

Faculty of Science

Member Units

School of Biological Sciences
Department of Chemistry
School of Earth and Environmental Sciences

Degrees Offered

Bachelor of Science
Bachelor of Science - Advanced (Honours)
Bachelor of Science (Honours)
Bachelor of Marine Science
Bachelor of Marine Science - Advanced (Honours)
Bachelor of Marine Science (Honours)
Bachelor of Biotechnology
Bachelor of Biotechnology - Advanced
Bachelor of Environmental Science
Bachelor of Environmental Science - Advanced
Bachelor of Medicinal Chemistry
Bachelor of Medicinal Chemistry - Advanced
Bachelor of Nanotechnology
Bachelor of Nanotechnology - Advanced
International Bachelor of Science (Honours)

Double Degrees:

Bachelor of Science - Bachelor of Arts
Bachelor of Science - Bachelor of Commerce
Bachelor of Science - Bachelor of Mathematics
Bachelor of Science - Bachelor of Laws (see Faculty of Law)
Bachelor of Computer Science - Bachelor of Science (see Faculty of Informatics)
Bachelor of Communication & Media Studies – Bachelor of Science (see Faculty of Arts)
Bachelor of Creative Arts - Bachelor of Science (see Faculty of Creative Arts)
Bachelor of Engineering - Bachelor of Science (see Faculties of Engineering and Informatics)

For tuition fee information please see the following:

Domestic - www.uow.edu.au/student/finances/studentcontributions.html
International - www.uow.edu.au/prospective/international/fees/

This publication contains information which is current at December 2005. The University takes all due care to ensure the accuracy and currency of this information, but reserves the right to vary any information contained in this publication without notice. In particular, subject availability may change after the publication of the Handbook. For up-to-date subject information, students are advised to consult the online subject descriptions prior to enrolment, available at www.uow.edu.au/handbook/.

Faculty of Science Rules

All students enrolled in Faculty of Science degrees should note that:

1. they must satisfy the minimum mathematics requirement for all degrees offered by the Faculty of Science as set out in the Course Rules; (only candidates majoring in Human Geography are exempted from this rule)
2. a Pass or Pass Conceded grade (not a Pass Restricted grade) is required in a pre-requisite subject to progress to a higher level subject in disciplines within the Faculty of Science unless that pre-requisite is waived by a Head of the Academic Unit for a particular student in special circumstances;
3. a Pass Conceded grade in a 300-level subject forming part of a Science major may not be counted towards the completion of the major.

Note: Students may obtain a copy of the Science Students' Guide from the Faculty Office, Room No. 41.258.

Bachelor of Science

Testamur Title of Degree:	Bachelor of Science
Abbreviation:	BSc
Home Faculty:	Science
Duration:	3 years full time or part time equivalent
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	742
UAC Code:	757621
CRICOS Code:	003283D

Overview

Students may gain a comprehensive education in Science by selecting a major study and a range of elective subjects. The major studies areas are Biological Sciences, Chemistry, Human Geography, Physical Geography, Geology and Geosciences. Other interdisciplinary majors are Biotechnology, Ecology, Environment, Land and Heritage Management, Medicinal Chemistry and Nanotechnology.

The flexible structure of the major and electives allows students to design their study program to meet their particular interests and abilities. Students may combine their chosen Science major with a second major in Science, or a major chosen from outside the Faculty, or with a range of elective subjects.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 78 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Four units of science or four units comprising science and mathematics. Students who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 are required to take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

Bachelor of Science requirements fall into one of three categories, as follows:

1. a) At least one major chosen from disciplines located in the Faculty of Science. A major study consists of at least 90 credit points from the Science Schedule (see list of subjects at the end of this degree entry) of which at least 60 credit points are from one of the Faculty of Science disciplines: Biological Sciences, Chemistry, Human Geography, Physical Geography, Geology, Geosciences.

The balance of 54 credit points (to a degree total of 144) may be chosen from either the Science Schedule or General Schedule and may include a second major or a selection of complementary or contrasting subjects, or other subjects with the approval of the Dean or Associate Dean.

- b) One major from within the Faculty of Science and a co-major from outside the Faculty. Approved co-majors are: Biomedical Sciences, Computer Science, Human Resource Management, Management, Marketing, Mathematics/Applied Statistics, Nutrition, Physics, Psychology. In this category, where an approved major is combined with a Science major, the requirement of at least 90 credit points from the Science Schedule is waived.

2. An approved major from outside of the Faculty combined with a minor from within the Faculty. A minor is defined as comprising at least 12 credit points of 100-level and 32 credit points of 200-level and/or 300-level subjects from one of the Science Academic Units: Biological Sciences, Chemistry or Geosciences. The allowed external majors are Computer Science, Mathematics/Applied Statistics, Physics, Psychology.

Note: Students wishing to undertake a major program involving a discipline outside of the Faculty of Science as in 1(b) and 2 above, must first obtain the approval of the Head of the relevant Department or School and verify their planned study program. Recommended major programs can be obtained from the Faculty of Science Office in room 41.258.

3. One of the six interdisciplinary, prescribed majors, as follows (see separate course entry for each): Biotechnology, Ecology, Environment, Land and Heritage Management, Medicinal Chemistry, Nanotechnology

For the Bachelor of Science (Physics): Refer to the Faculty of Engineering.

Note: The Science Schedule list of subjects is provided at the end of this degree entry. The General Schedule is provided in the Course Structures.

Honours

Students with a good academic record, particularly in third year, are encouraged to proceed to the Honours year in the discipline of their major. The Honours year is a fourth year of study that provides training in independent research.

Major Study Areas

Biological Sciences

The general aim of the degree courses offered by the School of Biological Sciences is to provide students, regardless of previous background, with a basic understanding of the major principles, concepts and technologies of modern Biology. A major in Biological Sciences can be taken in the fields of biochemistry, molecular biology, cell biology, immunology, comparative physiology, terrestrial ecology, marine biology, evolutionary biology and environmental biology.

Major Study

First year (BIOL103, 104) is a general, self-contained introduction to Biology as well as essential background for future years. Students wishing to major in Biological Sciences must also take both first year Chemistry subjects. Students are required to take four 200-level Biological Sciences subjects selected from the seven available. Note prerequisites for 3rd Year subjects when selecting the combination of 2nd Year subjects. Students proceeding to a Biological Sciences major are strongly encouraged to take more than the minimum array of Biological Sciences subjects, especially at second year. All students majoring in Biological Sciences must take at least three 300-level subjects that form a coherent course of study. Approved subject combinations are (i) BIOL320, 321, and one of BIOL303, 332, CHEM320 (ii) BIOL351, 355 and BIOL332. Other subject combinations are possible and should be discussed with the Head of Department.

Second Majors

Second majors with other Departments are also available. In particular, students interested in Biochemistry may take a second major in Chemistry; students interested in Ecology should consider a second major in Physical Geography; and students interested in comparative physiology should consider subjects from the Health and Behavioural Sciences schedule.

Subjects	Session	Credit Points	
100-Level			
BIOL103	Molecules, Cells and Organisms	Spring	6
BIOL104	Evolution, Biodiversity and Environment	Autumn	6
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
	Total for major at 100-level		24
MATH151	General Mathematics 1A (if required)	Autumn/Summer	6
Note: Students wishing to take MARE200 and MARE300 should note that one of EESC102 Earth Environments and Resources or EESC112 Landscape Change and Climatology is required as a prerequisite.			
200-Level			
24 credit points from the following Biological Sciences subjects plus Statistics			
BIOL213	Principles of Biochemistry	Autumn	6
BIOL214	The Biochemistry of Energy and Metabolism	Spring	6
BIOL215	Introductory Genetics	Spring	6
BIOL240	Functional Biology of Plants & Animals	Autumn	6
BIOL241	Biodiversity: Classification and Sampling	Spring	6
BIOL251	Principles of Ecology and Evolution	Autumn	6

Course Information

MARE200	Introduction to Oceanography	Autumn	6
STAT252	Statistics for Natural Sciences	Spring	6
Total for major at 200-level			30

300-Level

An approved combination of at least 24 credit points from the following:

BIOL303	Biotechnology: Applied Molecular and Cell Biology	Autumn	8
CHEM320	Bioinformatics: From Genome to Structure	Spring	8
BIOL320	Molecular Cell Biology	Autumn	8
BIOL321	Infection and Immunity	Spring	8
BIOL332	Ecological and Evolutionary Physiology	Autumn	8
BIOL351	Conservation Biology: Marine and Terrestrial Populations	Autumn	8
BIOL355	Marine and Terrestrial Ecology	Spring	8
MARE300	Fisheries and Aquaculture	Spring	8
Total for major at 300-level			24
Sub-total for major			78

Plus additional subjects chosen from the Science Schedule **12**
90

Plus elective subjects chosen from the Science or General Schedules **54**

Note: The above degree structure must include a minimum of 32 credit points at 300-level

Degree Total 144

400-Level - Honours

BIOL401	Biology Honours	Annual	48
BIOL402	Biology Joint Honours	Annual	24

Other Information

Notes on Biological Sciences major:

1. A fourth Biological Sciences 200-level subject may be waived for students taking both a Biological Sciences major and a major from the School of Earth and Environmental Sciences.
2. A Mathematics or Statistics subject acceptable to the Department of Biological Sciences may be substituted for STAT252.
3. STAT252 may be waived for some programs combining 300-level Biological Sciences and another approved discipline.

Advanced Biology Project (BIOL392) is an 8-credit point project-based subject and Advanced Biology (BIOL391) is a 16-credit point project-based subject. These two subjects are available for high-quality students wishing to complement their coursework with research projects. Entry into these subjects is by permission of the Coordinator and requires good performance (usually Distinction average) in four 200-level Biological Sciences subjects.

An elective subject, MARE357 - Advances in Molluscan Biology, is offered in Summer Session for students wishing to gain additional field experience.

Chemistry

Chemistry is the study of the molecular nature of all matter and its interactions. The relationship between its structure and a molecule's properties and reactivity give chemistry an essential, central position in science and technology. An understanding of chemistry is needed for the full gamut of technology-based disciplines from solid-state physics and astro-physics to molecular biology and the life sciences; from geochemistry and environmental science to engineering and health sciences. Completion of this major qualifies graduates for membership of the Royal Australian Chemical Institute.

Major Study

A major in chemistry consists of two core 100- level subjects, and four core 200- level subjects, and an approved combination of 300- level subjects offered by the Department of Chemistry, with a value of at least 24 credit points.

Students may use their elective credit points to complete a second major in another discipline.

Subjects	Session	Credit Points	
100-Level			
CHEM101	Chemistry 1A : Foundations of Chemistry	Autumn	6
CHEM102	Chemistry 1B : Structure and Reactivity of Molecules for Life	Spring	6
Total for major at 100-level 12			
200-Level			
CHEM211	Inorganic Chemistry II	Autumn	6
CHEM212	Organic Chemistry II	Autumn	6
CHEM213	Molecular Structure, Reactivity & Change	Spring	6
CHEM214	Analytical & Environmental Chemistry II	Spring	6

	Total for major at 200-level		24
300-Level			
At least three subjects taken from the following list:			
CHEM301	Advanced Materials and Nanotechnology	Spring	8
CHEM314	Instrumental Analysis	Autumn	8
CHEM320	Bioinformatics: From Genome to Structure	Spring	8
CHEM321	Organic Synthesis and Reactivity	Spring	8
CHEM327	Environmental Chemistry	Autumn	8
CHEM340	Chemistry Laboratory Project	Annual	8
CHEM364	Molecular Structure and Spectroscopy	Autumn	8
	Total for major at 300-level		24
	Sub-total for major		60
Plus additional subjects chosen from the Science Schedule			30
			90
Plus elective subjects chosen from the Science or General Schedules			54
Note: The above degree structure must include a minimum of 32 credit points at 300-level			
	Degree Total		144

400-Level – Honours

CHEM401	Chemistry Honours	Annual	48
CHEM402	Chemistry Honours Part 1 for Part time students	Autumn	24
CHEM403	Chemistry Honours Part 2 for Part time students	Spring	24
CHEM405	Chemistry Joint Honours	Annual	24

Other Information

The Department offers a third year research subject CHEM340 to students with a good academic record (usually a credit average or better) who wish to gain experience in research. Entry into this subject is by permission of the Head of Department.

