

Bachelor of Science (Honours) (Deans Scholar) (Cell and Molecular Biology) | 2020

The science of cell and molecular biology is the study of the processes that occur within and between the cells of living things from organic molecules to cells, individual organisms, populations and communities. A major in Cell and Molecular Biology can be applied in the fields of biochemistry, biomedical science, immunology, microbiology, comparative physiology, terrestrial ecology and marine, evolutionary and environmental biology.

Field and laboratory studies are built into appropriate subjects at all levels and take advantage of state-of-the-art laboratory facilities, as well as the superb local marine, freshwater and terrestrial environments on the South Coast and inland regions.

Major Learning Outcomes:

On successful completion of this course students will be able to:

1. Identify and apply the principles and concepts of cell and molecular biology.
2. Demonstrate skills in analysing, interpreting and evaluating data, methodologies and other information.
3. Apply critical thinking and independent problem solving in experimental design and data analysis.
4. Communicate knowledge and ideas clearly and coherently to others.
5. Demonstrate how knowledge and skills in cell and molecular biology are applied in the development of scientific works and practical exercises.
6. Interpret the role, relevance and ethical implications of science in society.
7. Independently plan, execute and communicate the findings of a project/piece of research in relation to an aspect of cell and molecular biology.
8. Apply knowledge of research principles and methods in experimental projects in cell and molecular biology and through the authoring of scientific work.



Course structure

To qualify for award of the degree, the Bachelor of Science (Honours) (Deans Scholar) (Cell and Molecular Biology), a candidate must successfully complete at least 192 credit points, as outlined in the table below:

Year 1:

When selecting 100-level subjects students should note the pre-requisites required for the 200-level subjects they wish to take.

Subject Code	Subject name	Credit points	Session (s)
AUTUMN Year 1			
SCII101	Global Challenges in Science	6	Autumn
MATH151*	General Mathematics 1A	6	Autumn
*MATH151 MUST be completed by all students who have not completed NSW HSC Mathematics or equivalent at Band 4 or higher.			
Select One of the following two subjects:			
Note: Students who have achieved a mark of 65% or more in NSW HSC Chemistry (or equivalent) must select CHEM101 in Autumn and CHEM102 in Spring. All other students must select CHEM104 in Autumn and CHEM105 in Spring.			
CHEM101	Chemistry 1A: Introductory Physical and General Chemistry	6	Autumn
CHEM104	Foundation Chemistry: Properties of Matter	6	Autumn
Plus 6 Credit points (students required to do MATH151) OR 12 Credit Points (if not required to do MATH151) of elective subjects from the General Elective Schedule, Science Schedule or from the list of suggested subjects below:			
BIOL104	Evolution, Biodiversity and Environment	6	Autumn
BIOL105	Functional Biology of Animals and Plants	6	Autumn
MEDI100	Human Structure and Function	6	Autumn
STS 112	The Scientific Revolution	6	Autumn
SPRING Year 1			
BIOL103	Molecules, Cells and Organisms	6	Spring
STAT252	Statistics for Natural Sciences	6	Spring



Subject Code	Subject name	Credit points	Session (s)
Select One of the following two subjects:			
CHEM102	Chemistry 1B: Structure and Reactivity of Molecules for Life	6	Spring
CHEM105	Foundation Chemistry: Reactions and Structures	6	Spring
NOTE Students who have completed CHEM104 and CHEM105 and wish to enrol in CHEM211 or CHEM212 must also complete CHEM106.			
CHEM106	Foundation Chemistry: Properties and Reactivity of Matter	6	Summer
Plus 6 Credit points if doing CHEM106 OR 12 Credit Points (if not required to do CHEM106) of elective subjects from the General Elective Schedule, Science Schedule or from the list of suggested subjects below:			
PHYS155	Introduction to Biomedical Physics	6	Spring
MEDI112	Introduction to Anatomy and Physiology 2	6	Spring

Year 2:

When selecting 200-level subjects students should note the pre-requisites required for the 300-level subjects they wish to take.

