

# Faculty of Science

## Member Units

School of Biological Sciences

Department of Chemistry

School of Earth and Environmental Sciences

## Degrees Offered

Bachelor of Biotechnology

Bachelor of Biotechnology - Advanced

Bachelor of Environmental Science

Bachelor of Environmental Science - Advanced

Bachelor of Mathematical Sciences

Bachelor of Marine Science

Bachelor of Marine Science (Honours)

Bachelor of Marine Science - Advanced (Honours)

Bachelor of Medicinal Chemistry

Bachelor of Medicinal Chemistry - Advanced

Bachelor of Nanotechnology

Bachelor of Nanotechnology - Advanced

Bachelor of Science

Bachelor of Science (Honours)

Bachelor of Science - Advanced (Honours)

## Double Degrees:

Bachelor of Science - Bachelor of Arts

Bachelor of Science - Bachelor of Commerce

Bachelor of Science - Bachelor of Laws

Bachelor of Science - Bachelor of Mathematics

Bachelor of Computer Science - Bachelor of Science

Bachelor of Creative Arts - Bachelor of Science

Bachelor of Engineering - Bachelor of Science

## 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. 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 p.t. equivalent
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Standard Course Fee:	HECS (local); \$8,900 per session for most majors (international)
Location:	Wollongong
UOW Course Code:	742
UAC Code:	757621
CRICOS Code:	003283D

### Overview

Students may gain a comprehensive education in Science by either 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 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 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 Science major or a selection of complementary or contrasting subjects.
- 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 a 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
<b>100-level</b>			
BIOL103	Molecules, Cells and Organisms	Spring	6
BIOL104	Evolution, Biodiversity and Environment	Autumn	6
CHEM101	Chemistry 1A (or CHEM104 Chemistry 1D)	Autumn	6
CHEM102	Chemistry 1B (or CHEM105 Chemistry 1E)	Spring	6
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.			
<b>200-level</b>			
24 credit points from the following Biological Sciences subjects plus Statistics			
BIOL213	Principles of Biochemistry	Autumn	6
BIOL214	The Biochemistry of Energy & 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
MARE200	Introduction to Oceanography	Autumn	6
STAT252	Statistics for Natural Sciences	Spring	6

### 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	Cellular and Molecular Immunology	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

### 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 Geosciences.
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.

### Second Major

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

Subjects		Session	Credit Points
<b>100-level</b>			
CHEM101	Chemistry 1A (or CHEM104 Chemistry 1D)	Autumn	6
CHEM102	Chemistry 1B (or CHEM105 Chemistry 1E)	Spring	6
<b>200-level</b>			
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
<b>300-level</b>			
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

**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.

**Double Major**

A human geography major may be usefully combined with a physical geography major.

Subjects		Session	Credit Points
<b>100-level</b>			
EESC103	Landscape Change and Climatology	Autumn	6
EESC104	The Human Environment: Problems and Change	Spring	6
Recommended electives:			
EESC101	Planet Earth	Autumn	6
EESC102	Earth Environments and Resources	Spring	6
<b>200-level</b>			
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 Downunder: A Geography of Australia	Spring	6
EESC208	Environmental Impact of Societies	Spring	6
<b>300-level</b>			
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

**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.

### Double Major

A Physical Geography major could be combined with a Human Geography major or a Geology major.

<b>Subjects</b>		<b>Session</b>	<b>Credit Points</b>
<b>100-level</b>			
EESC101	Planet Earth	Autumn	6
EESC103	Landscape Change and Climatology	Autumn	6
Recommended electives:			
EESC102	Earth Environments and Resources	Spring	6
EESC104	The Human Environment: Process and Change	Spring	6
<b>200-level</b>			
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 Downunder: A Geography of Australia	Spring	6
EESC208	Environmental Impact of Societies	Spring	6
EESC250	Field Geology	Summer	6
<b>300-level</b>			
EESC303	Fluvial Geomorphology and Sedimentology	Autumn	8
EESC302	Coastal Environments: Process & 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

### 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.

### Double Major

A Geology major can be combined with a second major in Physical Geography.