Human Geography

Human Geography encompasses the study of human societies and human environments. Understanding and helping to resolve conflicts and crises makes Human Geography an immediately socially-relevant discipline. Human Geographers make an essential contribution to environmental management, urban planning, and the management of social and economic change. A human geography major may be usefully combined with a physical geography major.

Subjects	Session	Credit Points	
100-Level			
EESC103	Landscape Change and Climatology	Autumn	6
EESC104	The Human Environment: Problems and Change	Spring	6
Total for major at 100-level			12
Recommended electives:			
EESC101	Planet Earth	Autumn	6
EESC102	Earth Environments and Resources	Spring	6
200-Level			
EESC205	Population Studies	Autumn	6
EESC210	Social Spaces: rural and urban	Spring	6
Plus at least two other subjects chosen from Earth and Environmental Sciences schedule at 200-level. Recommended options include:			
EESC204	Introductory Spatial Science	Spring	6
EESC206	Discovering Down Under: A Geography of Australia	Spring	6
EESC208	Environmental Impact of Societies	Spring	6
Total for major at 200-level			24
300-Level			
EESC307	Spaces, Places and Identities	Autumn	8
EESC308	Environmental and Heritage Management	Spring	8
Plus at least one other subject chosen from Earth and Environmental Sciences schedule at 300-level. Recommended options include:			
EESC305	Remote Sensing of the Environment	Autumn	8
EESC304	Geographic Information Science	Spring	8
EESC310	Water Resources and Management	Spring	8
Total for major at 300-level			24
Total for major			60
Plus additional subjects chosen from the Science Schedule			30
			90
Plus elective subjects chosen from the Science or General Schedules			54
Note: The above degree structure must include a minimum of 32 credit points at 300-level			
	Degree Total		144

Other Information

Students are encouraged to choose elective subjects from the arts and social sciences, such as history, economics and sociology.

Physical Geography

Physical Geography is the study of patterns and processes in the environment caused by the forces of nature. It examines the environmental and ecological problems facing the world, and provides the skills and knowledge to assist in managing them. A Physical Geography major could be combined with a Human Geography major or a Geology major.

Subjects		Session	Credit Points
100-Level			
EESC101	Planet Earth	Autumn	6
EESC103	Landscape Change and Climatology	Autumn	6
Total for major at 100-level			12
Recommended electives:			
EESC102	Earth Environments and Resources	Spring	6
EESC104	The Human Environment: Process and Change	Spring	6
200-Level			
EESC203	Biogeography and Environmental Change	Autumn	6
EESC202	Soils, Landscape and Hydrology	Spring	6
Plus at least two other subjects chosen from Earth and Environmental Sciences schedule at 200-level. Recommended options include:			
EESC204	Introductory Spatial Science	Spring	6
EESC206	Discovering Down Under: A Geography of Australia	Spring	6
EESC208	Environmental Impact of Societies	Spring	6
EESC250	Field Geology	Summer	6
Total for major at 200-level			24
300-Level			
EESC303	Fluvial Geomorphology and Sedimentology	Autumn	8
EESC302	Coastal Environments: Process and Management	Spring	8
Plus at least one other subject chosen from Earth and Environmental Sciences schedule at 300-level. Recommended options include:			
EESC305	Remote Sensing of the Environment	Autumn	8
EESC304	Geographic Information Science	Spring	8
EESC310	Water Resources and Management	Spring	8
Total for major at 300-level			24
Total for major			60
Plus additional subjects chosen from the Science Schedule			30
			90
Plus elective subjects chosen from the Science or General Schedules			54
Note: The above degree structure must include a minimum of 32 credit points at 300-level			
Degree Total			144

Geology

Geology is the study of the earth, the materials of which it is made, the processes that act on these materials, the products formed and the history of the planet and its life forms. Areas of specialised study include economic geology (coal, petroleum, uranium); geophysics; palaeontology; sedimentology; structural geology; stratigraphy; tectonics; volcanology and geochemistry. A Geology major can be combined with a second major in Physical Geography.

Subjects		Session	Credit Points
100-Level			
EESC101	Planet Earth	Autumn	6
EESC102	Earth Environments and Resources	Spring	6
Total for major at 100-level			12
Recommended electives:			
EESC103	Landscape Change and Climatology	Autumn	6
EESC104	The Human Environment: Problems and Change	Spring	6
200-Level			
EESC201	Earth Surface Processes and Products	Autumn	6
EESC202	Soils, Landscape and Hydrology	Spring	6
Plus at least two other subjects chosen from Earth and Environmental Sciences schedule at 200-level. Recommended options include:			

EESC204	Introductory Spatial Science	Spring	6
EESC203	Biogeography and Environmental change	Autumn	6
EESC208	Environmental Impact of Societies	Spring	6
EESC250	Field Geology	Summer	6
Total for major at 200-level			24
300-Level			
EESC301	Plate Tectonics, Macrotopography and Earth History	Autumn	8
EESC306	Resources and Environments	Spring	8
Plus at least one other subject chosen from Earth and Environmental Sciences schedule at 300-level.			
Recommended options include:			
EESC305	Remote Sensing of the Environment	Autumn	8
EESC304	Geographic Information Science	Spring	8
EESC310	Water Resources and Management	Spring	8
Total for major at 300-level			24
Total for major			60
Plus additional subjects chosen from the Science Schedule			30
			90
Plus elective subjects chosen from the Science or General Schedules			54
Note: The above degree structure must include a minimum of 32 credit points at 300-level			
Degree Total			144

Geosciences

A major in Geosciences offers a combined program of study in the two disciplines of Geography or Geology.

Subjects

100-Level

At least two subjects chosen from Earth and Environmental Sciences subjects at 100-level

200-Level

At least four subjects chosen from Earth and Environmental Sciences subjects at 200-level

300-Level

At least three subjects chosen from Earth and Environmental Sciences subjects at 300-level

Plus additional subjects chosen from the Science Schedule totalling 30 credit points

Plus additional subjects chosen from the Science or General Schedule totalling 54 credit points

Note: The above degree structure must include a minimum of 32 credit points at 300-level

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/.

The Degree Coordinator is the Associate Dean, Associate Professor Ted Bryant, 41.259.

Science Schedule of Subjects

The following are subjects offered by the Academic Units in the Faculty of Science, as well as subjects from outside the Faculty, that can be counted towards the 90 credit points of Science subjects required for a Bachelor of Science degree. The required 90 credit points must include a major study (or in some cases a minor study) in a discipline located in the Faculty of Science. Only 60 credit points of 100-level subjects may be counted towards a degree.

Biological Sciences

BIOL103	Molecules, Cells and Organisms	6
BIOL104	Evolution, Biodiversity and Environment	6
BIOL212	Introductory Microbiology and Immunology*	6
BIOL213	Principles of Biochemistry	6
BIOL214	The Biochemistry of Energy and Metabolism	6
BIOL215	Introductory Genetics	6
BIOL240	Functional Biology of Plants and Animals	6
BIOL241	Biodiversity: Classification and Sampling	6
BIOL251	Principles of Ecology and Evolution	6
MARE200	Introduction to Oceanography	6

Course Information

BIOL292	Special Biology Studies	6
BIOL303	Biotechnology: Applied Cell and Molecular Biology	8
BIOL320	Molecular Cell Biology	8
BIOL321	Infection and Immunity	8
BIOL332	Ecological and Evolutionary Physiology	8
BIOL333	Frontiers in Field Physiology*	8
BIOL351	Conservation Biology: Marine and Terrestrial Populations	8
BIOL355	Marine and Terrestrial Ecology	8
MARE300	Fisheries and Aquacultures	8
MARE357	Advances in Molluscan Biology	8
BIOL391	Advanced Biology	8
BIOL392	Advanced Biology Project	8
MARE393	Advanced Marine Science Project	8
	<i>*Not offered in 2006</i>	

Chemistry

CHEM101	Chemistry 1A: Foundations of Chemistry	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	6
NANO101	Current Perspectives in Nanotechnology	6
CHEM211	Inorganic Chemistry II	6
CHEM212	Organic Chemistry II	6
CHEM213	Molecular Structure, Reactivity and Change	6
CHEM214	Analytical and Environmental Chemistry II	6
CHEM218	Special Chemistry Studies	6
CHEM301	Advanced Materials and Nanotechnology	8
CHEM314	Instrumental Analysis	8
CHEM320	Bioinformatics: From Genome to Structure	8
CHEM321	Organic Synthesis and Reactivity	8
CHEM327	Environmental Chemistry	8
CHEM330	Medicinal Chemistry	8
CHEM340	Chemistry Laboratory Project	8
CHEM350	Principles of Pharmacology	8
CHEM364	Molecular Structure and Spectroscopy	8

Earth and Environmental Sciences

EESC101	Planet Earth	6
EESC102	Earth Environments and Resources	6
EESC103	Landscape Change and Climatology	6
EESC104	The Human Environment: Problems & Change	6
MARE200	Introduction to Oceanography	6
EESC201	Earth Surface Processes and Products	6
EESC202	Soils, Landscapes and Hydrology	6
EESC203	Biogeography and Environmental Change	6
EESC204	Introductory Spatial Science	6
EESC205	Population Studies	6
EESC206	Discovering Down Under: a Geography of Australia	6
EESC208	Environmental Impact of Societies	6
EESC210	Social Spaces: Rural and Urban	6
EESC250	Field Geology I	6
EESC260	Earth & Environmental Sciences Research Project	6
EESC301	Plate Tectonics, Macrotopography & Earth History	8
EESC302	Coastal Environments: Process and Management	8
EESC303	Fluvial Geomorphology and Sedimentology	8
EESC304	Geographic Information Science	8
EESC305	Remote Sensing of the Environment	8
EESC306	Resources and Environments	8
EESC307	Spaces Places and Identities	8
EESC308	Environmental & Heritage Management	8
EESC300	Directed Studies in Earth & Environmental Sciences A	8
EESC310	Water Resources and Management	8
EESC350	Directed Studies in Earth & Environmental Sciences B	8
ENVI391	Environmental Science	8

General Science

SCIE101	Modern Perspectives in Science	6
SCIE102	International Perspectives in Science	6
SCIE292	Science Research Internship	6
SCIE301	Directed Studies in Science	8
SCIE392	Science Research Internship B	8

Subjects offered by Academic Units external to the Faculty of Science:

BMS101	Systemic Anatomy	6
BMS112	Human Physiology 1	6
BMS202	Human Physiology II: Control Mechanisms	6
BMS311	Nutrients and Metabolism	8
BMS312	Research in Human Nutrition	8
CIVL272	Surveying	6
CIVL322	Hydraulics and Hydrology	6
CIVL361	Geomechanics 1	6
CIVL462	Geomechanics 2	6
CIVL463	Geomechanics 3*	6
CSCI103	Algorithms and Problem Solving	6
CSCI114	Procedural Programming	6
ENGG252	Engineering Fluid Mechanics	6
ENVE220	Water Quality Engineering	6
ENVE221	Air and Noise Pollution	6
ENVE385	Environment Engineering	8
ENVE420	Water Engineering*	6
INFO411	Data Mining and Knowledge Discovery	6
MATE201	Structure and Properties of Material	6
MATE304	Transport Phenomena in Materials Processes	6
MATH111	Applied Mathematical Modelling	6
MATH121	Discrete Mathematics	6
MATH141	Mathematics 1C Part 1	6
MATH142	Mathematics 1C Part 2	6
MATH161	Mathematics 1E Part 1	6
MATH162	Mathematics 1E Part 2	6
MATH187	Mathematics 1A Part 1	6
MATH188	Mathematics 1A Part 2	6
MATH151	General Mathematics IA	6
MATH201	Multivariate and Vector Calculus	6
MATH202	Differential Equations 2	6
MATH283	Mathematics 2E for Engineers Part 1	6
PHYS141	Fundamentals of Physics A	6
PHYS142	Fundamentals of Physics B	6
PHYS205	Advanced Modern Physics	6
PHYS206	Project in Physics	6
PHYS215	Vibrations, Waves and Optics	6
PHYS225	Electro Magnetism and Optoelectronics	6
PHYS233	Introduction to Environmental Physics	6
PHYS235	Mechanics and Thermodynamics	6
PHYS255	Radiation Physics	6
PHYS295	Astronomy: Concepts of the Universe	6
PHYS305	Quantum Mechanics	6
PHYS306	Project in Physics	6
PHYS325	Electromagnetism	6
PHYS335	Classical Mechanics	6
PHYS365	Detection of Radiation: Neutrons, Electrons and X Rays	6
PHYS375	Nuclear Physics	6
PHYS385	Statistical Mechanics	6
PHYS390	Astrophysics	6
PHYS396	Electronic Materials	6
POP204	Epidemiology	6
STAT151	Introduction of the Concepts and Practice of Statistics	6
STAT252	Statistics for the Natural Sciences	6
STAT335	Sample Surveys and Experimental Design	6

**Not offered in 2006*

Bachelor of Science Advanced (Honours)

Testamur Title of Degree:	Bachelor of Science Advanced (Honours)
Abbreviation:	BSc Adv (Hons)
Home Faculty:	Science
Duration:	4 years
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	741A
UAC Code:	757601
CRICOS Code:	052463E

Overview

The Advanced Program, designed specifically for high achieving students, offers direct entry into Honours, unlike the normal BSc which delays selection for Honours until the completion of the third year.

