

CHEM90007 Environmental Chemistry

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2011, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus. Lectures and tutorials
Time Commitment:	Contact Hours: 36 lectures and six tutorials Total Time Commitment: Not available
Prerequisites:	One of CHEM10003 (610-101) Chemistry 1 610-121 Chemistry A Advanced Studies Program (prior to 2008) 610-141 Chemistry A (prior to 2008) 610-051 Chemistry Biomedical Science A (prior to 2008) Plus one of CHEM10004 (610-102) Chemistry 2 610-122 Chemistry B Advanced Studies Program (prior to 2008) 610-142 Chemistry B (prior to 2009) 610-052 Chemistry Biomedical Science B (prior to 2008) Or CHEM10006 (610-150) Chemistry for Biomedicine
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	CHEM20011 Environmental Chemistry
Core Participation Requirements:	For the purposes of considering requests for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements for this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
Coordinator:	Prof Spas Kolev
Contact:	Email: s.kolev@unimelb.edu.au
Subject Overview:	The subject covers important aspects of the structure and chemistry of the hydrosphere, atmosphere and lithosphere (soil); sources, chemistry and impact of environmental pollution; and energy resources (fossil fuels, nuclear and solar) and the impact of energy utilisation. Subject topics also include the principles and application of quantitative chemical analysis and environmental monitoring (calibration methods; experimental errors; volumetric analysis, spectrophotometry, gas and liquid chromatography, and atomic absorption spectrometry). A key aspect of this subject will be the comprehensive investigation of a current environmental chemistry issue, which will be covered in a small-group, scenario-based learning mode. The practical component of this subject will involve the application of titrimetric, optical (spectrophotometry, atomic absorption spectrometry) and chromatographic (gas chromatography, high performance liquid chromatography) analytical techniques to the determination of compounds of environmental interest.
Objectives:	On completion of this subject students should have developed skills in recognising chemically based environmental problems, an awareness of the possible effects of chemicals on the

	<p>environment and a capacity to interpret environmental data and to apply diverse chemical principles in the explanation of environmental phenomena.</p> <p>Students should appreciate the need for high quality environmental chemical analysis and the importance of selecting and utilising appropriate analytical methods and techniques for their monitoring. Students should understand the principles of the key analytical methods used in environmental chemistry.</p> <p>Students should also develop skills in investigating contemporary environmental chemistry issues, a consideration of the wider context of these issues, generic skills in operating in small teams and an awareness of professional practice as a scientist.</p> <p>Through the practical component of this subject students should acquire enhanced laboratory skills in using classical analytical methods and modern spectrometric and chromatographic techniques, which are widely employed in environmental monitoring and analysis.</p>
Assessment:	A written assignment as part of the scenario based learning component of the subject not exceeding 10 pages due during the semester (20%); a 2-hour written examination in the examination period (40%); and an ongoing assessment of practical work in the form of short laboratory reports due during the semester (40%). Satisfactory completion of both the practical work and the 2-hour written examination is necessary to pass the subject.
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<p>This subject will provide students with opportunities to develop the following generic skills:</p> <ul style="list-style-type: none"> * the ability to comprehend complex concepts and effectively communicate this understanding to the scientific community and in a manner accessible to the wider community; * the ability to analyse and solve abstract technical problems; * the ability to connect and apply the learnt concepts to a broad range of scientific problems beyond the scope of this subject; * an awareness of advanced technologies; * the ability to use conceptual models to rationalise observations; * the ability to think and reason logically; <p>Upon completion of this subject students should gain skills in</p> <ul style="list-style-type: none"> * planning; * time-management; * critical thinking; * data evaluation and interpretation; * conducting literature searches using scientific databases; * report-writing; * oral presentation; (must show in assessment) * problem-solving * working collaboratively with other students.
Links to further information:	http://www.chemistry.unimelb.edu.au/courses/postgrad/CHEM90007.html
Related Majors/Minors/Specialisations:	<p>Climate Change Conservation, Restoration and Landscape Management Energy Studies Environmental Science Environmental Science Integrated Water Catchment Management Public Health Waste Management</p>