<b>Subjects</b>		<b>Session</b>	<b>Credit Points</b>
<b>100-level</b>			
EESC101	Planet Earth	Autumn	6
EESC102	Earth Environments and Resources	Spring	6
Recommended electives:			
EESC103	Landscape Change and Climatology	Autumn	6
EESC104	The Human Environment: Problems and Change	Spring	6
<b>200-level</b>			
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
<b>300-level</b>			
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

## 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

### Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)

Web site: [www.uow.edu.au/science/](http://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 of 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
BIOL292	Special Biology Studies	6
BIOL303	Biotechnology: Applied Cell and Molecular Biology	8
BIOL320	Molecular Cell Biology	8
BIOL321	Bioinformatics: from genome to structure	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

### Chemistry

CHEM101	Chemistry 1A: Intro. Physical and General Chemistry	6
CHEM102	Chemistry 1B: Intro. Organic and Physical Chemistry	6
CHEM104	Chemistry 1D (Introductory Chemistry)	6
CHEM105	Chemistry 1E (Introductory Chemistry)	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 Downunder: 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	Soils, Landscapes and Hydrology	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
EESC350	Directed Studies in Earth & Environmental Sciences B	8
ENVI391	Environmental Science	8

### **General Science**

SCIE101	Modern Perspectives in Science	6
SCIE292	Science Research Internship	6

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

#### **Biomedical 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 Information Technology and Computer Science	8
CSCI103	Algorithms and Problem Solving	6
CSCI114	Procedural Programming	6

#### **Mathematics and Applied Statistics**

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
STAT252	Statistics for the Natural Sciences	6

#### **Engineering Physics**



PHYS131	Physics for the Environmental and Life Sciences A	6
PHYS132	Physics for the Environmental and Life Sciences B	6
PHYS141	Fundamentals of Physics A	6
PHYS142	Fundamentals of Physics B	6
PHYS205	Modern Physics	6
PHYS206	Project in Physics	6
PHYS215	Vibrations, Waves and Optics	6
PHYS225	Electromagnetism 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	8
PHYS306	Project in Physics	8
PHYS325	Electromagnetism	8
PHYS335	Classical Mechanics	8
PHYS365	Detection of Radiation: Neutrons, Electrons and X Rays	8
PHYS375	Nuclear Physics	8
PHYS385	Statistical Mechanics	8
PHYS390	Astrophysics	8
PHYS396	Electronic Materials	8

## 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
Standard Course Fee:	HECS (local); \$9,200 per session (international)
Location:	Wollongong
UOW Course Code:	741A
UAC Code:	757601
CRICOS Code:	-

### 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.

### 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 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://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
Standard Course Fee:	HECS (local); \$9,200 per session (international)
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
- 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
<b>Biological Sciences Honours</b>		
BIOL401     Biology Honours	Annual	48
or		
BIOL402     Biology Joint Honours	Annual	24
<b>Chemistry Honours</b>		
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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)

Web site: [www.uow.edu.au/science/](http://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
Standard Course Fee:	HECS (local); \$8,900 per session (international)
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 85 (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 First Year		Session	Credit Points
BIOL103	Molecules, Cells and Organisms	Spring	6
BIOL104	Evolution, Biodiversity and Environment	Autumn	6
CHEM101/104	Chemistry 1A/1D	Autumn	6
CHEM102/105	Chemistry 1B/1E	Spring	6
MATH151	General Mathematics A (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 STS250.

<b>Second Year</b>			
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
<i>Plus one of the following subjects:</i>			
STS250	From Molecular Genetics to Biotechnology	Autumn	8
BMS202	Human Physiology II: Control Mechanisms	Autumn	6
<b>Third Year</b>			
BIOL303	Biotechnology: Applied Cell & Molecular Biology	Autumn	8
CHEM320	Bioinformatics: From Genome to Structure	Spring	8
BIOL320	Molecular Cell Biology	Autumn	8
BIOL321	Cellular and Molecular Immunology	Spring	8
<i>Plus one Session 1 subject chosen from the following:</i>			
CHEM350	Principles of Pharmacology	Autumn	8
BIOL332	Ecological & Evolutionary Physiology	Autumn	8
BIOL392	Advanced Biology Project	Autumn, Spring or Summer	8
MGMT310	Introduction to Management for Professionals B	Autumn	8
BMS344	Cardiorespiratory Physiology	Autumn	8
<i>Plus one Session 2 subject chosen from the following:</i>			
CHEM321	Organic Synthesis and Reactivity	Spring	8
BIOL392	Advanced Biology Project	Autumn, Spring or Summer	8
PHIL380	Bioethics	Spring	8

