

Course Outline (Higher Education)

School:	School of Health and Life Sciences
Course Title:	ENVIRONMENTAL CHEMISTRY 1
Course ID:	SCCHM2002
Credit Points:	15.00
Prerequisite(s):	(CHMGC1011 or SCCHE1011 or SCCHM1001)
Co-requisite(s):	Nil
Exclusion(s):	(CHMGC2752)
ASCED Code:	010503

Description of the Course :

This course applies chemical principles and concepts to current environmental issues. Students will study the sources, reactions, transport, effects and fate of chemical species in the water, soil and air environments. Case-studies and real-world examples will be used to investigate the influence of human activity upon the air, soil and water environment and the underlying chemistry associated with these problems. The course will also provide relevant practical introduction to the basic analytical techniques employed for environmental chemical analysis.

Grade Scheme: Graded (HD, D, C, etc.)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks..

Program Level:

AQF Level of Program						
	5	6	7	8	9	10
Level						
Introductory	■	■	■	■	■	■
Intermediate	■	■	✓	■	■	■
Advanced	■	■	■	■	■	■

Learning Outcomes:

Knowledge:

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- K1.** Discuss the chemical processes which occur in natural waters, soils, sediments and the atmosphere.
- K2.** Classify and state the sources of water pollutants including oxygen-consuming wastes, disease-causing agents, synthetic organic compounds and radioactive materials.
- K3.** Outline the process of soil formation and describe how the chemical properties of soils impact on their uses and the environment.
- K4.** Describe the chemistry underpinning key environmental issues in the atmosphere such as the enhanced greenhouse effect and depletion of the ozone layer.

Skills:

- S1.** Discuss tools and approaches for preventing environmental pollution in water, soil and air.
- S2.** Design appropriate sampling regimes and use a range of analytical techniques for chemical analysis of water, soil and air.

Application of knowledge and skills:

- A1.** Apply chemical principles to solving environmental issues in the air, soil and water environments

Course Content:

This course will cover three broad areas of environmental chemistry: natural waters, soil and the atmosphere.

Topics may include:

- Natural Waters (Solubility and Complexation in Natural Waters, Alkalinity, Water Pollution)
- Soil (Formation, structure and properties of soil, soil pollutants and remediation)
- The Atmosphere (properties and chemistry, urban air pollution, the enhanced Greenhouse Effect, ozone depletion)

Values:

- V1.** In this course, students will continue to develop an inquiring and curious attitude to science.
- V2.** Students will have the opportunity to collaborate with others in solving authentic environmental problems.
- V3.** As they work through the content students will continue to acquire the ability for reflective, life-long learning.

Graduate Attributes:

FedUni graduate attributes statement. To have graduates with knowledge, skills and competence that enable them to stand out as critical, creative and enquiring learners who are capable, flexible and work ready, and responsible, ethical and engaged citizens.

Attribute	Brief Description	Focus
Knowledge, skills and competence	This course will encourage students to be reflective and inquiring thinkers.	Low
Critical, creative and enquiring learners	Students will work independently and in groups on problems and within the laboratory environment.	Medium
Capable, flexible and work ready	Students will be exposed to real world examples of environmental chemistry problems.	Medium

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Attribute	Brief Description	Focus
Responsible, ethical and engaged citizens	Examples and case-studies which reflect the ethical and social responsibilities of environmental chemists will be emphasized in this course.	Medium

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
S2, A1	Laboratory/tutorial sessions which cover sampling and analysis of water, soil and air.	Laboratory Performance and Written Reports	30-40%
A1	Investigation into current research on an environmental pollution issue	Written Literature Review	10-20%
K1, K2, K3, K4, S1, A1	Short answer and extended response questions exploring knowledge of content and application of chemical principles to environmental problems	Written Examination	50-60%

Adopted Reference Style:

Australian