

8.3 SPECIALIST DEGREES

The following 4-year specialist degrees have been designed for students wishing to focus their studies in particular areas that combine the traditional disciplines. Core subjects have been nominated with a view to providing key workplace skills in an employment area, and appropriate disciplinary strands are available as optional subjects.

Medical Biotechnology (School of Biological Sciences)

Environmental Science (School of Earth and Environmental Sciences)

Marine Science (Schools of Biological Sciences and Earth and Environmental Sciences)

Medicinal Chemistry (School of Chemistry)

Nanotechnology (School of Chemistry)

International Science

The range of first year subjects in these degrees allow students to develop other options if they decide not to pursue a specialised degree and they are able to transfer to a major in the BSc.

Detailed course outlines are provided in the following pages.

Bachelor of Medical Biotechnology

Coordinator of Degree Program: Professor Mark Wilson
School of Biological Sciences
Room 35.120, Telephone (02) 4221 4530

Professional Officer: Ms Julie-Ann Green, School of Biological Sciences
Room 35.103, Telephone (02) 4221 3100

Biotechnology is the application of biological processes to the production of materials useful to man. Through modern technologies, such as genetic engineering, biotechnology is shaping diverse aspects of medicine (cancer, vaccines, therapy of genetic diseases), food production (transgenic plants) and industry (bioremediation). Biotechnology at the University of Wollongong is focussed on cutting edge nucleic acid, protein and antibody technologies, rather than on traditional processes such as fermentation.

This degree represents an excellent foundation for students considering post graduate studies in medicine or other health areas. Many of our past graduates have been successful in obtaining entry into these post graduate degrees.

The Bachelor of Medical Biotechnology degree is a four-year professional qualification awarded either with or without Honours. Successful completion of prescribed subjects (set out in the following course structure) with a total of 192 credit points is necessary for the award of either the pass or honours degree. BSc students may be permitted to enter the program at the end of the second or third years of study if they have obtained a suitable standard in the designated subjects at this University or similar subjects at other Institutions.

Note: See Sections 4 and 6 for general information on Credit Points, Subjects, Pre-requisites etc. and Section 3.3.1 (School of Biological Sciences) for members of staff and research interests.

Past Bachelor of Biotechnology students have an excellent further education and employment record in companies (Biotech Australia, Novogen, Servier), research Institutes (Garvan, QIMR, Walter and Eliza Hall Institute), government instrumentalities (CSIRO, NSW Agriculture, hospitals) and Universities in Australia and overseas.

Work Experience Opportunities

Two paid biotechnology research experience places are offered by the Children's Medical Research Institute at Westmead each year for second year Biotechnology students only. The places are for 10 weeks in December-January. Interviews will be held to determine the successful applicants. Contact Julie-Ann Green (35.103 or jagreen@uow.edu.au)

Medical Biotechnology Degree Structure		cps	Session
First Year			
BIOL104	Evolution, Biodiversity and Environment	6	1
BIOL103	Molecules, Cells and Organisms	6	2
CHEM101	Chemistry 1A	6	1
CHEM102	Chemistry 1B	6	2
MATH151	General Mathematics 1A (if required)	6	1,3

Plus one of the following:

* Strongly recommended

STS100 is compulsory for those students taking an approved course of study which does not include STS251

PHYS155*	Introduction to Biomedical Physics	6	1
STS100#	Social Aspects of Science and Technology	6	1
BMS101	Systemic Anatomy	6	1
BMS112	Human Physiology I: Principles and Systems	6	2

Plus other elective subjects to total 48 credit points

Total for major at 100-level 48

* Strongly recommended

STS100 is compulsory for those students taking an approved course of study that does not include STS251.

Second Year

BIOL213	Principles of Biochemistry	6	1
BIOL214	The Biochemistry of Energy and Metabolism	6	2
BIOL215	Introductory Genetics	6	2
BIOL240	Functional Biology of Plants and Animals	6	1
CHEM212	Organic Chemistry	6	1
CHEM214	Analytical and Environmental Chemistry	6	2
STAT252	Statistics for the Natural Sciences	6	2

Plus one of the following:

BMS202	Human Physiology II: Control Mechanisms	6	1
MGMT208	Introduction to Management for Professionals	6	1
STS251	From Molecular Genetics to Biotechnology	6	1

Total for major at 200-level 48

Third Year

Core

BIOL303	Biotechnology: Applied Cell and Molecular Biology	8	1
BIOL320	Molecular Cell Biology	8	1
BIOL321	Infection and Immunity	8	2
CHEM320	Bioinformatics: From Genome to Structure	8	2

Options

Plus one Session 1 subject from the following:

BIOL332	Ecological and Evolutionary Physiology	8	1
BIOL392#	Advanced Biology	8	1,2,3
BMS344	Cardiorespiratory Physiology	8	1
CHEM350	Principles of Pharmacology	8	1

Plus one Session 2 subject from the following:

CHEM321	Organic Synthesis and Reactivity	8	2
BIOL392#	Advanced Biology	8	1,2,3
PHIL380	Bioethics	8	2

Entry to this subject requires a Distinction average in 200-level Biological Sciences subjects and the approval of the Biotechnology 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 School 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.

Fourth Year

BIOL421	Professional Skills in Biotechnology	12	1
BIOL423	Biotechnology Project	36	A
Degree total		192	

AWARD OF HONOURS FOR THE BACHELOR OF MEDICAL BIOTECHNOLOGY DEGREE

Honours is awarded on completion of the fourth year on academic performance assessed by calculating a weighted average mark (WAM) for all 300 level and 400 level subjects.

The weighting reflecting the level of the subject will be 1 for 300 level and 4 for 400 level subjects.

The approved ranges of marks for the award of Honours grades is:

Honours Class I	80 to 100%
Honours Class II, Division 1	72.5 to less than 80%
Honours Class II, Division 2	65 to less than 72.5%
Pass degree	50 to less than 65%

The regulations governing the award of Honours and the formula used for the calculation of the final grade is set out in the Course Rules in the University's Online Course Handbook: www.uow.edu.au/handbook

Bachelor of Medical Biotechnology (Advanced)

Students entering with at least 90 UAI or equivalent, can enrol in the Bachelor of Medical Biotechnology (Advanced) degree. See Section 7.4 for details. Students can transfer to the Bachelor of Medical Biotechnology (Advanced) degree from the BSc (Biotechnology) or the Bachelor of Medical Biotechnology after completing 72 credit points of study if they have obtained a distinction average.