## Honours

If the required academic standard is attained the BSc(Biotechnology) student may transfer to the BBiotechnology 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)

Web site: [www.uow.edu.au/science/](http://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](mailto:jagreen@uow.edu.au)

The Coordinator of the degree is Associate 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
Standard Course Fee:	HECS (local); \$8,900 per session (international)
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
<b>First Year</b>			
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
<i>Plus 12 credit points of electives to be approved by the coordinator</i>			
<b>Second Year</b>			
BIOL240	Functional Biology of Plants and Animals	Autumn	6
BIOL241	Biodiversity: Classification and Sampling	Spring	6
BIOL251	Principles of Ecology and Evolution	Autumn	6
EESC 203	Biogeography & Environmental Change	Autumn	6
EESC 204	Introductory Spatial Science	Spring	6
MATH111	Applied mathematical Modelling	Spring	6
STAT 131	Probability and Random variables	Autumn	6
STAT 132	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			
<b>Third Year</b>			
BIOL351	Conservation Biology: Marine & Terrestrial Populations	Autumn	8
BIOL355	Marine and Terrestrial Ecology	Spring	8
EESC 304	Geographic Information Science	Spring	8
EESC 305	Remote Sensing of the Environment	Autumn	8
STAT 355	Sample Surveys and Experimental design (with project)	Autumn, Spring	8
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 and Processes Spring 8

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 a training in independent research.

## Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://www.uow.edu.au/science/)

The Course Coordinator is Dr 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
Standard Course Fee:	HECS (local); \$8,900 per session (international)
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 & Mathematics.

Recommended studies include four units of Science or four units of Science & 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
<b>Common First Year</b>			
BIOL104	Evolution, Biodiversity & Environment	Autumn	6
CHEM101/4	Chemistry 1A/D	Autumn	6
EESC101	Planet Earth	Autumn	6
EESC103	Landscape Change and Climatology	Autumn	6
BIOL103	Molecules, Cells and Organisms	Spring	6
CHEM102/5	Chemistry 1B/E	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
EESC204	Introductory Spatial Science	Spring	6
<b>Options:</b>	<i>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</i>		
MATH151	General Mathematics (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

EESC304	Geographic Information Science	Spring	8
ENVI391	Environmental Science	Spring	8
<i>Options: plus 4 of the following subjects, as approved</i>			
CHEM314	Instrumental Analysis	Autumn	8
CHEM327	Environmental Chemistry	Autumn	8
BIOL351	Conservation Biology: Marine and Terrestrial Populations	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 & Management	Spring	8
MARE300	Fisheries and Aquaculture	Spring	8
MARE357	Advances in Molluscan Biology	Summer	8

### (b) Physical Sciences strand

#### Subjects (by year) Session Credit Points

##### Common First Year

CHEM101	Chemistry 1A	Autumn	6
CHEM102	Chemistry 1B	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	Spring	6
BIOL352	Biology for Environmental Engineers	Autumn	6

##### Third Year

##### Core Subjects

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
<i>Options: plus 2-3 of the following as approved to total a minimum of 48 cp</i>			
ENVE321	Solid and Hazardous Waste Management	Spring	6
ENVE385	Environmental Engineering	Autumn	8
ENVI411	Aqueous and Atmospheric Chemistry	Autumn	6
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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://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
Standard Course Fee:	HECS (local); \$8,900 per session (international)
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 (by year)	Session	Credit Points
<b>First Year</b>		
<b>Core</b>		
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
<b>Options</b>		
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		
<b>Second Year</b>		
<b>Core</b>		
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

#### Options

*Plus THREE of the following*

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

### 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 a training in independent research.

### Other Information

For further information contact the Faculty of Science Office, 41.258, or telephone 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://www.uow.edu.au/science/)

