610-680 Environmental Chemistry

Credit Points:	12.500
Level:	Graduate/Postgraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 2, - Taught on campus.
Time Commitment:	Contact Hours: 30 lectures (3 per week for six weeks and then 2 per week for six weeks), 6 tutorials, 12 hours practical work Total Time Commitment: Not available
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. This subject requires all students to actively and safely participate in laboratory activities. Students who feel their disability may impact upon their participation are encouraged to discuss this with the subject coordinator and the Disability Liaison Unit.
Coordinator:	Dr Spas Kolev
Subject Overview:	The subject covers the topics emissions to troposphere; behaviour of pollutants in troposphere and stratosphere; ozone and SMOG chemistry; air pollution potential (chemistry and meteorology); airborne particulates; acid rain, the greenhouse effect; the ozone layer; the struture and chemistry of freshwater bodies; the chemistry of nutrients; dissolved oxygen, Henry's Law, oxygen demand; the environmental impact of selected examples of metals, organic priority pollutants, pesticides, herbicides; water quality and health; the chemistry of soils (formation, constituents and properties); sources and characteristics of soil contaminants; absorption and persistence of contaminants in soils; soil degradation, salinity, acid-sulphate soils; chemical assessment of contaminated soils; introduction to soil and water remediation; and energy utilisation and conservation. This subject will provide the student with the opportunity to establish/ develop the following generic skills: problem solving and critical thinking skills, the ability to use conceptual models to rationalize observations, an understanding of the changing knowledge base. On completion of 610-680 students should comprehend the relationship between chemistry and the environment; the sources, reactions, transport, effects and fates of chemical species in the water, soil and atmospheric environments; the consequences of changes in the chemical composition of the environment for humankind and other species; the consequences of energy utilisation; and the integration of a chemically-centred study of the environment with other approaches to the treatment of environmental data. Students should have developed skills in recognising chemical-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. Students should appreciate the need for high quality environmental analysis; and the links between the misuse of chemicals and pollution events.
Assessment:	A 2-hour written examination at the end of semester 2. Practical work will be continuously assessed and involve four reports, each of no more than five pages. Satisfactory performance in both theory and practical work is required before credit can be granted for this subject. Graduate students enrolled in this subject may share class time with undergraduate students enrolled in a subject of the same name. The graduate students will be expected to perform at a higher level, and will be allocated additional assessment tasks not exceeding 3,000 words of written work and must obtain a mark of at least 65% for assignments common to the undergraduate assessment.

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:	This subject will provide the student with the opportunity to establish/ develop the following generic skills: problem solving and critical thinking skills, the ability to use conceptual models to rationalize observations, an understanding of the changing knowledge base.
Links to further information:	http://www.chemistry.unimelb.edu.au/courses/postgrad/610680.php