It offers a greater degree of flexibility in program design through: the possibility of exemptions from some first year subjects*; direct entry into some 200-level subjects; the opportunity to undertake individual research subjects at second, third and fourth year level; the opportunity to progress at a faster rate through the use of "fast tracking" mechanisms; the chance to participate in various enrichment activities and to develop a close association with an appropriate member of one of the Department's research teams. In the final year, all students undertake a substantial piece of supervised research in their major discipline together with other required seminar and/or course work.

*Students must apply to be assessed for this exemption at enrolment. Assessment will be take place on the Thursday or Friday of Orientation Week, prior to the start of session.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of at least 90 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Four units of science or four units comprising science and mathematics. Students who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 may take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

BSc students with an exceptionally high level of performance in first year may enter the program on the recommendation of the Coordinator or Head of the Academic Unit or the invitation of the Dean. Transfer will not be considered before completion of the first year of the course and is based on at least a Distinction average (75%) taken over all subjects completed, and the approval of the Dean or Associate Dean.

Course Requirements

Study programs are structured on an individual basis in consultation with the Head of Department or School. Students are required to fulfil all the normal BSc and Honours requirements and may select their major study program from any of those available within the Faculty (refer to the information under Bachelor of Science and Bachelor of Science (Honours)).

Progression Requirements

In order to maintain a place in an Advanced Science degree, students are normally required to achieve at least a Distinction average (75%) in the 200 and 300 level subjects completed. The performance of each student will be reviewed by the Associate Dean after the completion of 72 credit points. Students will be interviewed by the Associate Dean or their degree coordinator at the end of their first year to assess their progress.

Honours

After fulfilling requirements for a Bachelor of Science, students automatically proceed to an Honours year in their chosen discipline.

Major Study Areas

Please refer to the information contained in the entries for Bachelor of Science (742).

Students select a major from those available in the Faculty:

- Biological Sciences
- Chemistry
- Human Geography
- Physical Geography
- Geology
- Geosciences
- Ecology
- Environment
- Land and Heritage Management

Other Information

Please note: Similar Advanced programs are also available to students wishing to undertake one of the specialist degrees: Bachelor of Biotechnology, Bachelor of Environmental Science, Bachelor of Marine Science, Bachelor of Medicinal Chemistry and Bachelor of Nanotechnology.

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/ .

The Degree Coordinator is the Associate Dean, Associate Professor Ted Bryant, 41.259.

Bachelor of Science (Honours)

Testamur Title of Degree:	Bachelor of Science (Honours)
Abbreviation:	BSc(Hons)
Home Faculty:	Science
Duration:	1 year
Total Credit Points:	48
Delivery Mode:	Flexible
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	741
UAC Code:	-
CRICOS Code:	003126F

Overview

Students who have fulfilled the requirements of a Bachelor of Science with a major in a discipline offered by the Faculty, and achieved the required academic standard, may undertake an Honours degree – a year of research training in the discipline.

The honours degree provides students with the first real opportunity to undertake research on a topic of your interest. The honours year is particularly important as it represents a gateway to future research opportunities, both in the form of higher research degrees and as a career in research, or other vocations that require advanced analytical and research skills.

Entry Requirements / Assumed Knowledge

Students may apply to enrol in an Honours degree after the requirements of the pass degree have been fulfilled, normally at the prescribed academic standard. This standard is usually an average of at least credit level for the 300-level subjects in the major study. Admission to Honours is by recommendation of the relevant Head of the Academic Unit and approval by the Dean or Associate Dean of the Faculty, and acceptance by an academic supervisor in the discipline.

By arrangement with the academic units involved, it is possible to undertake Joint Honours, a research thesis spanning two disciplines.

Students proceeding directly from a 3-year degree to Honours do not graduate until after they have completed Honours. However, it is possible to graduate with a Pass Degree and then decide to undertake Honours at a later date, either at this University or at another University. Graduates from other Universities may also apply to undertake Honours at the University of Wollongong.

Course Requirements

To graduate with an Honours degree, candidates undertake a research thesis within their major study discipline, together with any required coursework.

In the Faculty of Science, Bachelor of Science Honours degrees can be taken in the following disciplines:

- Biological Sciences
-

Course Information

- Chemistry
- Human Geography
- Physical Geography
- Geology
- Geosciences

Students enrol in the appropriate 400-level Honours for the particular discipline, as set out below.

Course Program

Subjects	Session	Credit Points
Biological Sciences Honours		
BIOL401 Biology Honours	Annual	48
or BIOL402 Biology Joint Honours	Annual	24
Chemistry Honours		
CHEM401 Chemistry Honours	Annual	48
or CHEM402 Chemistry Honours Part 1 for Part Time students	Autumn	24
and CHEM403 Chemistry Honours Part 2 for Part Time students	Autumn	24
or CHEM405 Chemistry Joint Honours	Annual	24
Human Geography, Physical Geography, Geology or Geosciences Honours		
EESC401 Earth and Environmental Science Honours	Annual	48
or EESC402 Earth and Environmental Science Joint Honours	Annual	24

Other Information

For further information contact the Head of the Academic Unit in the particular discipline, or the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/

Bachelor of Science (Biotechnology)

Testamur Title of Degree:	Bachelor of Science (Biotechnology)
Abbreviation:	BSc(Biotech)
Home Faculty:	Science
Duration:	3 years
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn
Location:	Wollongong
UOW Course Code:	742
UAC Code:	757631
CRICOS Code:	003283D

Overview

Biotechnology is the application of exciting advances in molecular and cell biology to medicine, agriculture, and the environment. Through modern technologies, such as genetic engineering, biotechnology is shaping diverse aspects of medicine (cancer, vaccines, therapy and diagnosis of genetic diseases), food production (transgenic plants) and industry (bioremediation). Biotechnology encompasses the rapidly evolving fields of monoclonal antibody technology, proteomics and genetic engineering. A new generation of pharmaceuticals, vaccines, hormones and anti-inflammatory agents are being developed using these technologies.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 80 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Chemistry and Mathematics. Students who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 may take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

This is a prescribed program of study comprising core and optional subjects as set out below.

Course Program Subjects		Session	Credit Points
First Year			
BIOL103	Molecules, Cells and Organisms	Spring	6
BIOL104	Evolution, Biodiversity and Environment	Autumn	6
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
MATH151	General Mathematics 1A (if required)	Autumn or Summer	6
Plus other elective subjects to give a total credit point value of 48, at least 6 of which should be one of the following:			
PHYS132*	Physics for the Environmental and Life Sciences	Spring	6
STS100#	Social Aspects of Science and Technology	Autumn	6
BMS101	Systemic Anatomy	Autumn	6
BMS112	Human Physiology I: Principles and Systems	Spring	6
* Strongly recommended			
# STS100 is compulsory for students taking an approved course of study which does not include STS251.			
Second Year			
BIOL213	Principles of Biochemistry	Autumn	6
BIOL214	The Biochemistry of Energy and Metabolism	Spring	6
BIOL215	Introductory Genetics	Spring	6
BIOL240	Functional Biology of Plants & Animals	Autumn	6
STAT252	Statistics for the Natural Sciences	Spring	6
CHEM212	Organic Chemistry	Autumn	6
CHEM214	Analytical & Environmental Chemistry II	Spring	6
Plus one of the following subjects:			
STS251	From Molecular Genetics to Biotechnology	Autumn	6
BMS202	Human Physiology II: Control Mechanisms	Autumn	6
MGMT208	Introduction to Management for Professionals	Autumn	6
Third Year			
Core			
BIOL303	Biotechnology: Applied Cell & Molecular Biology	Autumn	8
CHEM320	Bioinformatics: From Genome to Structure	Spring	8
BIOL320	Molecular Cell Biology	Autumn	8
BIOL321	Infection and Immunity	Spring	8
Options			
Plus one Session 1 subject chosen from the following:			
CHEM350	Principles of Pharmacology	Autumn	8
BIOL332	Ecological & Evolutionary Physiology	Autumn	8
BIOL392	Advanced Biology Project	Autumn, Spring or Summer	8
BMS344	Cardiorespiratory Physiology	Autumn	8
Plus one Session 2 subject chosen from the following:			
CHEM321	Organic Synthesis and Reactivity	Spring	8
BIOL392	Advanced Biology Project	Autumn, Spring or Summer	8
PHIL380	Bioethics	Spring	8
Or other subjects approved by the Coordinator			

Honours

If the required academic standard is attained the BSc (Biotechnology) student may transfer to the B Biotechnology fourth Honours year. This consists of special coursework plus a research project.

Professional Recognition

Graduates qualify to apply for membership of the Australian Institute of Biology, the Australian Society of Microbiology and the Australian Biotechnology Society.

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/.

Or for more detailed course information contact the Professional Officer, Julie-Ann Green, telephone: 4221 3100; email: jagreen@uow.edu.au.

The Coordinator of the degree is Professor Mark Wilson – School of Biological Sciences.

Bachelor of Science (Ecology)

Testamur Title of Degree:	Bachelor of Science (Ecology)
Abbreviation:	BSc(Ecol)
Home Faculty:	Science
Duration:	3 years
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	742
UAC Code:	757621
CRICOS Code:	003283D

Overview

The University has one of the strongest ecological research groups in Australia working in marine, freshwater and terrestrial ecology, tropical and temperate ecosystems. Study areas include applications of remote sensing and geographical information systems (GIS), the use of molecular genetics in conservation biology, biodiversity assessment/ sampling, environmental impact assessment and experimental ecology. Organisms studied include: endangered plants, marsupial pollinators, marine and arid land birds, invertebrates – from corals to ants and marine and freshwater fish.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 78 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Four units of science or four units comprising science and mathematics. Students who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 may take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

This is a prescribed program of study comprising core and optional subjects as set out below.

Course Program

Subjects	Session	Credit Points
First Year		
BIOL104	Evolution, Biodiversity & Environment	Autumn 6
BIOL103	Molecules, Cells & Organisms	Spring 6
EESC102	Earth Environments and Resources	Spring 6
EESC103	Landscape Change and Climatology	Autumn 6
MATH187	Mathematics 1A, Part 1 (or Math 141 or Math 161)	Autumn 6
MATH188	Mathematics 1A, Part 2 (or Math 142 or Math 162)	Spring 6
Plus 12 credit points of electives to be approved by the coordinator		
Second Year		
BIOL240	Functional Biology of Plants and Animals	Autumn 6
BIOL241	Biodiversity: Classification and Sampling	Spring 6
BIOL251	Principles of Ecology and Evolution	Autumn 6
EESC203	Biogeography & Environmental Change	Autumn 6
EESC204	Introductory Spatial Science	Spring 6
MATH111	Applied Mathematical Modelling 1	Spring 6
STAT231	Probability and Random variables	Autumn 6
STAT232	Estimation and Hypothesis Testing	Spring 6
One 6 credit point elective subject may be approved by the coordinator if MATH111 is taken in 1st year		
Third Year		
Core		
BIOL351	Conservation Biology: Marine & Terrestrial Populations	Autumn 8
BIOL355	Marine and Terrestrial Ecology	Spring 8
EESC304	Geographic Information Science	Spring 8
EESC305	Remote Sensing of the Environment	Autumn 8
STAT355	Sample Surveys and Experimental design (with project)	Autumn/Spring 8
Options		
Plus one of the following		
BIOL332	Ecology and Evolutionary Physiology	Autumn 8
BIOL392	Advanced Biology Project	Autumn/Spring/ Summer 8
MARE300	Fisheries and Aquaculture	Spring 8
EESC302	Coastal Environments: Process and Management	Spring 8
Or other subjects approved by the Coordinator.		