The Course Coordinator is Associate 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
Standard Course Fee:	HECS (local); \$8,900 per session (international)
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
<b>First Year</b>			
CHEM101	Chemistry 1A (or CHEM104 Chemistry 1D)	Autumn	6
CHEM102	Chemistry 1B (or CHEM105 Chemistry 1E)	Spring	6
BIOL103	Molecules, Cells and Organisms	Spring	6
BIOL104	Evolution, Biodiversity & Environment	Autumn	6
or			
BMS103	Human Growth, Nutrition & Exercise	Autumn	6
BMS112	Human Physiology I: Principles & Systems	Spring	6
MATH151	General Mathematics 1A (if required)	Autumn/Summer	6
<i>Plus other elective subjects to give a total credit point value of 48, at least 6 of which should be one of the following:</i>			
BMS101	Systemic Anatomy	Autumn	6
PHYS131	Physics for Environmental & Life Sciences (Strongly recommended)	Autumn	6
STAT252	Statistics for the Natural Sciences	Spring	6
<b>Second Year</b>			
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
<i>Plus one of the following subjects</i>			
CHEM215	Food Chemistry	Autumn	6
BMS202	Human Physiology II: Control Mechanisms	Autumn	6
<b>Third Year</b>			
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
<i>Plus one of the following subjects:</i>			
CHEM314	Instrumental Analysis	Autumn	8
CHEM340	Chemistry Laboratory Project (restricted access: Credit average minimum requirement)		8
BIOL320	Molecular Cell Biology	Spring	8

### Honours

If the required academic standard is attained the BSc(Medicinal Chemistry) student may transfer to the BMedicinal 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 outlined below 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://www.uow.edu.au/science/)

The Degree Coordinator is Dr Paul Keller, Room 18.222, telephone: 4221 4692, email: [keller@uow.edu.au](mailto: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
Standard Course Fee:	HECS (local); \$8,900 per session (international)
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 Materials, BHP Steel Institute as well as Research Centre for Advanced Materials and Processing. 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 is 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
<b>First Year</b>			
CHEM101/CHEM104	Introductory Chemistry	Autumn	6
PHYS141	Fundamentals of Physics A	Autumn	6
MATH187/MATH141	General Mathematics 1A Part 1	Autumn	6
NANO101	Current Perspectives in Nanotechnology	Autumn	6
CHEM102/CHEM105	Physical/Organic Chemistry	Spring	6
ENGG153	Engineering Materials	Spring	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 for Engineers 2A	Autumn	6
PHYS263	Photonics		6
<b><i>Mechatronics Stream</i></b>			
ENGG152	Engineering Mechanics	Spring	6
ENGG154	Engineering Design for Innovation	Autumn	6
<b><i>Other subject options</i></b>			
BIOL103	Molecules, Cells and Organisms	Spring	6
<b>Third Year</b>			
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
<i>Plus two electives</i>			
<b><i>Materials Chemistry Stream</i></b>			
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
<b><i>Physics Stream</i></b>			
PHYS305	Quantum Mechanics	Autumn	6
PHYS363	Advanced Photonics		6
<b><i>Mechatronics Stream</i></b>			
ENGG251	Mechanics of Solids	Autumn	6
MECH215	Fundamentals of Machine Component Design	Spring	6
<b><i>Other subject options</i></b>			
BIOL213	Principles of Biochemistry	Autumn	6
BIOL214	Metabolic Biochemistry	Spring	6

## 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://www.uow.edu.au/science/)

The Degree Coordinators are Associate Professor Will Price, Room 18.102A, and Associate 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
Standard Course Fee:	HECS (LOCAL): \$8,900 per session (international)
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
<b>Common First Year</b>			
<b>Core</b>			
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
CHEM101/4	Chemistry 1A/D	Autumn	6
CHEM102/5	Chemistry 1B/E	Spring	6
MATH151	General Mathematics (required if entering the program without at least HSC Mathematics Band 4)	Autumn, Summer	6
<b>Options</b>			
<i>Select one or two of the following:</i>			
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 requires 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

<b>Core</b>			
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

<b>Core</b>			
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 & 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

#### Second Year Marine Biology Strand – Biotechnology Pathway

<b>Core</b>			
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

<b>Core</b>			
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	Cellular and Molecular Immunology	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

## 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

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

### 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

## 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/biol/marine/index.html](http://www.uow.edu.au/science/biol/marine/index.html)

The Coordinator is Associate Professor Chris Fergusson, Room 41.107, telephone 4221 3860, email: [cferguss@uow.edu.au](mailto:cferguss@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
Standard Course Fee:	HECS (local); \$9,200 per session (international)
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
<b>Marine Science Honours</b>		
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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)

Web site: [www.uow.edu.au/science/](http://www.uow.edu.au/science/)

Marine Science Honours Coordinator: Associate Professor Chris Fergusson, Room 41.107, telephone 4221 3860, email [cferguss@uow.edu.au](mailto:cferguss@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
Standard Course Fee:	HECS (local); \$9,200 per session (international)
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<sup>+</sup> 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:** Students who are eligible for this degree fulfil all the same requirements as Bachelor of Biotechnology 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.

