specific foot and related manifestation of endocrine and vascular disease a knowledge of the content in units: Human Medical Sciences 3; Pathophysiology 1 and Introduction to Radiology is assumed.

Building on the overview of systemic conditions covered in pathophysiology, foot and lower limb manifestations associated with vascular, endocrine, neurological and immunosuppression will be explored. 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.

300495.1 The Sustainable Environment

Credit Points 10 **Level** 2

Equivalent Units

DN305A.1 Landscape Design Studies

This unit will be offered from Autumn 2007. This unit explores both the designed and natural environments in terms of sustainability and encompasses urban, suburban and rural contexts. The role of innovative sustainable contemporary design bases on established ecological principles and the aesthetics of the Occidental and Oriental traditions are explored. Students will acquire a range of key competencies in the design, evaluation and management of the landscape, an understanding of the broad cultural issues involved and the challenge of changing physical and degraded environments including the impacts of future climate change.

400254.1 Therapeutic Recreation Professional Project

Credit Points 10 **Level** 3

Prerequisite

400137.1 - Introduction to Research for Health Sciences AND **400247.1** - Programming Therapeutic Recreation

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.

85015.2 Timber Structures (UG)

Credit Points 10 **Level** 1

Prerequisite

85006.2 - Introduction to Structural Engineering

Corequisite

85010.1 - Structural Analysis

Timber is introduced as a construction material. Engineering properties and methods of assessment are examined with an eye toward 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, or 200032 - Statistics for Business, or 200263 - Biometry.

Equivalent Units

J3697 Time Series and Forcasting, 14372 Time Series

Incompatible Units

200041 Applied Regression Analysis and Forecasting

This Level 300 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 econometic methods, are introduced and some guidelines for choosing an appropriate forecasting method are outlined.

300326.1 Topics in Physiology

Credit Points 10 **Level** 3

Assumed Knowledge

300320 Introduction to Human Physiology

Prerequisite

300320.1 - Introduction to Human Physiology OR **BC206A.1** - Human Physiology 2.2

Equivalent Units

BC306A - Human Physiology 3.1

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.

EH217A.1 Toxicology

Credit Points 10 **Level** 2

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

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.

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

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 Persons 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.

400359.1 Traditional Chinese Medicine Practice 3 (Research Project)

Credit Points 10 **Level** 4

Assumed Knowledge

Assumed knowledge equivalent to Introduction to Research for Health Sciences, and TCM Practice 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 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 problems. In addition to clinical practice, emphasis here will be on the development of a literature review, and the formulation of a research or evaluation proposal. Students will be expected to demonstrate competence in handling patients in a clinical context, prepare and present a research proposal at a professional level, critically examine issues in acupuncture and Chinese herbal medicine research.

400362.1 Traditional Chinese Medicine Practice 4

Credit Points 10 **Level** 4

Assumed Knowledge

Assumed knowledge and skills equivalent to TCM Practice 3.

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 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 competence in handling patients in a clinical context, and manage their integrated care using TCM.

400764.1 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 Persons Employment Declaration (PPED); 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.

400754.1 Understanding Alterations in Nutrition and Elimination

Credit Points 10 **Level** 2

Assumed Knowledge

Knowledge of biophysical principles and concepts addressed in 400746 Understanding Good Health and 400750 Introduction to Health Breakdown

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 and elimination.

400746.1 Understanding Good Health

Credit Points 10 **Level** 1

Assumed Knowledge

Knowledge of basic chemistry, phsyics 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.

HT103A.1 Understanding Landscape

Credit Points 10 **Level** 1

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.

300471.1 Urban Development Systems

Credit Points 10 **Level** 3

Equivalent Units

BG202A.1 Urban Development Systems

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

300217.1 Animal Form and Function

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

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.

85009.2 Water Engineering

Credit Points 10 **Level** 2

Prerequisite

200237.1 - Mathematics for Engineers 1 AND **300464.1** - Physics and Materials

The unit provides a working knowledge of the basic principles of fluid flow. It covers the general principles of engineering hydraulics. The theories learned in classes are reinforced in laboratory sessions.