Entry to BIOL392 would be subject to student having a distinction average in relevant subjects plus an arrangement for a supervisor.

Honours

Students with a good academic record, particularly in third year, are encouraged to proceed to the Honours year in the discipline of their major. The Honours year is a fourth year of study that provides training in independent research.

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/.

The Course Coordinator is Associate Professor Kris French – School of Biological Sciences.

Bachelor of Science (Environment)

Testamur Title of Degree:	Bachelor of Science (Environment)
Abbreviation:	BSc(Env)
Home Faculty:	Science
Duration:	3 years
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	742
UAC Code:	757633
CRICOS Code:	003283D

Overview

The Bachelor of Science (Environment) offers two broad, flexible, multi-disciplinary three-year strands ideal for students wishing to complete a science-based environmental degree with a view to employment in an area of environmental assessment, management and policy development. Core subjects have been chosen with a view to providing the key workplace skills required in the environmental field, and appropriate disciplinary strands can be chosen from optional subjects.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 80 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Four units of Science or four units comprising Science and Mathematics. Recommended studies include four units of Science or four units of Science and Mathematics. Geography may be counted as Science subjects.

Course Requirements

This is a prescribed program of study comprising core and optional subjects as set out below.

Course Program

(a) *Biological Sciences/Chemistry/Geosciences strand*

Subjects		Session	Credit Points
Common First Year			
BIOL104	Evolution, Biodiversity & Environment	Autumn	6
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6
EESC101	Planet Earth	Autumn	6
EESC103	Landscape Change and Climatology	Autumn	6
BIOL103	Molecules, Cells and Organisms	Spring	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
EESC102	Earth Environments and Resources	Spring	6
EESC104	The Human Environment: Problems and Change	Spring	6
Common Second Year			
BIOL251	Principles of Ecology and Evolution	Autumn	6
PHYS233	Introduction to Environmental Physics	Autumn	6
EESC203	Biogeography and Environmental Change	Autumn	6
STAT252	Statistics for the Natural Sciences	Spring	6
CHEM214	Analytical and Environmental Chemistry	Spring	6

Course Information

EESC204	Introductory Spatial Science	Spring	6
Options	Plus 2 of the following subjects, one of which should be MATH151 if minimum Mathematics requirement not already met, as approved for the balance of credit points to total 48.		
MATH151	General Mathematics 1A (if required)	Autumn/Summer	6
BIOL240	Functional Biology of Plants and Animals	Autumn	6
CHEM211	Inorganic Chemistry II	Autumn	6
CHEM212	Organic Chemistry	Autumn	6
MARE200	Introduction to Oceanography	Autumn	6
BIOL241	Biodiversity: Classification and Sampling	Spring	6
CHEM213	Molecular Structure, Reactivity and Change	Spring	6
EESC202	Soils, Landscapes and Hydrology	Spring	6
EESC208	Environmental Impact of Societies	Spring	6
EESC250	Field Geology I	Summer	6

Third Year

Core

EESC304	Geographic Information Science	Spring	8
ENVI391	Environmental Science	Spring	8

Options

Plus 4 of the following subjects, as approved:

CHEM314	Instrumental Analysis	Autumn	8
CHEM327	Environmental Chemistry	Autumn	8
BIOL351	Conservation Biology: Marine and Terrestrial Populations	Autumn	8
EESC301	Plate Tectonics, Macrotopography and Earth History	Autumn	8
EESC303	Fluvial Geomorphology and Sedimentology	Autumn	8
EESC305	Remote Sensing of the Environment	Autumn	8
EESC306	Resources and Environments	Spring	8
EESC308	Environmental and Heritage management	Spring	8
BIOL355	Marine and Terrestrial Ecology	Spring	8
EESC302	Coastal Environments: Process and Management	Spring	8
MARE300	Fisheries and Aquaculture	Spring	8
MARE357	Advances in Molluscan Biology	Summer	8

Or other subjects approved by the Coordinator

(b) Physical Sciences strand

Subjects	Session	Credit Points	
Common First Year			
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
PHYS141	Fundamentals of Physics A	Autumn	6
PHYS142	Fundamentals of Physics B	Spring	6
MATH187	Mathematics 1A, Part 1 (or MATH141/161)	Autumn	6
MATH188	Mathematics 1A, Part 2 (or MATH142/162)	Spring	6
EESC103	Landscape Change and Climatology	Autumn	6
CSCI114	Procedural Programming	Autumn or Spring	6
Common Second Year			
CHEM213	Molecular Structure, Reactivity and Change	Spring	6
CHEM214	Analytical and Environmental Chemistry	Spring	6
PHYS230	Intermediate Physics	Annual	12
PHYS235	Mechanics and Thermodynamics	Autumn	6
PHYS233	Introduction to Environmental Physics	Autumn	6
MATH283	Mathematics IIE for Engineers Part 1	Spring	6
BIOL352	Biology for Environmental Engineers	Autumn	6
Third Year			
Core			
PHYS375	Nuclear Physics	Spring	6
CHEM314	Instrumental Analysis	Autumn	8
CHEM327	Environmental Chemistry	Autumn	8
ENVE221	Air and Noise Pollution	Spring	6
EESC204	Introductory Spatial Science	Spring	6
Options			
Plus 2-3 of the following as approved to total a minimum of 48 cp:			
ENVE321	Solid and Hazardous Waste Management	Spring	6
ENVE385	Environmental Engineering	Autumn	8
PHYS305	Quantum Mechanics	Autumn	6
PHYS335	Classical Mechanics	Autumn	6
PHYS325	Electromagnetism	Autumn	6
CHEM364	Molecular Structure & Spectroscopy	Autumn	8

Honours

Students who have achieved the required standard would be eligible to enrol in Honours in their chosen discipline: Biological Sciences, Geosciences or Chemistry.

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/.

The Degree Coordinator is Professor John Morrison, Room 19.G012.

Bachelor of Science (Land and Heritage Management)

Testamur Title of Degree:	Bachelor of Science (Land and Heritage Management)
Abbreviation:	BSc(L&HM)
Home Faculty:	Science
Duration:	3 years
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn of Spring
Location:	Wollongong
UOW Course Code:	742
UAC Code:	757621
CRICOS Code:	003283D

Overview

This specialist program combines Physical and Human Geography with other relevant subjects to provide the skills and knowledge required for employment or research on both cultural and natural heritage issues.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 78 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Four units of science or four units comprising science and mathematics. Students without at least Mathematics Band 4 may take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

This is a prescribed program of study comprising core and optional subjects as set out below.

Course Program

Subjects	Session	Credit Points
First Year		
Core		
EESC102	Earth Environments and Resources	Spring 6
EESC103	Landscape Change and Climatology	Autumn 6
EESC104	The Human Environment: Problems & Change	Spring 6
MATH151	General Mathematics 1A (if required)†	Autumn or Summer 6
Options		
EESC101	Planet Earth	Autumn 6
BIOL104	Evolution, Biodiversity & Environment	Autumn 6
BIOL103	Molecules, Cells and Organisms	Spring 6
Plus other elective subjects to total 48 credit points. Students are encouraged to select from the General Schedule offerings in History, Aboriginal Studies, STS and Legal Studies.		
† required if entering the program without at least HSC Mathematics Band 4 or equivalent		
Second Year		
Core		
EESC204	Introductory Spatial Science	Spring 6
EESC210	Social Spaces: Rural and Urban	Spring 6
EESC203	Biogeography & Environmental Change	Autumn 6
EESC208	Environmental Impact of Societies	Spring 6
Plus at least TWO subjects chosen from:		
Options		
EESC202	Soils, Landscape and Hydrology	Spring 6
EESC206	Discovering Down-under: a Geography of Australia	Spring 6
EESC205	Population Studies	Autumn 6
BIOL251	Principles of Ecology and Evolution	Autumn 6
Plus elective subjects to total 12 credit points		
Third Year		
Core		
EESC308	Environmental and Heritage Management	Spring 8
EESC307	Spaces, Places and Identities	Autumn 8
EESC304	Geographic Information Systems	Spring 8

Course Information

Options

Plus THREE of the following:

EESC302	Coastal Environments: Process and Management	Spring	8
EESC303	Fluvial Geomorphology and Sedimentology	Autumn	8
EESC305	Remote Sensing of the Environment	Autumn	8
EESC310	Water Resources and Management	Spring	8
EESC300	Directed Studies in Earth and Environmental Sciences	Autumn or Spring	8

Or other subjects approved by the Coordinator

Honours

Students with a good academic record, particularly in third year are encouraged to proceed to the Honours year in the discipline of their major. The Honours year is a fourth year of study that provides training in independent research.

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/.

The Course Coordinator is Professor Lesley Head, School of Earth and Environmental Sciences, Room 41.G31.

Bachelor of Science (Medicinal Chemistry)

Testamur Title of Degree:	Bachelor of Science (Medicinal Chemistry)
Abbreviation:	BSc (Med Chem)
Home Faculty:	Science
Duration:	3 years
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	742
UAC Code:	757624
CRICOS Code:	003283D

Overview

Medicinal Chemistry is a three-year degree which provides students with an excellent training in modern techniques of chemical science applied to medicine. This includes specialised courses in drug discovery and design, using both rational, computer-aided and bioprospecting approaches. It also gives students the training in physiology, pharmacology and other areas needed to understand the effects of disease states on the human body and the role of drugs and other ways of chemical intervention. Students who meet the criteria are eligible to transfer to the Bachelor of Medicinal Chemistry Honours program.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 80 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Chemistry and Mathematics. Students who had not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics (Band 4) may take a special mathematics subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

This is a prescribed program of study comprising core and optional subjects as set out below.

Course Program

Subjects	Session	Credit Points	
First Year			
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
BIOL103	Molecules, Cells and Organisms	Spring	6
BMS112	Human Physiology I: Principles & Systems	Spring	6
MATH151	General Mathematics 1A (if required)	Autumn/Summer	6
Plus one of the following subjects:			
BIOL104	Evolution, Biodiversity & Environment	Autumn	6
BMS103	Human Growth, Nutrition & Exercise	Autumn	6

Plus other elective subjects to give a total credit point value of 48, at least 6 of which should be one of the following:

BMS101	Systemic Anatomy	Autumn	6
PHYS131	Physics for Environmental & Life Sciences (Strongly recommended)	Autumn	6
STAT252	Statistics for the Natural Sciences	Spring	6
Second Year			
CHEM211	Inorganic Chemistry II	Autumn	6
CHEM212	Organic Chemistry II	Autumn	6
CHEM213	Molecular Structure, Reactivity and Change	Spring	6
CHEM214	Analytical & Environmental Chemistry II	Spring	6
BIOL213	Principles of Biochemistry	Autumn	6
BIOL214	The Biochemistry of Energy and Metabolism	Spring	6
BIOL215	Introductory Genetics	Spring	6
BMS202	Human Physiology II: Control Mechanisms	Autumn	6

Third Year

Core

CHEM320	Bioinformatics: From genome to structure	Spring	8
CHEM321	Organic Synthesis & Reactivity	Spring	8
CHEM330	Medicinal Chemistry	Spring	8
CHEM350	Principles of Pharmacology	Autumn	8
CHEM364	Molecular Structure and Spectroscopy	Autumn	8

Options

Plus one of the following subjects:

CHEM314	Instrumental Analysis	Autumn	8
CHEM340	Chemistry Laboratory Project (Restricted Access: Credit average minimum requirement)		8
BIOL303	Biotechnology: Applied Cell and Molecular Biology	Autumn	8
BIOL320	Molecular Cell Biology	Spring	8

Or other subjects approved by the Coordinator

Honours

If the required academic standard is attained the BSc(Medicinal Chemistry) student may transfer to the B Medicinal Chemistry fourth Honours year. This consists of special coursework plus a research project.

Professional Recognition

This degree structure is designed basically to meet the qualifying standards of the Royal Australian Chemistry Institute, and students meeting the course requirements will be eligible for corporate membership of the Institute as Chartered Chemists.

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/ .

The Degree Coordinator is Associate Professor Paul Keller, Room 18.222, telephone 4221 4692, email: keller@uow.edu.au .