**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
<b>First Year</b>			
BIOL103	Molecules, Cells and Organisms	Spring	6
BIOL104	Evolution, Biodiversity and Environment	Autumn	6
CHEM101/104	Chemistry 1A/1D	Autumn	6
CHEM102/105	Chemistry 1B/1E	Spring	6
MATH151	General Mathematics A (if required)	Autumn or Summer	6
<i>Plus other elective subjects to give a total credit point value of 48, at least 6 of which should be one of the following:</i>			
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 STS250.			
<b>Second Year</b>			
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
<i>Plus one of the following subjects:</i>			

STS250	From Molecular Genetics to Biotechnology	Autumn	8
BMS202	Human Physiology II: Control Mechanisms	Autumn	6
<b>Third Year</b>			
BIOL303	Biotechnology: Applied Cell & Molecular Biology	Autumn	8
CHEM320	Bioinformatics: From Genome to Structure	Spring	8
BIOL320	Molecular Cell Biology	Autumn	8
BIOL321	Cellular and Molecular Immunology	Spring	8
<i>Plus one Session 1 subject chosen from the following:</i>			
CHEM350	Principles of Pharmacology	Autumn	8
BIOL332	Ecological & Evolutionary Physiology	Autumn	8
BIOL392	Advanced Biology Project	Autumn, Spring or Summer	8
MGMT310	Introduction to Management for Professionals B	Autumn	8
BMS344	Cardiorespiratory Physiology	Autumn	8
<i>Plus one Session 2 subject chosen from the following:</i>			
CHEM321	Organic Synthesis and Reactivity	Spring	8
BIOL392	Advanced Biology Project	Autumn, Spring or Summer	8
PHIL380	Bioethics	Spring	8
<b>Fourth Year</b>			
BIOL420	Cell, Protein and Antibody Technology	Autumn	12
BIOL421	Nucleic Acid Technology	Autumn	12
BIOL422	Biotechnology Project	Spring	24

### Honours

The Degree of Bachelor of Biotechnology (Honours) is awarded for meritorious performance in 3- and especially 4- 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://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](mailto:jagreen@uow.edu.au) The Coordinator of the degree is Associate 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
Standard Course Fee:	HECS (local); \$9,200 per session (international)
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 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
<b>Common First Year</b>			
BIOL104	Evolution, Biodiversity & Environment	Autumn	6
CHEM101/4	Chemistry 1A/D	Autumn	6
EESC101	Planet Earth	Autumn	6
EESC103	Landscape Change and Climatology	Autumn	6
BIOL103	Molecules, Cells and Organisms	Spring	6
CHEM102/5	Chemistry 1B/E	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
<b>Common Second Year</b>			
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

NB: 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	Spring	8
<i>Plus TWO subjects from the following:</i>			
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
<i>Plus ONE subject from the following:</i>			
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
<i>Plus ONE subject from the following:</i>			
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

#### 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
<i>Plus One subject from the following</i>			
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 2004

#### 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
MGMT308	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 3<sup>rd</sup> & especially 4<sup>th</sup> 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au) or the Environmental Science Unit, 19.G012, 42214134. Web site: [www.uow.edu.au/science/env/](http://www.uow.edu.au/science/env/) 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
Standard Course Fee:	HECS (local); \$9,200 per session (international)
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.