300528.1 Water in the Landscape

Credit Points 10 **Level** 2

Equivalent Units

EY205A Principles of Soil and Water Management

Many land and water use activities in the landscape result in hydrologic changes that have environmental consequences and require appropriate management strategies for sustaining water resources. Understanding of these changes through hydrologic processes and risk assessment is important to rural, urban and peri-urban settings. In this unit, the hydrologic cycle and its different processes are explored in detail and an understanding is developed of the interrelationships between rainfall, runoff, vegetation, landuse, irrigation, erosion, water supply and water quality parameters in a range of scales in landscape. With this understanding of the hydrologic cycle and the processes, the availability, demand and use of water at a range of scales and their implications for environment is examined. This is to be achieved through lecture inputs on specific topics, a catchment tour, water quantity and quality analyses and a number of case studies in different settings.

EY211A.1 Water Quality Assessment and Management

Credit Points 10 **Level** 2

This unit introduces the protection of the aquatic environment in terms of the need to monitor and maintain water quality. It covers the healthy aquatic environment, pollutants and their sources, health and ecological impacts, guidelines, standards, and water and catchment management principles. The unit broadly addresses integrated urban water cycle management and explores 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.

85020.2 Water Resources Engineering (UG)

Credit Points 10 **Level** 4

Prerequisite

85009.2 - Water Engineering

This unit introduces the aspects of water engineering that relate to water as a resource. It builds on the work in 85009 Water Engineering and 85017 Foundations and Drainage.

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; management, transportation and storage of digital information and digital production processes such as scanning, pdf production and cd creation.

Equivalent Units

100605 Web and Time Based Production Technology

Through lectures students develop an understanding of fundamental concepts and processes inherent in designing for on 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

Students can 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

300146 Object Oriented Design 300117 Enterprise Database

Incompatible 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.

400495.1 Western Herbal Medicine 1

Credit Points 10 **Level** 1

Prerequisite

400130.1 - Human Medical Sciences 1 AND **400493.1** - Biochemistry for Naturopathy

Special Requirements

To undertake this unit, students must comply with the following special requirements: Criminal Record Check Clearance;

This unit provides the underpinning knowledge required to practice Western Herbal Medicine (WHM) ethically, within a framework of the historical and philosophical and current dynamic approaches to practice in Australia. The unit also introduces the 'language' of herbalism and the therapeutic classes of medicinal herbs.

400498.1 Western Herbal Medicine 2

Credit Points 10 **Level** 2

Prerequisite

400495.1 - Western Herbal Medicine 1

Corequisite

400262.1 - Clinical Diagnosis

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 gives an understanding of herbal medicines by teaching the actions, indications, constituents, contraindications and differential materia medica. The unit presents the herbs in relation to the body systems and a wide variety of associated disease states within those systems.

400500.1 Western Herbal Medicine 3

Credit Points 10 **Level** 3

Prerequisite

400498.1 - Western Herbal Medicine 2 AND **400262.1** - Clinical Diagnosis

This unit builds upon the information studied in Western Herbal Medicine 2 and gives an understanding of herbal medicines by teaching the actions, indications, constituents, contraindications and differential materia medica. The unit presents the herbs in relation to body systems different to those covered in WHM 2, and a wide variety of associated disease states within those systems.

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

300017.1 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.

101326.1 Work-based Learning Project: Humanitarian, Peace and Health Studies

Credit Points 20 **Level** 3

Incompatible Units

400281 Workbased Learning Project: Humanitarian and Health Studies

Special Requirements

Students must be enrolled in either course 1634 Bachelor of Social Science, 4548 Bachelor of Health Studies (Social Health Studies) or 4545 Bachelor of Health Science to be eligible to enrol in this unit. Students enrolled in 1634 Bachelor of Social Science (Humanitiarian and Peace Studies major only) the following pre-requisites apply: 400673 Inequality and Human Rights 101338 Peace, Sustainability and World Futures Students enrolled in 4545 Bachelor of Health Science (Social Health Studies) the following pre-requisites apply: 400088 Critical Qualitative Research 101369 Statistical Knowledge and Social Power including 140 credit points Depending on the professional placement some students may be required to undergo police checks.

The Humanitarian and Peace Studies Specialisation focuses upon the inequities of power, wealth and opportunity, and the results of conflicts both local and international. These inequities and conflicts result in marginalization and suffering of minority groups. This unit is the Capstone Unit in this major and considers the nature of inequalities as they manifest in both social and work environments. The focus is upon developing programs of redress for these inequalities and strategies for peaceful resolutions.

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 only.

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

Students must have the prerequisite 400246 Workplace Learning 1 – THIS UNIT IS ONLY OPEN TO Therapeutic Recreation students

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.

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