Bachelor of Science (Nanotechnology)

Testamur Title of Degree:	Bachelor of Science (Nanotechnology)
Abbreviation:	BSc (Nanotech)
Home Faculty:	Science
Duration:	3 years
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	742
UAC Code:	757627
CRICOS Code:	003283D

Overview

This 3-year coursework interdisciplinary degree in Nanotechnology is a joint offering from the Faculties of Engineering and Science. The degree targets the emerging field of nano-materials, molecular machines and nano-science.

The course will draw on strengths in the Faculties of Science and Engineering and a major strength in research at UOW, namely the 3 materials based Institutes: Intelligent Polymer Research Institute, Institute for Superconducting and Electronic

Course Information

Materials, and the BlueScope Steel Metallurgy Centre as well as the ARC Centre for Nanostructured Electromaterials. One of the main aims is to produce high quality graduates to feed into post-graduate programs within the Materials Institutes and other research units at UOW.

This course has a materials chemistry focus with possible elective subjects in physics, engineering (eg. mechatronics) and biology. There are a total of 5 elective subjects giving students scope to match the course to their interests whilst retaining a core focus on molecular design and characterization of materials at the nano-dimension. The course includes four specially designed subjects that will be mainly research oriented and combine lectures, laboratory and project work. This will give students from first year onwards a taste of where leading research in nanotechnology is heading. The research units will contribute significantly to these new subjects.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 80 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Chemistry or Physics and Mathematics. Students who have not completed Chemistry at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 may take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

This is a prescribed program of study comprising core and optional subjects as set out below.

Course Program

Subjects		Session	Credit Points
First Year			
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6
PHYS141	Fundamentals of Physics A	Autumn	6
MATH187/MATH141	General Mathematics 1A Part 1/1C Part 1	Autumn	6
NANO101	Current Perspectives in Nanotechnology	Spring	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
ENGG153	Engineering Materials	Autumn	6
PHYS142	Fundamentals of Physics B	Spring	6
MATH188	Mathematics 1A Part 2	Spring	6
Second Year			
CHEM212	Organic Chemistry II	Autumn	6
MATE201	Structure and Properties of Materials	Autumn	6
PHYS205	Advanced Modern Physics	Autumn	6
NANO201	Research Topics in Nanotechnology	Spring	6
CHEM213	Molecular Structure, Reactivity and Change	Spring	6
CHEM211	Inorganic Chemistry II	Spring	6
Plus two of the following electives:			
Materials Chemistry Stream			
CHEM214	Analytical and Environmental Chemistry	Spring	6
MATE204	Mechanical Behaviour	Spring	6
MATE291	Engineering Computing and Laboratory Skills	Autumn	6
Physics Stream			
MATH283	Mathematics IIE for Engineers Part 1	Autumn	6
PHYS263	Photonics		6
Mechatronics Stream			
ENGG152	Engineering Mechanics	Spring	6
ENGG154	Engineering Design for Innovation	Autumn	6
Other subject options			
BIOL103	Molecules, Cells and Organisms	Spring	6
Third Year			
Core			
CHEM364	Molecular Structure and Spectroscopy	Autumn	8
MATE202	Thermodynamics and Phase Equilibria	Autumn	6
NANO301	Research Project in Nanomaterials	Autumn	8
CHEM301	Advanced Materials and Nanotechnology	Spring	8
MATE303	Ceramics, Glasses and Refractories	Spring	6
Options			
Plus two of the following electives:			
Materials Chemistry Stream			
CHEM321	Organic Synthesis and Reactivity	Spring	8
CHEM314	Instrumental Analysis	Autumn	8
CHEM320	Bioinformatics: From Genome to Structure	Spring	8
MATE301	Engineering Alloys	Autumn	6
MATE306	Degradation of Materials	Spring	6
Physics Stream			

PHYS305	Quantum Mechanics	Autumn	6
PHYS363	Advanced Photonics		6
<i>Mechatronics Stream</i>			
ENGG251	Mechanics of Solids	Autumn	6
MECH215	Fundamentals of Machine Component Design	Spring	6
Other subject options			
BIOL213	Principles of Biochemistry	Autumn	6
BIOL214	The Biochemistry of Energy and Metabolism	Spring	6
Or other subjects approved by the Coordinator			

Honours

If the required academic standard is attained the BSc(Nanotechnology) student may transfer to the Bachelor of Nanotechnology fourth Honours year. This consists of special coursework plus a research project.

Professional Recognition

Students may choose options enabling them to graduate and be eligible for accreditation with the Royal Australian Chemical Institute (RACI).

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/.

The Degree Coordinators are Associate Professor Will Price, Room 18.102A, and Assoc Professor Geoff Spinks, Room 41a.271.

Bachelor of Marine Science Bachelor of Marine Science Advanced (Honours)

Testamur Title of Degree:	Bachelor of Marine Science, Bachelor of Marine Science Advanced (Honours)
Abbreviation:	BMarSc, BMarSc Adv (Hons)
Home Faculty	Science
Duration:	3 years, 4 years
Total Credit Points:	144 or 192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	789, 789A
UAC Code:	757622, 757623
CRICOS Code:	039553A

Overview

The Bachelor of Marine Science is a 3-year coursework program with a broad emphasis on the marine sciences taught jointly by the School of Biological Sciences and the School of Earth and Environmental Sciences. The program consists of core subjects in each of the three years plus a flexible range of optional subjects.

At Second Year students choose either a single strand in Marine Biology or Marine Geosciences or a combination of these specialisations. Subjects from across the range of relevant disciplines have been included together with a number of specially designed marine subjects.

Entry Requirements / Assumed Knowledge

Bachelor of Marine Science (789): New South Wales HSC University Admission Index (UAI) of 85 (or equivalent). The UAI is reviewed each year.

Bachelor of Marine Science Honours Advanced (789A): New South Wales HSC University Admission Index (UAI) of 90 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Chemistry and Mathematics. Students who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 may take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

Bachelor of Marine Science (789):

This is a prescribed program of study comprising core and optional subjects as set out below.

Bachelor of Marine Science (Honours) Advanced (789A):

Students who are eligible for this degree fulfil all the same requirements as Bachelor of Marine Science candidates but are also eligible for additional benefits and challenges, and proceed directly to a fourth Honours year. For further information refer to the Bachelor of Science (Honours) Advanced (741A) and consult the Degree Coordinator.

Course Program

Subjects		Session	Credit Points
Common First Year			
Core			
EESC102	Earth Environments and Resources	Spring	6
EESC103	Landscape Change and Climatology	Autumn	6
BIOL103	Molecules, Cells and Organisms	Spring	6
BIOL104	Evolution, Biodiversity & Environment	Autumn	6
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
MATH151	General Mathematics 1A (required if entering the program without at least HSC Mathematics Band 4)	Autumn, Summer	6
Options			
Select one or two of the following:			
STAT252	Statistics for the Natural Sciences	Spring	6
EESC101	Planet Earth	Autumn	6
EESC104	The Human Environment	Spring	6
PHYS233	Introduction to Environmental Physics	Autumn	6
STS112	The Scientific Revolution: History, Philosophy and Politics of Science	Spring	6
STS116	Environment in Crisis: Technology & Society	Spring	6
MATH111	Applied Mathematical Modelling I	Spring	6
MGMT110	Introduction to Management	Autumn, Spring	6
Or 1-2 elective 100 or 200 level subjects chosen from the Science or General Schedule			
At Second Year students choose either a single strand in Marine Biology or Marine Geosciences or a combination of these specialisations. Any variations on the strands and pathways listed below require approval by the degree coordinator. Note that optional subjects selected in Year 2 must be chosen to satisfy prerequisites required for Year 3 subjects.			
Second Year	Marine Biology Strand – Marine Ecology Pathway		
Core			
MARE200	Introduction to Oceanography	Autumn	6
EESC204	Introductory Spatial Science	Spring	6
BIOL241	Biodiversity: Classification and Sampling	Spring	6
BIOL251	Principles of Ecology & Evolution	Autumn	6
BIOL240	Functional Biology of Plants and Animals	Autumn	6
STAT252	Statistics for the Natural Sciences	Spring	6
Options			
Plus 1 of the following two subjects			
EESC201	Earth Surface Processes and Products	Autumn	6
EESC203	Biogeography and Environmental Change	Autumn	6
Plus 1 of the following three subjects			
CHEM214	Analytical and Environmental Chemistry	Spring	6
EESC208	Environmental Impact of Societies	Spring	6
EESC250	Field Geology (Summer Session)	Summer	6
Third Year			
Core			
MARE300	Fisheries and Aquaculture	Spring	8
BIOL351	Conservation Biology: Marine and Terrestrial Populations	Autumn	8
BIOL355	Marine and Terrestrial Ecology	Spring	8
BIOL332	Ecological and Evolutionary Physiology	Autumn	8
Options			
Plus 1 of the following three subjects			
EESC305	Remote Sensing of the Environment	Autumn	8
MARE393	Advanced Marine Science Project	Autumn, Spring, Summer	8
STAT355	Sample Surveys and Experimental Design (with project)	Autumn, Spring	8
Plus 1 of the following five subjects			
EESC302	Coastal Environments: Process and Management	Spring	8
EESC304	Geographic Information Science	Spring	8
MARE393	Advanced Marine Science Project	Autumn, Spring	8

MARE357	Advances in Molluscan Biology (Summer Session)	Summer	8
MARE393	Advanced Marine Science Project (Summer Session)	Summer	8
Or other subjects approved by the Coordinator			
Second Year	Marine Biology Strand – Biotechnology Pathway		
Core			
MARE200	Introduction to Oceanography	Autumn	6
BIOL213	Principles of Biochemistry	Autumn	6
BIOL214	The Biochemistry of Energy and Metabolism	Spring	6
BIOL215	Introductory Genetics	Spring	6
BIOL241	Biodiversity: Classification and Sampling	Spring	6
BIOL251	Principles of Ecology & Evolution	Autumn	6
BIOL240	Functional Biology of Plants and Animals	Autumn	6
STAT252	Statistics for the Natural Sciences	Spring	6

Third Year**Core**

MARE300	Fisheries and Aquaculture	Spring	8
BIOL355	Marine and Terrestrial Ecology	Spring	8

Options

Plus three of the following four subjects

BIOL303	Biotechnology: Applied Cell and Molecular Biology	Autumn	8
BIOL320	Molecular Cell Biology	Autumn	8
BIOL351	Conservation Biology: Marine and Terrestrial Populations	Autumn	8
BIOL332	Ecological and Evolutionary Physiology	Autumn	8

Plus one of the following five subjects

BIOL321	Infection and Immunity	Spring	8
CHEM320	Bioinformatics: from genome to structure	Spring	8
MARE393	Advanced Marine Science Project	Autumn, Spring	8
MARE357	Advances in Molluscan Biology (Summer Session)	Summer	8
MARE393	Advanced Marine Science Project (Summer Session)	Summer	8

Or other subjects approved by the Coordinator

Second Year Marine Geosciences Strand

Note: It is possible to take a double major (Marine Biology-Marine Geosciences) in the Marine Geosciences Strand.

BIOL251	Principles of Ecology & Evolution	Autumn	6
EESC201	Earth Surface Processes and Products	Autumn	6
EESC203	Biogeography and Environmental Change	Autumn	6
MARE200	Introduction to Oceanography	Autumn	6
BIOL241	Biodiversity: Classification and Sampling	Spring	6
EESC204	Introductory Spatial Science	Spring	6
STAT252	Statistics for the Natural Sciences	Spring	6
Plus one of the following three subjects			
CHEM214	Analytical and Environmental Chemistry	Spring	6
EESC208	Environmental Impact of Societies	Spring	6
EESC250	Field Geology (Summer Session)	Summer	6

Third Year**Core**

EESC305	Remote Sensing of the Environment	Autumn	8
EESC302	Coastal Environments: Process and Management	Spring	8

Options

Plus two of the following four subjects

BIOL351	Conservation Biology: Marine and Terrestrial Populations	Autumn	8
EESC301	Plate Tectonics, Macrotopography and Earth History	Autumn	8
EESC303	Fluvial Geomorphology and Sedimentology	Autumn	8
MARE393	Advanced Marine Science Project	Autumn, Spring	8

Plus two of the following eight subjects

BIOL355	Marine and Terrestrial Ecology	Spring	8
EESC304	Geographic Information Science	Spring	8
EESC306	Resources and Environments	Spring	8
EESC308	Environmental and Heritage Management	Spring	8
MARE300	Fisheries and Aquaculture	Spring	8
MARE393	Advanced Marine Science Project	Autumn, Spring	8
MARE357	Advances in Molluscan Biology	Summer	8
MARE393	Advanced Marine Science Project	Summer	8

Or other subjects approved by the Coordinator

Honours

Students may apply to enrol in an Honours degree, Bachelor of Marine Science (Honours) (789M) after the requirements of the pass degree have been fulfilled, normally at the prescribed academic standard. This standard is normally an average of at least credit level for the 300-level subjects in the major study. Admission to Honours is by recommendation of the degree Coordinator and approval of the Dean or Associate Dean.