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
<b>First Year</b>			
CHEM101	Chemistry 1A	Autumn	6
CHEM102	Chemistry 1B	Spring	6
BIOL103	Molecules, Cells and Organisms	Spring	6
BIOL104	Evolution, Biodiversity & Environment	Autumn	6
or			
BMS103	Human Growth, Nutrition & Exercise	Autumn	6
BMS101	Systemic Anatomy	Autumn	6
STAT252	Statistics for the Natural Sciences	Spring	6
BMS112	Human Physiology I: Principles & Systems	Spring	6
MATH151	General Mathematics 1A (if required)	Autumn or Summer	6
or			
PHYS131	Physics for Environmental & Life Sciences	Autumn	6
<b>Second Year</b>			
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
<b>Third Year</b>			
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
<b>Fourth Year</b>			
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 3- and especially 4- 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://www.uow.edu.au/science/)

The Degree Coordinator is Dr Paul Keller, Room 18.222, telephone: 4221 4692, email: [keller@uow.edu.au](mailto: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
Standard Course Fee:	HECS (local); \$9,200 per session (international)
Location:	Wollongong
UOW Course Code:	846, 846A
UAC Code:	757625, 757626
CRICOS Code:	-

### 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 is 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
<b>First Year</b>			
CHEM101/CHEM104	Introductory Chemistry	Autumn	6
PHYS141	Fundamentals of Physics A	Autumn	6
MATH187/MATH141	General Mathematics 1A Part 1	Autumn	6
NANO101	Current Perspectives in Nanotechnology	Autumn	6
CHEM102/CHEM105	Physical/Organic Chemistry	Spring	6
ENGG153	Engineering Materials	Spring	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 for Engineers 2A	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
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**Third Year**


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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	Metabolic Biochemistry	Spring	6

**Fourth Year**


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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>			

**Honours**

The Degree of Bachelor of Nanotechnology (Honours) is awarded for meritorious performance in 3- and especially 4- 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://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.

## Bachelor of Mathematical Sciences

Testamur Title of Degree:	Bachelor of Mathematical Sciences
Abbreviation:	BMathSc
Home Faculty:	Science
Duration:	4 years
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn or Spring
Standard Course Fee:	HECS (local); \$9,200 per session (international)
Location:	Wollongong
UOW Course Code:	764
UAC Code:	756501
CRICOS Code:	017731C

### Overview

The Bachelor of Mathematical Sciences is an interdisciplinary degree involving subjects offered by the Faculties of Informatics and Science. It emphasises the relationship between mathematics and science and is designed to produce a multi-skilled graduate with a broad knowledge base.

### Entry Requirements / Assumed Knowledge

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

Assumed knowledge: Any two units of English plus Mathematics

### Course Requirements

To qualify for the award of the degree of Bachelor of Mathematical Sciences a candidate shall satisfactorily complete the requirements of one of the following five prescribed strands:

Mathematics-Statistics/Science,  
Mathematics/Ecology,  
Mathematics/Geoscience,  
Statistics/Ecology and  
Statistics/Public Health\*

Candidates for the degree of Bachelor of Mathematical Sciences, and taking the Mathematics-Statistics/Science strand, must, in addition to the general requirements, satisfy the following additional requirements:

- a major study in Mathematics shall be completed satisfactorily;
- no more than 66 credit points shall be for 100-level subjects;
- for the Non-honours program, at least 60 credit points shall be for 300- and/or 400 -level subjects; and
- for the Honours program, at least 72 credit points shall be for 300- and/or 400-level subjects.

The course structure for the Mathematics-Statistics/Science strand is given in detail below. For information on the other possible strands refer to the Faculty of Science Office.

\*This strand is currently under review. Please consult the Faculty of Health and Behavioural Sciences.

### Honours

In the fourth year students may elect to do an Honours program (which includes a research project) or a Non-honours program. The Degree of Bachelor of Mathematical Sciences (Honours) is awarded for meritorious performance in 3<sup>rd</sup> & especially 4<sup>th</sup> year subjects.

### Major Study Area

#### **Mathematics-Statistics/Science Strand**

Subjects	Session	Credit Points	
<b>First Year</b>			
MATH187	Mathematics 1A Part 1	Autumn	6
MATH188	Mathematics 1A Part 2	Spring	6
MATH111	Applied Mathematical Modelling 1	Spring	6
MATH121	Discrete Mathematics	Autumn	6
STAT131	Understanding Variation and Uncertainty	Autumn	6
Plus either			

BUSS111	Business Programming I	Spring or Summer	6
or			
CSCI114	Procedural Programming	Autumn or Spring	6

Plus 12 credit points from 100-level CSCI subjects and/or 100-level BIOL, CHEM, EESC, PHYS, or BMS subjects selected from the Science Schedule and/or the Health and Behavioural Sciences Schedule.

