

# Bachelor of Science (Chemistry)

The Coordinator of this major is the Head of the School of Chemistry – Associate Professor Stephen Wilson, Room 18.102A, telephone (02) 4221 3505, email: stephen\_wilson@uow.edu.au

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 technically based disciplines from solid-state physics and astrophysics to molecular biology and the life sciences; from geochemistry and environmental science to engineering and health sciences.

The School of Chemistry provides students with the opportunity to develop manipulative, preparative and analytical skills in laboratory exercises designed to enhance varied lecture material and in addition have the opportunity to become familiar with a wide range of modern and sophisticated chemical instrumentation.

<b>Chemistry Course Structure</b>		<b>cps</b>	<b>Session</b>
<b>100-level</b>			
CHEM101	Chemistry 1A	6	1
CHEM102	Chemistry 1B	6	2
<b>Total for major at 100-level</b>		<b>12</b>	
<b>200-level</b>			
CHEM211	Inorganic Chemistry II	6	1
CHEM212	Organic Chemistry II	6	1
CHEM213	Molecular Structure, Reactivity and Change	6	2
CHEM214	Analytical and Environmental Chemistry	6	2
<b>Total for major at 200-level</b>		<b>24</b>	
<b>300-level</b>			
<i>At least three subjects taken from the following:</i>			
CHEM301	Advanced Materials and Nanotechnology	8	2
CHEM314	Instrumental Analysis	8	1
CHEM320	Bioinformatics: From Genome to Structure	8	2
CHEM321	Organic Synthesis and Reactivity	8	2
CHEM327	Environmental Chemistry	8	1
CHEM340	Chemistry Laboratory Project	8	1,2,3
CHEM364	Molecular Structure and Spectroscopy	8	1
<b>Total for major at 300-level</b>		<b>24</b>	
<b>Major total</b>		<b>60</b>	
<i>Additional subjects from the Science Schedule (totalling 30 credit points)</i>		<b>30</b>	
		<b>90</b>	
<i>Plus elective subjects from the Science and/or General Schedules (totalling 54 credit points)</i>		<b>54</b>	
<b>Degree total</b>		<b>144</b>	

## Notes on Chemistry Major

This degree structure is designed to meet the qualifying standards of the Royal Australian Chemical Institute, and students meeting the course requirements outlined above will be eligible for corporate membership of the Institute as Chartered Professional Chemists.

A major in Chemistry begins with Chemistry 1A and 1B, which provide the basic framework and concepts to students progressing on to 200 and higher level chemistry subjects as well being suitable for those specializing in other areas.

At second year, students are required to complete four core 200 level subjects. By studying Chemistry across a broad front at the 200-level (CHEM211, 212, 213, 214) students will find that special interests which often develop at this stage can be catered for not only by subject choice at the 300-level within the School of Chemistry, but also by the appropriate choice of subjects offered by other Schools.

Students concerned with life or life support material (e.g. food, drugs, health, macromolecules) will often tend towards the biological sciences (biochemistry, microbiology, pharmacology, botany, zoology) while those interested in earth sciences (e.g. oil, coal, minerals) will often tend towards Geology. Students seeking a deeper understanding of microscopic chemical/physical phenomena will tend towards the physical sciences, strengthened by computing/mathematical techniques of simulation and analysis. The School of Chemistry itself offers courses which can lead into work in biochemical and medical fields, in our physical and chemical environment, in analytical laboratories and of course in many other fields of chemical industry, teaching and research.

At third year, students must complete an approved combination of 300 level subjects offered by the School with a value of at least 24 credit points. A particular feature of the Chemistry course structure is that both the student who is not particularly inclined to abstract mathematical formulation of ideas and the student who can accommodate mathematical description of physical/ chemical processes can be as equally well satisfied by appropriate 300-level subject choice

(organic/inorganic/biological on one hand and instrumental analysis/spectroscopy on the other). Students seeking a good grounding in the whole range of undergraduate Chemistry should choose to undertake six 300-level Chemistry subjects.

The School also offers a third year research project (CHEM340) to students with a good academic record (usually a credit average or higher) who wish to gain experience in research. Entry into this subject is by permission of the Head of School.

### Honours in the School of Chemistry

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.