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/biol/marine/index.html.

The Coordinator is Associate Professor Andy Davis, Room 35.G01D, telephone 4221 3432, email: adavis@uow.edu.au.

Bachelor of Marine Science (Honours)

Testamur Title of Degree:	Bachelor of Marine Science (Honours)
Abbreviation:	BMarSc(Hons)
Home Faculty:	Science
Duration:	1 year
Total Credit Points:	48
Delivery Mode:	Flexible
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	789M
UAC Code:	N/A
CRICOS Code:	048494K

Overview

Students who have fulfilled the requirements of a Bachelor of Marine Science, and achieved the required academic standard, may undertake an Honours degree – a year of research training in the discipline.

The Honours degree provides you with the first real opportunity to undertake research on a topic of your interest.

The Honours year is particularly important as it represents a gateway to future research opportunities, both in the form of higher research degrees and as a career in research, or other vocations that require advanced analytical and research skills.

Entry Requirements / Assumed Knowledge

Students may apply to enrol in an Honours degree after the requirements of the Pass degree have been fulfilled, normally at the prescribed academic standard. This standard is usually an average of at least credit level for the 300-level subjects in the major study. Admission to Honours is by recommendation of the relevant Head of the Academic Unit and approval by the Dean or Associate Dean of the Faculty, and acceptance by an academic supervisor in the discipline.

By arrangement with the academic units involved, it is possible to undertake Joint Honours, a research thesis spanning two disciplines.

Students proceeding directly from a 3-year degree to Honours do not graduate until after they have completed Honours. However, it is possible to graduate with a Pass degree and then decide to undertake Honours at a later date, either at this University or at another University. Graduates from other Universities may also apply to undertake Honours at the University of Wollongong.

Course Requirements

To graduate with a Bachelor of Marine Science Honours degree, candidates undertake a Marine Science research thesis together with any other required assignments and seminars. Students enrol in the appropriate 400-level Honours subject, as follows.

Course Program

Subjects		Session	Credit Points
Marine Science Honours			
MARE401	Marine Science Honours	Annual	48

Other Information

For further information contact the Head of the Academic Unit in the particular discipline, or the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/.

Marine Science Honours Coordinator: Associate Professor Andy Davis, Room 35.G01D, telephone 4221 3432, email adavis@uow.edu.au.

Bachelor of Biotechnology, Bachelor of Biotechnology Advanced

Testamur Title of Degree:	Bachelor of Biotechnology, Bachelor of Biotechnology Advanced
Abbreviation:	BBiotech, BBiotech Adv
Home Faculty:	Science
Duration:	4 years
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn
Location:	Wollongong
UOW Course Code:	744, 744A
UAC Code:	757611, 757617
CRICOS Code:	006975G

Overview

Biotechnology is the application of exciting advances in molecular and cell biology to medicine, agriculture, and the environment. Through modern technologies, such as genetic engineering, biotechnology is shaping diverse aspects of medicine (cancer, vaccines, therapy and diagnosis of genetic diseases), food production (transgenic plants) and industry (bioremediation).

Biotechnology encompasses the rapidly evolving fields of monoclonal antibody technology, proteomics and genetic engineering. A new generation of pharmaceuticals, vaccines, hormones and anti-inflammatory agents are being developed using these technologies.

The degree is an interdisciplinary program featuring:

- A major in cellular and molecular biology, including genetics, immunology, bioinformatics;
- A major strand of chemistry;
- Skills in “state-of-the-art” nucleic acid, protein and monoclonal antibody technologies;
- An optional strand in human anatomy and physiology;
- Other relevant areas such as ethics and management;
- The flexibility in first year to explore other options;
- Specialised training in “cutting-edge” technologies in the fourth year
- Your own research project (4 year Honours).

Entry Requirements / Assumed Knowledge

Bachelor of Biotechnology (744): New South Wales HSC University Admission Index (UAI) of 85 (or equivalent). The UAI is reviewed each year.

Bachelor of Biotechnology Advanced (744A): New South Wales HSC University Admission Index (UAI) of 90 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Chemistry and Mathematics. Students who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 may take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

Bachelor of Biotechnology:

This is a prescribed program of study comprising core and optional subjects as set out below.

Bachelor of Biotechnology Advanced:

Course Information

Students who are eligible for this degree fulfil all of the same requirements as Bachelor of Biotechnology candidates but are also eligible for additional benefits and challenges. For further information refer to the entry for the Bachelor of Science (Honours) Advanced (741A) and consult the Degree Coordinator.

Progression Requirements:

Students must satisfactorily complete at least 144 credit points before proceeding to enrol in fourth year subjects. In addition, satisfactory performance must be achieved (an average of 65% or greater in 300-level Biological Sciences, Chemistry and Biomedical Science subjects) for entry into the 4th year of the Bachelor of Biotechnology degree. Students with an average below 65% in 300-level Biological Sciences, Chemistry and Biomedical Science subjects may only progress into the 4th year of the Bachelor of Biotechnology with the approval of the Head of the Department of Biological Sciences. Students who do not gain entry into the 4th year of the Bachelor of Biotechnology degree will normally be required to transfer into the Bachelor of Science (Biotechnology) degree.

Course Program

Subjects	Session	Credit Points	
First Year			
BIOL103	Molecules, Cells and Organisms	Spring	6
BIOL104	Evolution, Biodiversity and Environment	Autumn	6
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
MATH151	General Mathematics 1A (if required)	Autumn or Summer	6
Plus other elective subjects to give a total credit point value of 48, at least 6 of which should be one of the following:			
PHYS132*	Physics for the Environmental and Life Sciences	Spring	6
STS100#	Social Aspects of Science and Technology	Autumn	6
BMS101	Systemic Anatomy	Autumn	6
BMS112	Human Physiology I: Principles and Systems	Spring	6
* Strongly recommended			
# STS100 is compulsory for those students taking an approved course of study which does not include STS251.			
Second Year			
BIOL213	Principles of Biochemistry	Autumn	6
BIOL214	The Biochemistry of Energy and Metabolism	Spring	6
BIOL215	Introductory Genetics	Spring	6
BIOL240	Functional Biology of Plants & Animals	Autumn	6
STAT252	Statistics for the Natural Sciences	Spring	6
CHEM212	Organic Chemistry	Autumn	6
CHEM214	Analytical & Environmental Chemistry II	Spring	6
Plus one of the following subjects:			
STS251	From Molecular Genetics to Biotechnology	Autumn	6
BMS202	Human Physiology II: Control Mechanisms	Autumn	6
MGMT208	Introduction to Management for Professionals	Autumn	6
Third Year			
Core			
BIOL303	Biotechnology: Applied Cell & Molecular Biology	Autumn	8
CHEM320	Bioinformatics: From Genome to Structure	Spring	8
BIOL320	Molecular Cell Biology	Autumn	8
BIOL321	Infection and Immunity	Spring	8
Options			
Plus one Session 1 subject chosen from the following:			
CHEM350	Principles of Pharmacology	Autumn	8
BIOL332	Ecological & Evolutionary Physiology	Autumn	8
BIOL392	Advanced Biology Project	Autumn, Spring or Summer	8
BMS344	Cardiorespiratory Physiology	Autumn	8
Plus one Session 2 subject chosen from the following:			
CHEM321	Organic Synthesis and Reactivity	Spring	8
BIOL392	Advanced Biology Project	Autumn, Spring or Summer	8
PHIL380	Bioethics	Spring	8
Or other subjects approved by the Coordinator			
Fourth Year			
BIOL421	Cell, Protein and Nucleic Acid Technology	Autumn	12
BIOL423	Biotechnology Project	Spring	36

Honours

The Degree of Bachelor of Biotechnology (Honours) is awarded for meritorious performance in 3rd and especially 4th year subjects.

Please Note: There are special requirements for progression to the fourth year. Refer to the section "Course Requirements" above.

Professional Recognition

Graduates qualify to apply for membership of the Australian Institute of Biology, the Australian Society of Microbiology and the Australian Biotechnology Society.

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/ .

Or for more detailed course information contact the Professional Officer, Julie-Ann Green, telephone: 4221 3100, email: jagreen@uow.edu.au .

The Coordinator of the degree is Professor Mark Wilson School of Biological Sciences.

Bachelor of Environmental Science, Bachelor of Environmental Science Advanced

Testamur Title of Degree:	Bachelor of Environmental Science, Bachelor of Environmental Science Advanced
Abbreviation:	BEnvSc, BEnvSc Adv
Home Faculty:	Science
Duration:	4 years
Total Credit Points:	192 credit points
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or spring
Location:	Wollongong
UOW Course Code:	746, 746A
UAC Code:	757612, 757618
CRICOS Code:	002256D

Overview

The Bachelor of Environmental Science is a specialist degree designed to give students the knowledge and skills required to manage environmental issues confronting Australia and other countries. This degree aims to provide a broadly-based scientific education with a multidisciplinary approach to problem solving, covering all of the principal sciences: biology, chemistry, geography, geology and physics, together with mathematics and statistics.

In addition, the program integrates material from a wide variety of disciplines relevant to the environment and its management: engineering, management, law, science and technology studies, and philosophy. This equips students to understand the ethical, social, economic and political aspects of environmental issues as well as to be able to work alongside engineers, lawyers and other professionals

Entry Requirements / Assumed Knowledge

Bachelor of Environmental Science:

New South Wales HSC University Admission Index (UAI) of 85 (or equivalent). The UAI is reviewed each year.

Bachelor of Environmental Science Advanced:

New South Wales HSC University Admission Index (UAI) of 90 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Mathematics plus Biology or Chemistry. Students who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics (Band 4) may take a special mathematics subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

Bachelor of Environmental Science (746):

This is a prescribed program of study comprising core and optional subjects, as set out below.

Bachelor of Environmental Science Advanced (746A):

Students who are eligible for this degree fulfil all the same requirements as Bachelor of Environmental Science candidates but are also eligible for additional benefits and challenges. For further information refer to the Bachelor of Science (Honours) Advanced (741A) and consult the Degree Coordinator.

Course Program

Subjects		Session	Credit Points
Common First Year			
BIOL104	Evolution, Biodiversity & Environment	Autumn	6
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6

Course Information

EESC101	Planet Earth	Autumn	6
EESC103	Landscape Change and Climatology	Autumn	6
BIOL103	Molecules, Cells and Organisms	Spring	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
EESC102	Earth Environments and Resources	Spring	6
EESC104	The Human Environment: Problems and Change	Spring	6
MATH151	General Mathematics 1A (If required)	Summer	6

Common Second Year

BIOL251	Principles of Ecology and Evolution	Autumn	6
PHYS233	Introduction to Environmental Physics	Autumn	6
PHIL256	Ethics and the Environment	Autumn	6
EESC203	Biogeography and Environmental Change	Autumn	6
STAT252	Statistics for the Natural Sciences	Spring	6
CHEM214	Analytical and Environmental Chemistry	Spring	6
EESC202	Soils, Landscape and Hydrology	Spring	6
EESC204	Introductory Spatial Science	Spring	6

Note: For students who select the Life Sciences Strand early in 2nd Year, an alternative program is available that substitutes BIOL241, Biodiversity: Classification and Sampling, for EESC204, Introductory Spatial Science, in Spring Session of the 2nd Year.