**Second Year**

MATH201	Multivariate and Vector Calculus	Autumn	6
MATH202	Differential Equations 2	Spring	6
MATH203	Linear Algebra	Autumn	6
ATH204	Complex Variables and Group Theory	Spring	6

Plus at least 6 credit points being one or more of the subjects MATH212, MATH222 or STAT231.

Plus at least 18 credit points selected from STAT232 and 100- or 200-level BIOL, CHEM, EESC, PHYS, or BMS subjects from the Science Schedule and/or the Health and Behavioural Sciences Schedule.

**Third Year**

At least 30 credit points of 300-level MATH and/or STAT subjects.  
Plus at least 18 credit points from 200- or 300-level CSCI subjects and/or 200- or 300-level BIOL, CHEM, EESC, PHYS, or BMS subjects selected from the Science Schedule and/or the Health and Behavioural Sciences Schedule.

Plus (for those planning to proceed to honours in year 4)

STS217	Scientific Revolution: History Philosophy and Politics of Science	Spring	8
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**Fourth Year (Non Honours Program)**

STS217	Scientific Revolution: History Philosophy and Politics of Science	Spring	8
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Plus at least 18 credit points from 100- or 200- or 300-level subjects selected from MATH and/or STAT subjects.

Plus at least 18 credit points from 300-level CSCI subjects and/or 300-level BIOL, CHEM, EESC, PHYS, or BMS subjects selected from the Science Schedule and/or the Health and Behavioural Sciences Schedule.

Plus at least 6 credit points for a MATH and/or STAT subject, or for a 300-level CSCI subject, or for a 300-level BIOL, CHEM, EESC, or BMS subject selected from the Science Schedule and/or the Health and Behavioural Sciences Schedule, or for an STS subject from the Arts Schedule.

**Fourth Year (Honours Program)**

Entry to this program is restricted to candidates who satisfy the pre-requisite for MATH411 or STAT411.

At least 12 credit points of 300- or 400-level subjects selected from MATH and/or STAT subjects, and/or CSCI subjects, and/or BIOL, CHEM, EESC, PHYS, or BMS subjects selected from the Science Schedule and/or the Health and Behavioural Sciences Schedule, but may include one STS subject from the Arts Schedule.

Plus either the following Mathematics subjects:

MATH411	Mathematical Sciences Honours Project A	Annual	12
MATH471	Honours Topics in Mathematics A	Spring/Autumn	6
MATH472	Honours Topics in Mathematics B	Spring/Autumn	6
MATH473	Honours Topics in Mathematics C	Spring/Autumn	6
MATH474	Honours Topics in Mathematics D	Spring/Autumn	6

Or the following Statistics subjects:

STAT411	Mathematical Sciences Honours Project B	Annual	12
STAT471	Honours Topics in Statistics A	Spring/Autumn	6
STAT472	Honours Topics in Statistics B	Spring/Autumn	6
STAT473	Honours Topics in Statistics C	Spring/Autumn	6
STAT474	Honours Topics in Statistics D	Spring/Autumn	6

**Other Information**

For further information contact the Faculty of Science Office, 41.258, or telephone 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)

Web site: [www.uow.edu.au/science/](http://www.uow.edu.au/science/)

The Degree Coordinator is the Professor John Morrison, 10.G012.

## 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
Standard Course Fee:	HECS (local); \$8,900 per session (international)
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 78 (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 these 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://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
Standard Course Fee:	HECS (local); \$8,900 per session (international)
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 80 (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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
 Web site: [www.uow.edu.au/science/](http://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
Standard Course Fee:	HECS (local); \$8,900 per session (international)
Location:	Wollongong
UOW Course Code:	794
UAC Code:	Code required for 2005
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:

- The subjects MATH302, MATH305, MATH312 and MATH313 are recommended for students majoring in Mathematics but are not compulsory.
- The subject MATH222 is a prerequisite for the subjects MATH323 and MATH372.
- The Assoc Dean of Science must approve variations in course structure after consultation with the relevant subject coordinator(s).
- 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 42213481, email [patmac@uow.edu.au](mailto:patmac@uow.edu.au)  
Web site: [www.uow.edu.au/science/](http://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](mailto:ebryant@uow.edu.au)