

8.2 BACHELOR OF SCIENCE - PRESCRIBED MAJORS

The following 3-year prescribed majors in the Bachelor of Science degree have been designed for students wishing to focus their BSc 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. Most of the programs also incorporate at least one traditional major study, making it possible to proceed to Honours in a selected discipline.

Biotechnology (School of Biological Sciences)

Ecology (School of Biological Sciences)

Environment (School of Earth & Environmental Sciences)

Land and Heritage Management (School of Earth & Environmental Sciences)

Medicinal Chemistry (School of Chemistry)

Nanotechnology (School of Chemistry)

The range of first year subjects in these majors allow students to develop other options if they decide not to pursue a prescribed major and they are able to transfer to another major in the BSc or, in some cases, a specialist degree.

Detailed course outlines are provided in the following pages.

Bachelor of Science (Biotechnology)

The Degree Coordinator is Professor Mark Wilson, School of Biological Sciences, Room 35.120A, Telephone 4221 4534.

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).

BSc (Biotechnology) Course 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
<i>Plus one of the following:</i>			
* 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
<i>Plus other elective subjects to total 48 credit points</i>			
Total for major at 100-level		48	
Second Year			
		cps	Session
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
<i>Plus one of the following subjects:</i>			
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

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:

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

Or other subjects approved by the Coordinator

Total for major at 300-level **48**

Degree Total **144**

Entry to this subject requires at least a Distinction average in 200-level Biological Sciences subjects and the approval of the Academic Advisor.

Honours

If the required academic standard is attained, particularly in the third year, the BSc (Biotechnology) student may transfer to the BBiotechnology fourth Honours year. This consists of special coursework plus a research project. Refer to the BBiotechnology course information in Section 7.3.