

# CHEM90007 Environmental Chemistry

<b>Credit Points:</b>	12.5												
<b>Level:</b>	9 (Graduate/Postgraduate)												
<b>Dates &amp; Locations:</b>	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.												
<b>Time Commitment:</b>	Contact Hours: 51 hours, comprising three 1-hour lectures per week (weeks 1-8); one 1-hour tutorial per week (weeks 4-10); one 3.5-hour practical class per week for 6 weeks. Total Time Commitment: Estimated total time commitment of 170 hours.												
<b>Prerequisites:</b>	One of <table border="1" data-bbox="389 602 1485 893"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEM10003 Chemistry 1</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>CHEM10004 Chemistry 2</td> <td>Summer Term, Semester 2</td> <td>12.50</td> </tr> <tr> <td>CHEM10006 Chemistry for Biomedicine</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	CHEM10003 Chemistry 1	Semester 1, Semester 2	12.50	CHEM10004 Chemistry 2	Summer Term, Semester 2	12.50	CHEM10006 Chemistry for Biomedicine	Semester 1	12.50
Subject	Study Period Commencement:	Credit Points:											
CHEM10003 Chemistry 1	Semester 1, Semester 2	12.50											
CHEM10004 Chemistry 2	Summer Term, Semester 2	12.50											
CHEM10006 Chemistry for Biomedicine	Semester 1	12.50											
<b>Corequisites:</b>	None												
<b>Recommended Background Knowledge:</b>	None												
<b>Non Allowed Subjects:</b>	<table border="1" data-bbox="389 1088 1485 1234"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEM20011 Environmental Chemistry</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	CHEM20011 Environmental Chemistry	Semester 1	12.50						
Subject	Study Period Commencement:	Credit Points:											
CHEM20011 Environmental Chemistry	Semester 1	12.50											
<b>Core Participation Requirements:</b>	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: <a href="http://www.services.unimelb.edu.au/disability/">http://www.services.unimelb.edu.au/disability/</a>												
<b>Coordinator:</b>	Prof Spas Kolev												
<b>Contact:</b>	<a href="mailto:s.kolev@unimelb.edu.au">s.kolev@unimelb.edu.au</a> (mailto:s.kolev@unimelb.edu.au)												
<b>Subject Overview:</b>	The subject covers important aspects of the structure and chemistry of the hydrosphere, atmosphere and lithosphere (soil) sources, chemistry and impact of environmental pollution. 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.												

<b>Learning Outcomes:</b>	<p>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 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>
<b>Assessment:</b>	<p>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.</p>
<b>Prescribed Texts:</b>	None
<b>Recommended Texts:</b>	<p>D. A. Skoog, D. M. West, F. J. Holler and S. R. Crouch, Fundamentals of Analytical Chemistry, 8th Ed., Thomson, 2004.</p> <p>G. W. van Loon and S. J. Duffy, Environmental Chemistry. A Global Perspective, 2nd Ed, Oxford, 2005.</p> <p>Environmental Analytical Chemistry, Eds. D.Perez-Bendito and S.Rubio, Elsevier, 1999.</p> <p>C. Baird and M. Cann, Environmental Chemistry, 3rd Ed., Freeman, 2005.</p>
<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	<p>This subject will provide students with opportunities to develop the following generic skills:</p> <ul style="list-style-type: none"> <li># the ability to comprehend complex concepts and effectively communicate this understanding to the scientific community and in a manner accessible to the wider community</li> <li># the ability to analyse and solve abstract technical problems;</li> <li># the ability to connect and apply the learnt concepts to a broad range of scientific problems beyond the scope of this subject;</li> <li># an awareness of advanced technologies;</li> <li># the ability to use conceptual models to rationalise observations;</li> <li># the ability to think and reason logically.</li> </ul> <p>Upon completion of this subject students should gain skills in:</p> <ul style="list-style-type: none"> <li># planning;</li> <li># time-management;</li> <li># critical thinking;</li> <li># data evaluation and interpretation;</li> <li># conducting literature searches using scientific databases;</li> <li># report-writing;</li> <li># oral presentation; (must show in assessment)</li> <li># problem-solving</li> <li># working collaboratively with other students.</li> </ul>
<b>Related Majors/Minors/Specialisations:</b>	<p>Conservation and Restoration  Conservation and Restoration  Energy Studies</p>

Energy Studies  
Environment and Public Health  
Environmental Science  
Environmental Science  
Integrated Water Catchment Management  
Integrated Water Catchment Management  
Public Health  
Tailored Specialisation  
Tailored Specialisation  
Waste Management  
Waste Management