8. SCIENCE DEGREES

8.1 BACHELOR OF SCIENCE - FLEXIBLE MAJORS

The flexible majors in the Bachelor of Science enable students to design their study to meet their own particular interests and abilities. Students select a major and can utilise their remaining credit points to broaden their science knowledge or to pursue interests in other faculties. Flexible majors include:

Biological Sciences

Chemistry

Geology

Geosciences

Human Geography

Physical Geography

Detailed course outlines are provided in the following pages.

Bachelor of Science (Biological Sciences)

The Degree Coordinator is Dr Andrew Aquilina - School of Biological Sciences, Room 35.122A, telephone (02) 4221 3340.

The aim of the Biological Sciences major is to provide students 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. This training will allow a graduate to seek employment in industry, biological, medical, agricultural or veterinary research, teaching, environmental agencies and government service.

Joint majors with other Schools 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 or Chemistry; and students interested in comparative physiology should consider subjects from the Health and Behavioural Sciences schedule.

Biological Sciences Course Structure		**cps**	**Session**
100-level			
BIOL104	Evolution, Biodiversity and Environment	6	1
BIOL103	Molecules, Cells and Organisms	6	2
CHEM101	Chemistry 1A	6	1
CHEM102	Chemistry 1B	6	2
	Total for major at 100-level	**24**	
MATH151	General Mathematics 1A (if required)	6	1,3 (alternate Summers)

Note: The pre-requisites for MARE200 are BIOL104, CHEM102 and either EESC102 or EESC103.

200-level			
STAT252	Statistics for Natural Sciences	6	2
Plus any four subjects from the following:			
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
BIOL241	Biodiversity: Classification and Sampling	6	2
BIOL251	Principles of Ecology and Evolution	6	1

Biological Sciences Course Structure		cps	Session
MARE200	Introduction to Oceanography	6	1
	Total for major at 200-level	**30**	

Note: The pre-requisites for MARE300 are STAT252 and either BIOL351 or BIOL355.

300-level

All students majoring in Biological Sciences must take at least three 300-level subjects from the following lists. Recommended subject combinations are as follows:

Option 1*: Any three subjects from the following:*

BIOL303	Biotechnology: Applied Molecular and Cell Biology	8	1
BIOL320	Molecular Cell Biology	8	1
BIOL321	Infection and Immunity	8	2
BIOL332	Ecological and Evolutionary Physiology	8	1
CHEM320	Bioinformatics: From Genome to Structure	8	2

Option 2*: Any three subjects from the following:*

BIOL332	Ecological and Evolutionary Physiology	8	1
BIOL351	Conservation Biology: Marine and Terrestrial Populations	8	1
BIOL355	Marine and Terrestrial Ecology	8	2
MARE300	Fisheries and Aquaculture	8	2

Students interested in including subjects outside of these combinations should discuss their choices with an Academic Advisor.

Total for major at 300-level	**24**	
Major Total	**78**	
Additional subjects from the Science Schedule (totalling 12 credit points)	12	
	90	
Plus elective subjects from the Science and/or General Schedules (totalling 54 credit points)	54	
Degree total	**144**	

Notes on Biological Sciences major

1. A fourth Biological Sciences 200-level subject may be waived for students taking both a Biological Sciences major and a major from the School of Earth and Environmental Sciences.
2. A Mathematics or Statistics subject acceptable to the School 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.

First year (BIOL103, BIOL104) is a general, self-contained introduction to Biology as well as essential background for future years. There is no requirement for any prior study in Biology. Students without any previous experience of Biology, however, are advised to take the Bridging Courses offered in February and July each year. Refer to the following link for more information: (www.uow.edu.au/student/enrolment/UOW008203.html). Students majoring in Biological Sciences must complete BIOL103, BIOL104, CHEM101 and CHEM102. MATH151 is a requirement for any student entering without the minimum mathematics requirement (See Section 6.4).

Second year provides a foundation in biochemistry, genetics, ecology and the function and classification of micro-organisms, plants and animals.

Students in a Biological Sciences' major are required to take four 200-level Biological Sciences subjects from the following: BIOL213, 214, 215, 240, 241, 251 and MARE200. Note pre-requisites for 3rd Year subjects when selecting the combination of 2nd Year subjects. STAT252 (Statistics for the Natural Sciences), or an equivalent subject, is a pre-requisite for 300-level Biology subjects, except for students taking joint majors with Chemistry or Earth and Environmental Sciences.

Third Year students must take at least three 300-level subjects. Recommended subject combinations are provided in the course structure on the previous page. Students interested in including subjects outside of these combinations should discuss their choices with an Academic Advisor.

Students interested in a career in the Biological Sciences are urged to take more than the minimum required three 300-level Biological Sciences subjects (24 credit points). By undertaking a major in Biological Sciences comprising six 300-level subjects, a graduate has a comprehensive biological sciences degree.

Advanced Biology (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-achieving students wishing to complement their coursework with research projects. Entry into these subjects is by permission of the Coordinator and requires a distinction average or higher performance in subjects pertinent to the intended area of research, as approved by the Head of School.

Critical Issues in Research (BIOL394) is an 8-credit point seminar-based subject which provides an opportunity for high-performing students to engage in critical discussions of research topics being undertaken by academic staff in Biological Sciences. Students enrolling in this subject must have a distinction or higher average in Biological Sciences subjects and approval by the Head of School.

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

Subject combinations with other Schools

Biological Sciences combines well with Biomedical Science, Chemistry, Earth and Environmental Sciences, Nutrition, Psychology, Mathematics and Applied Statistics, Information Technology and Computer Science subjects. The choice of subjects from these Schools should be considered carefully so that they complement your interests and ambitions in Biology.

Honours in the School of Biological Sciences

Please refer to Section 7.5 for further information about the Honours program including entry requirements, relevant contact details and instructions for how to apply.