3rd and 4th Year – Specialisation in one of four strands:

- (1) Land Resources
- (2) Earth Sciences
- (3) Life Sciences
- (4) Environmental Chemistry

Third Year Land Resources Strand

EESC303	Fluvial Geomorphology and Sedimentology	Autumn	8
STS300	The Environmental Context	Autumn	8
ENVI491	Environmental Science and Systems	Spring	8
EESC208	Environmental Impact of Societies	Spring	6
EESC302	Coastal Environments: Process and Management	Spring	8
Plus TWO subjects from the following:			
EESC201	Earth Surface Processes and Products	Autumn	6
EESC206	Discovering Down-Under	Spring	6
EESC304	Geographic Information Science	Spring	8
EESC305	Remote Sensing of the Environment**	Autumn	8

**Not to count with GEOS239

Third Year Earth Sciences Strand

EESC201	Earth Surface Processes and Products	Autumn	6
EESC301	Plate Tectonics, Macrotopography and Earth History	Autumn	8
STS300	The Environmental Context	Autumn	8
ENVI491	Environmental Science and Systems	Spring	8
EESC306	Resources and Environments	Spring	8
EESC250	Field Geology	Summer	6
Plus ONE subject from the following:			
EESC208	Environmental Impact of Societies	Spring	6
EESC304	Geographic Information Science	Spring	8
EESC305	Remote Sensing of the Environment**	Autumn	8

**Not to count with GEOS239

Third Year Life Sciences Strand

BIOL240	Functional Biology of Plants and Animals	Autumn	6
STS300	The Environmental Context	Autumn	8
BIOL351	Conservation Biology	Autumn	8
ENVI491	Environmental Science and Systems	Spring	8
BIOL356	Marine and Terrestrial Ecology	Spring	8
BIOL241	Biodiversity: Classification and Sampling	Spring	6
Plus ONE subject from the following:			
BIOL213	Principles of Biochemistry	Autumn	6
BIOL212	Introductory Microbiology and Immunology	Autumn	6
EESC304	Geographic Information Science	Spring	8
EESC305	Remote Sensing of the Environment**	Autumn	8
BIOL332	Ecological and Evolutionary Physiology	Autumn	8

**Not to count with GEOS239

Third Year Alternative Life Sciences Strand if selected in 2nd year

BIOL240	Functional Biology of Plants and Animals	Autumn	6
STS300	The Environmental Context	Autumn	8
BIOL351	Conservation Biology	Autumn	8
ENVI491	Environmental Science and Systems	Spring	8
BIOL356	Marine and Terrestrial Ecology	Spring	8
EESC204	Introductory Spatial Science	Spring	6
Plus One subject from the following			
BIOL213	Principles of Biochemistry	Autumn	6
BIOL212	Introductory Microbiology and Immunology*	Autumn	6
BIOL332	Ecological and Evolutionary Physiology	Autumn	8
EESC304	Geographic Information Science	Spring	8

*Not offered in 2006

Third Year Environmental Chemistry Strand

CHEM211	Inorganic Chemistry II	Autumn	6
CHEM212	Organic Chemistry II	Autumn	6
CHEM327	Environmental Chemistry	Autumn	8
STS300	The Environmental Context	Autumn	8
ENVI491	Environmental Science and Systems	Spring	8
CHEM213	Molecular Structure, Reactivity and Change	Spring	6
Plus One subject from the following			
CHEM320	Bioinformatics: From Genome to Structure	Spring	8
CHEM321	Organic Synthesis and Reactivity	Spring	8
CHEM314	Instrumental Analysis†	Autumn	8

† Students wishing to take CHEM314 should consult the Coordinator of Environmental Science at the start of 3rd year.

Fourth Year – Common for all strands

ENVI403	Research Report	Annual	24
ENVE385	Environmental Engineering	Autumn	8
MGMT208	Introduction to Management for Professionals A	Autumn	6
LAW380	Law for Environmental Managers	Spring	8

Honours

The Degree of Bachelor of Environmental Science (Honours) is awarded for meritorious performance in 3rd and especially 4th year subjects.

Professional Recognition

Graduates are eligible for full membership of the Environment Institute of Australia & New Zealand and other relevant professional bodies depending on their disciplinary orientation.

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481 or the Environmental Science Unit, 19.G012, 42214134.

Web site: <http://www.uow.edu.au/science/eesc/student/envsci.html>.

The Degree Coordinator is Professor John Morrison, 19.G012.

Bachelor of Medicinal Chemistry, Bachelor of Medicinal Chemistry Advanced

Testamur Title of Degree:	Bachelor of Medicinal Chemistry, Bachelor of Medicinal Chemistry Advanced
Abbreviation:	BMedChem, BMedChem Adv
Home Faculty:	Science
Duration:	4 years
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	755, 755A
UAC Code:	757613, 757619
CRICOS Code:	016113D

Overview

Medicinal Chemistry is a specialist four-year Honours degree which provides students with an excellent training in modern techniques of chemical science applied to medicine. This includes specialised courses in drug discovery and design, using both rational, computer-aided and bioprospecting approaches. It also gives students the training in physiology, pharmacology and other areas needed to understand the effects of disease states on the human body and the role of drugs and other ways of chemical intervention. Students not admitted directly into the program may gain admission via the BSc program subject to satisfactory performance in first year, prerequisite considerations, and approval of the Dean.

The fourth year Honours program gives students exposure to advanced medicinal chemistry laboratory techniques, research experience and training in advanced medicinal chemistry applications.

Entry Requirements / Assumed Knowledge

Bachelor of Medicinal Chemistry (755):

New South Wales HSC University Admission Index (UAI) of 85 (or equivalent). The UAI is reviewed each year.

Course Information

Bachelor of Medicinal Chemistry Advanced (755A):

New South Wales HSC University Admission Index (UAI) of 90 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Chemistry and Mathematics. Students who had not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics (Band 4) may take a special mathematics subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

Bachelor of Medicinal Chemistry (755):

This is a prescribed program of study comprising core and optional subjects as set out below.

Bachelor of Medicinal Chemistry Advanced (755A):

Students who are eligible for this degree fulfil all the same requirements as Bachelor of Medicinal Chemistry candidates but are also eligible for additional benefits and challenges. For further information refer to the Bachelor of Science (Honours) Advanced (741A) and consult the Degree Coordinator.

Course Program

Subjects		Session	Credit Points
First Year			
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
BIOL103	Molecules, Cells and Organisms	Spring	6
BMS101	Systemic Anatomy	Autumn	6
STAT252	Statistics for the Natural Sciences	Spring	6
BMS112	Human Physiology I: Principles & Systems	Spring	6
Plus one of the following two subjects:			
BIOL104	Evolution, Biodiversity & Environment	Autumn	6
BMS103	Human Growth, Nutrition & Exercise	Autumn	6
Plus one of the following two subjects:			
MATH151	General Mathematics 1A (if required)	Autumn or Summer	6
PHYS131	Physics for Environmental & Life Sciences	Autumn	6
Second Year			
CHEM211	Inorganic Chemistry II	Autumn	6
CHEM212	Organic Chemistry II	Autumn	6
CHEM213	Molecular Structure, Reactivity and Change	Spring	6
CHEM214	Analytical & Environmental Chemistry II	Spring	6
BIOL213	Principles of Biochemistry	Autumn	6
BIOL214	The Biochemistry of Energy and Metabolism	Spring	6
BIOL215	Introductory Genetics	Spring	6
BMS202	Human Physiology II: Control Mechanisms	Autumn	6
Third Year			
CHEM320	Biological Chemistry	Spring	8
CHEM321	Organic Synthesis & Reactivity	Spring	8
CHEM330	Medicinal Chemistry	Spring	8
CHEM350	Principles of Pharmacology	Autumn	8
CHEM364	Molecular Structure and Spectroscopy	Autumn	8
BIOL320	Molecular Cell Biology	Autumn	8
BIOL303	Biotechnology: Applied Cell and Molecular Biology		
Fourth Year			
CHEM440	Selected Topics in Medicinal Chemistry	Annual	16
CHEM460	Medicinal Chemistry Project	Annual	32

*Restricted access: Credit average minimum entry requirement

Honours

The Degree of Bachelor of Medicinal Chemistry (Honours) is awarded for meritorious performance in 3rd and especially 4th year subjects.

Professional Recognition

Accreditation by the Royal Australian Chemical Institute.

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/.

The Degree Coordinator is Associate Professor Paul Keller, Room 18.222, telephone: 4221 4692, email: keller@uow.edu.au.

Bachelor of Nanotechnology, Bachelor of Nanotechnology Advanced

Testamur Title of Degree:	Bachelor of Nanotechnology, Bachelor of Nanotechnology Advanced
Abbreviation:	B Nanotech, B Nanotech Adv
Home Faculty:	Science
Duration:	4 years
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	846, 846A
UAC Code:	757625, 757626
CRICOS Code:	051709G, 052459A

Overview

This interdisciplinary degree in Nanotechnology is a joint offering from the Faculties of Engineering and Science. The degree targets the emerging field of nano-materials, molecular machines and nano-science.

There are a total of 5 elective subjects giving students scope to match the course to their interests whilst retaining a core focus on molecular design and characterization of materials at the nano-dimension. The course includes four specially designed subjects that will be mainly research oriented and combine lectures, laboratory and project work. This will give students from first year onwards a taste of where leading research in nanotechnology is heading.

Entry Requirements / Assumed Knowledge

Bachelor of Nanotechnology (846):

New South Wales HSC University Admission Index (UAI) of 85 (or equivalent). The UAI is reviewed each year.

Bachelor of Nanotechnology Advanced (846A):

New South Wales HSC University Admission Index (UAI) of 90 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Chemistry or Physics and Mathematics. Students who have not completed Chemistry at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 may take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

Bachelor of Nanotechnology (846):

This is a prescribed program of study comprising core and optional subjects as set out below.

Bachelor of Nanotechnology Advanced (846A):

Students who are eligible for this degree fulfil all the same requirements as Bachelor of Nanotechnology candidates but are also eligible for additional benefits and challenges. For further information refer to the Bachelor of Science (Honours) Advanced (741A) and consult the Degree Coordinator.

Course Program

Subjects	Session	Credit Points	
First Year			
CHEM101	Chemistry 1A: Foundations of Chemistry	Autumn	6
PHYS141	Fundamentals of Physics A	Autumn	6
MATH187/MATH141	Mathematics 1A Part 1/1C Part 1	Autumn	6
NANO101	Current Perspectives in Nanotechnology	Spring	6
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	Spring	6
ENGG153	Engineering Materials	Autumn	6
PHYS142	Fundamentals of Physics B	Spring	6
MATH188	Mathematics 1A Part 2	Spring	6
Second Year			
CHEM212	Organic Chemistry II	Autumn	6
MATE201	Structure and Properties of Materials	Autumn	6
PHYS205	Advanced Modern Physics	Autumn	6
NANO201	Research Topics in Nanotechnology	Spring	6
CHEM213	Molecular Structure, Reactivity and Change	Spring	6
CHEM211	Inorganic Chemistry II	Spring	6
Plus two of the following electives:			
Materials Chemistry Stream			
CHEM214	Analytical and Environmental Chemistry	Spring	6

Course Information

MATE204	Mechanical Behaviour	Spring	6
MATE291	Engineering Computing and Laboratory Skills	Autumn	6
Physics Stream			
MATH283	Mathematics IIE for Engineers Part 1	Autumn	6
PHYS263	Photonics		6
Mechatronics Stream			
ENGG152	Engineering Mechanics	Spring	6
ENGG154	Engineering Design for Innovation	Autumn	6
Other subject options			
BIOL103	Molecules, Cells and Organisms	Spring	6
Third Year			
CHEM364	Molecular Structure and Spectroscopy	Autumn	8
MATE202	Thermodynamics and Phase Equilibria	Autumn	6
NANO301	Research Project in Nanomaterials	Autumn	8
CHEM301	Advanced Materials and Nanotechnology	Spring	8
MATE303	Ceramics, Glasses and Refractories	Spring	6
Plus two electives			
Materials Chemistry Stream			
CHEM321	Organic Synthesis and Reactivity	Spring	8
CHEM314	Instrumental Analysis	Autumn	8
CHEM320	Bioinformatics: From Genome to Structure	Spring	8
MATE301	Engineering Alloys	Autumn	6
MATE306	Degradation of Materials	Spring	6
Physics Stream			
PHYS305	Quantum Mechanics	Autumn	6
PHYS363	Advanced Photonics		6
Mechatronics Stream			
ENGG251	Mechanics of Solids	Autumn	6
MECH215	Fundamentals of Machine Component Design	Spring	6
Other subject options			
BIOL213	Principles of Biochemistry	Autumn	6
BIOL214	The Biochemistry of Energy and Metabolism	Spring	6
Fourth Year			
MATE302	Polymeric Materials	Autumn	6
MATE411	Advanced Materials	Autumn	6
NANO401	Major Project Thesis in Nanotechnology	Annual	24
MATE412/PHYS396	Electronic Materials	Spring	6
<i>Plus one elective from the General Schedule</i>			
			6

Honours

The Degree of Bachelor of Nanotechnology (Honours) is awarded for meritorious performance in 3rd and especially 4th year subjects.

