Course Outline (Higher Education)

School: School of Science, Psychology and Sport

Course Title: ENVIRONMENTAL CHEMISTRY

Course ID: SCCHM2002

Credit Points: 15.00

Prerequisite(s): (SCCHM1001)

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 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:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory						
Intermediate			✔			
Advanced						

Learning Outcomes:

Knowledge:

K1. Discuss parameters used to assess the quality of air, soil and water environments with reference to relevant environmental guidelines.

K2. Describe sources of pollution, including prevention and remediation options, in air, soil and water environments.

Skills:

S1. Assess water, soil and air quality in natural environments.

S2. Discuss tools and approaches for preventing or remediating environmental pollution in water, soil and air.

S3. 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 understand 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:

- Introduction to chemicals in the environment
- Environmental sampling and analysis
- Water (water quality parameters, water pollution and water treatment)
- Soil (formation, structure and properties of soil, soil pollution and remediation)
- The Atmosphere (air quality parameters, air pollution and the impacts on climate change and 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

The Federation University FedUni graduate attributes (GA) are entrenched in the Higher Education Graduate Attributes Policy (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor	Development and acquisition of GAs in the course

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		Learning Outcomes (KSA)	Code A. Direct B. Indirect N/A Not addressed	Assessment task (AT#)	Code A. Certain B. Likely C. Possible N/A Not likely
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	K1, K2, S1, S2, S3, A1	A, A, A, A, A	AT1, AT2, AT3, AT4	A, A, A, B
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	Not applicable	Not applicable	Not applicable	Not applicable
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	S1, S2, A1	A, A, A	AT1, AT2, AT3	A, A, A
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	K1, K2, S2, S3	A, A, A, A	AT1, AT2, AT3	B, A, A
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	Not applicable	Not applicable	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1, K2, S1, S2, S3	Tutorial and topic review activities	Online activities	5-20%
K1, S1, S3	Laboratory activities (sampling and analysis of water, soil and air)	Laboratory preparation, performance and reports	20-40%
K1, K2, S2, A1	Investigation into current research on an environmental pollution issue	Presentation of case study	10-20%
K1, K2, A1	Demonstrate and apply knowledge from the required readings, lectures and tutorials in response to questions	Test(s)	30-50%

Adopted Reference Style:

Australian Harvard