Subject Code	Subject name	Credit points	Session (s)
AUTUMN Year 2			
BIOL213	Principles of Biochemistry	6	Autumn
Plus 18 credit points of elective subjects from the General Elective Schedule, Science Schedule or from the list of suggested subjects below:			
BIOL240	Biodiversity of Marine and Freshwater Organisms	6	Autumn
MGNT208	Introduction to Management for Professionals A	6	Autumn
CHEM212	Organic Chemistry 2	6	Autumn
CHEM211	Inorganic Chemistry 2	6	Autumn
MEDI211	Control Mechanisms Physiology	6	Autumn
SOC251	Genetics, Biotechnology and Society	6	Autumn



Subject Code	Subject name	Credit points	Session (s)
CRLP200	Career Ready Learning and Practice	6	Autumn, Spring, Summer
SPRING Year 2			
BIOL214	The Biochemistry of Energy and Metabolism	6	Spring
BIOL215	Introductory Genetics	6	Spring
CHEM214	Analytical and Environmental Chemistry	6	Spring
Plus 6 credit points of elective subjects from the General Elective Schedule, Science Schedule or from the list of suggested subjects below:			
BIOL241	Biodiversity of Terrestrial Organisms	6	Spring
CRLP200	Career Ready Learning and Practice	6	Autumn, Spring, Summer

Year 3:

Subject Code	Subject name	Credit points	Session (s)
AUTUMN Year 3			
BIOL343	Techniques in Biotechnology and Medical Research	6	Autumn
BIOL340	Cell and Molecular Biology	6	Autumn
Plus 12 credit points of elective subjects from the General Elective Schedule, Science Schedule or from the list of suggested subjects below:			
BIOL362	Ecophysiology	6	Autumn
CHEM358	Pharmacology	6	Autumn
MEDI312	Fundamentals of Neuroscience	6	Autumn
PHIL326	Bioethics	6	Autumn
SPRING Year 3			
BIOL341	Immunity and Infection	6	Spring



Subject Code	Subject name	Credit points	Session (s)
CHEM325	Bioinformatics: Genome, Genes and Biomolecules	6	Spring
SCII302	Science Interdisciplinary Subject	6	Spring
Plus 6 credit points of elective subjects from the General Elective Schedule, Science Schedule or from the list of suggested subjects below:			
CHEM360	Organic Synthesis 2	6	Spring
ECON318	Economics of Health and Human Resources	6	Spring
SOC 347	Sociology of Health, Illness and Medicine	6	Spring
HAS 350	Social Determinants of Indigenous Health	6	Spring
MEDI323	Cardiorespiratory Studies	6	Spring

Year 4

Subject Code	Subject name	Credit points	Session (s)
Select either the full time (48cp) or 48cp of the equivalent part-time subject (2x 24cp) option below:			
BIOL401	Biology Honours	48	SMAH Annual
BIOL407	Biology Honours (Part-time)	24	SMAH Annual

Minors

Students are encouraged to consider taking a *Minor study* as part of the BSc program. Inclusion of a *minor* in support of your *major* area of study allows you to broaden your view, knowledge and expertise while specialising in areas of interest.

Details on *minors* can be found at: <https://documents.uow.edu.au/handbook/minors/H20008091.html>

Options include, but not limited to: Earth and Environmental Science, Geoscience, Physical Geography, Archaeology, Biochemistry, Biodiversity, Ecology, Molecular Biology, Geology and Marine Biology.

A selection of research internships or project-based subjects may also be available to high-achieving students wishing to complement their coursework with research projects. Entry into these subjects requires approval from the Head of School.

Entry Requirements and Credit Arrangements

Information on academic and English language requirements, as well as eligibility for credit for prior learning, is available from the Course Finder.

Other Information:

For further information please email: smah-students@uow.edu.au