Professional Recognition

Students may choose options enabling them to graduate and be eligible for accreditation with the Royal Australian Chemical Institute (RACI).

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/.

The Degree Coordinators are Associate Professor Will Price, Room 18.102A, and Associate Professor Geoff Spinks, Room 41a.271, telephone 4221 3010.

International Bachelor of Science (Honours)

Testamur Title of Degree:	International Bachelor of Science (Honours)
Abbreviation:	BSc (Hons) Int
Home Faculty:	Science
Duration:	4 years full time or part time equivalent
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn
Location:	Wollongong
UOW Course Code:	

UAC Code:
CRICOS Code:

Overview

Students will gain a strong discipline-based training in an approved Science degree, integrated with a technological application of that science, an understanding of the social context of this science and technology, and an international perspective on the science and its applications.

The flexible structure of the major, two minors, and electives allows students to design their study program to meet their particular interests and abilities.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 92 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Four units of science or four units comprising science and mathematics. Students who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 are required to take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Program

Subjects	Session	Credit Points
Suggested First Year		
SCIE102 International Perspectives in Science	Spring	6
Plus two 100-level subjects towards an approved Major.		12
Plus additional subjects towards the Technology Minor, Social Sciences Minor and/or the balance.		30
Suggested Second Year		
SCIE20X TBA	Spring	6
Plus four 200-level subjects towards an approved Major.		24
Plus additional subjects towards the Technology Minor, Social Sciences Minor and/or the balance.		18
Suggested Third Year		
Three subjects towards an approved Major		24
Plus additional subjects towards the Technology Minor, Social Sciences Minor and/or the balance.		24
Suggested Fourth Year		
SCIE40X TBA	Spring	18
Plus an Honours Research Project.	Autumn/Spring	24
Plus an additional subject towards the Technology Minor, Social Sciences Minor and/or the balance.		6
Total for major		192

Course Requirements

International Bachelor of Science requirements are as follows:

One major chosen from disciplines located in the Faculty of Science. A major study consists of at least 60 credit points from one of the Faculty of Science disciplines: Biological Sciences, Chemistry, Human Geography, Physical Geography, Geology, Geosciences. Information regarding these majors is listed under the Bachelor of Science Course Information under "Major Study Areas."

The Technology Minor consists of 30 cp as outlined in the following five strands and approved by the degree coordinator in consultation with the Engineering or Informatics Faculty Education Committee Chair.

Engineering Technology Strand

Subjects	Session	Credit Points
100-Level		
ENGG152 Engineering Mechanics	Spring	6
ENGG153 Engineering Materials	Autumn	6
ENGG154 Engineering Design & Innovation	Spring	6
NANO101 Current Perspectives in Nanotechnology	Spring	6

Course Information

200-Level

MATE201	Structure and Properties of Materials	Autumn	6
NANO201	Research Topics in Nanotechnology	Spring	6
MATE291	Engineering Computing and Laboratory Skills	Autumn	6

300-Level

MATE302	Polymeric Materials	Autumn	6
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Informatics Strand

Subjects		Session	Credit Points
100-Level			
CSCI102	Systems	Spring	6
CSCI103	Algorithms and Problem Solving	Autumn/Spring	6
CSCI114	Procedural Programming	Autumn/Spring	6
CSCI124	Applied Programming	Autumn/Spring	6
200-Level			
CSCI235	Databases	Spring	6
300-Level			
CSCI315	Database Design and Implementation	Autumn	6

Internet Technology Strand

Subjects		Session	Credit Points
100-Level			
ECTE181	WWW Engineering	Autumn	6
ECTE182	Internet Technology 1	Spring	6
200-Level			
ECTE281	Embedded Internet Systems	Spring	6
ECTE282	Internet Systems	Autumn	6
ECTE283	Internet Technology 2	Spring	6

Information & Communication Technology Strand

Subjects		Session	Credit Points
100-Level			
CSCI102	Systems	Spring	6
200-Level			
IACT201	Information Technology and Citizens' Rights	Autumn	6
IACT202	The Structure and Organisation of Telecommunications	Spring	6
300-Level			
IACT301	Information and Communication Security Issues	Spring	
IACT303	World Wide Networking	Spring	6

Mathematics Strand

Subjects		Session	Credit Points
100-Level			
MATH187	Mathematics 1A Part 1	Autumn	6
MATH188	Mathematics 1A Part 2	Spring	6
MATH111	Applied Mathematical Modelling 1	Spring	6
200-Level			
MATH201	Multivariate and Vector Calculus	Autumn	6
MATH202	Differential Equations 2	Spring	6
STAT231	Probability and Random Variables	Autumn	6

The Social Sciences Minor consists of 24 credit points selected from the International Studies Minor in consultation with the Course Coordinator.

Note: When selecting subjects for the Technology and Social Sciences minors, students must adhere to the requirement that no more than 60 credit points of 100-level subjects can count towards their degree programs.

The Global Science Study component will include a 6 credit point subject at 100-level, coordinated by the University of Wollongong, a 6 credit point remote-delivery subject at 200-level, coordinated by the University of Colorado (Boulder), and an 18 credit point remote-delivery subject at 400 level, coordinated by Dublin City University.

The balance of 24 credit points (to a degree total of 192) may be chosen from either the Science Schedule or General Schedule and may include a selection of complementary or contrasting subjects, or other subjects with the approval of the Dean or Associate Dean. Some of these credit points may be required to complete prerequisite subjects related to the Science major (e.g., the Maths requirement, or 100-level Chemistry and STAT252 for a Biological Sciences major).

Students will be required to complete at least 24 credit points of the degree at one of the partner institutions. It is suggested that students complete the study abroad component in either their 2nd or 3rd year of study.

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481.

Web site: www.uow.edu.au/science/.

The Degree Coordinator is the Associate Dean, Associate Professor Ted Bryant, 41.259.

Bachelor of Science / Bachelor of Arts

Testamur Title of Degree:	Bachelor of Science / Bachelor of Arts
Abbreviation:	BSc-BA
Home Faculty:	Science
Duration:	At least 4 years
Total Credit Points:	216
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	747A
UAC Code:	751801
CRICOS Code:	012098G

Overview

This double degree enables students to undertake comprehensive majors in both Science and Arts.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 81 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Any two units of English plus Mathematics and any four units of science. Students wishing to take this subject and who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 may take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

Students must consult both the Faculty of Science and the Faculty of Arts academic advisers about selecting a major study from each Faculty. The required 216 credit points taken over at least 4 years shall include:

1. 90 credit points of subjects from the Science Schedule (including a minimum of 60 credit points for a Science specialisation);
2. the subjects prescribed for one of the majors for the Bachelor of Arts degree; this will include one major study taught by a member unit of the Faculty of Arts or a major in Psychology or Population Health;
3. not more than 96 credit points for 100-level subjects.

Honours

Students who complete the double degree with the required academic standard in the relevant major are eligible for entry into either BSc (Honours) or BA (Honours).

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481, email trina@uow.edu.au.

Web site: www.uow.edu.au/science/.

The Degree Coordinator is the Associate Dean, Associate Professor Ted Bryant, 41.259.

Bachelor of Science / Bachelor of Commerce

Testamur Title of Degree:	Bachelor of Science / Bachelor of Commerce
Abbreviation:	BSc-BCom
Home Faculty:	Science
Duration:	At least 4 years
Total Credit Points:	216
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	747C
UAC Code:	751802
CRICOS Code:	028399G

Overview

This double degree enables students to undertake comprehensive majors in both Science and Commerce.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 81 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Any two units of English plus Mathematics and any four units of science. Students who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year. Students without at least Mathematics Band 4 may take a special Maths subject in the first year or consider early entry to complete this subject in Summer Session prior to commencement of the course.

Course Requirements

Students must consult both the Faculty of Science and the Faculty of Commerce academic advisers about selecting a major study from each Faculty.

The double degree consists of a minimum of 216 credit points taken over at least 4 years and shall include:

1. 90 credit points of subjects from the Science Schedule (including a minimum of 60 credit points for a Science major);
2. subjects from the Commerce Schedule, including core subjects that satisfy the requirements of one of the Commerce majors.
3. subjects from the Science, Commerce or General Schedules to ensure that a minimum of 216 credit points have been completed.

Note: Students may be given exemption from a subject when similar subjects exist in both majors selected, eg. Statistics.

Honours

Students who complete the double degree with the required academic standard in the relevant major are eligible for either BSc (Honours) or BCom (Honours).

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481, email trina@uow.edu.au.

Web site: www.uow.edu.au/science/.

The Degree Coordinator is the Associate Dean, Associate Professor Ted Bryant, 41.259.

Bachelor of Science / Bachelor of Mathematics

Testamur Title of Degree:	Bachelor of Science / Bachelor of Mathematics
Abbreviation:	BSc-BMath

Home Faculty:	Science
Duration:	4.5 years
Total Credit Points:	216
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Location:	Wollongong
UOW Course Code:	892
UAC Code:	751806
CRICOS Code:	048495J

Overview

This double degree allows students with a strong Mathematics background to pursue major in an area of Mathematics while at the same time majoring in one of the disciplines offered by the Faculty of Science.

There is potential for students who are well trained in Mathematics/Statistics to excel in core studies in the Science Faculty (for example Geographical Information Systems, Ecology, Biotechnology). Such students would be very competitive in job markets and highly trained to carry out further study in a research degree.

Entry Requirements / Assumed Knowledge

New South Wales HSC University Admission Index (UAI) of 78 (or equivalent). The UAI is reviewed each year.

Assumed Knowledge: Two unit Mathematics or higher plus any two units of English, and any two units of Science. Students who have not completed Chemistry and/or Biology at the HSC are strongly recommended to enrol in bridging courses offered in February each year.

Course Requirements

The double degree consists of 216 credit points of which 102 credit points are for Mathematics/Statistics subjects, 90 credit points for Science subjects (including a major), and 24 credit points of elective subjects. The degree must include:

1. From Science:

- 24 credit points at 100- level in two discipline areas of Biology, Chemistry or Geosciences
- 24 credit points at 200- level from at least one major in Biology, Chemistry or Geosciences
- 24 credit points at 300- level from at least one major in Biology, Chemistry or Geosciences
- A total of 60 credit points from a major in Biology, Chemistry or Geosciences
- A total of 90 credit points from the Science schedule

2. From Mathematics/Statistics:

- MATH187 and MATH188
- CSCI114
- MATH111 or MATH212
- MATH121 or MATH222
- STAT131 or STAT231 (to be chosen in consultation with an academic advisor)
- MATH201, MATH202, MATH203 and MATH204
- MATH212 or MATH222
- At least 36 credit points of 300 level mathematics and statistics

3. Not more than 60 credit points can be taken at 100 Level

Notes:

1. The subjects MATH302, MATH305, MATH312 and MATH313 are recommended for students majoring in Mathematics but are not compulsory.
2. The subject MATH222 is a prerequisite for the subjects MATH323 and MATH372.
3. The Assoc Dean of Science must approve variations in course structure after consultation with the relevant subject coordinator(s).
4. STAT131 and CSCI114 may be taken in the first year.
5. Students wishing to major in Statistics should complete all the statistics subjects listed in the suggested program of study.
6. STAT131 or STAT231 can be substituted for STAT252, which is required or recommended in some Science majors.
7. Students majoring in Statistics satisfy any requirement for STAT252 in a Science major.

Honours

Students who complete the double degree with the required academic standard in the relevant major are eligible for entry into either BSc (Honours) or BMath (Honours).

Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 4221 3481, email trina@uow.edu.au.
Web site: www.uow.edu.au/science/ .

The Degree Coordinator is the Associate Dean, Associate Professor Ted Bryant, 41.259, telephone 4221 3172, email ebryant@uow.edu.au .
