

ENS305 Environmental Chemistry

School: School of Science, Technology and Engineering

2026 | Trimester 2

UniSC Sunshine Coast
UniSC Moreton Bay

**BLENDED
LEARNING**

Most of your course is on campus but you may be able to do some components of this course online.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

This course focuses on chemical processes in the environment and their analyses. Laboratory work focuses on methods development and evaluation and the analysis of environmental samples. Students evaluate the results of their analyses in a scientific manner.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Learning Materials are available online and delivered asynchronously. Learning Materials consist primarily of formative quizzes and interactive screencasts. Other available materials include simulations and on-line demonstrations.	2hrs	Week 1	12 times
Laboratory 1 – Laboratory work is conducted face-to-face on-campus. Each practical session is thematically linked to theoretical material covered in the screencasts. Students are expected to work in teams during practical sessions.	3hrs	Week 1	6 times
Tutorial/Workshop 1 – Tutorials are delivered face-to-face on-campus. Tutorials consist of focus questions and group work.	2hrs	Week 1	6 times

1.3. Course Topics

- Overview of Environmental Chemistry
- Atmospheric Chemistry
- Soil Chemistry
- Aquatic Chemistry
- Microbial transformations
- Pollution
- Heavy Metals and Organics
- Bioremediation
- Emerging pollutants
- Global environmental challenges

2. What level is this course?

300 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...
1 Propose and justify ethical, sustainability-focussed solutions to current and potential environmental chemistry problems	Ethical Sustainability-focussed
2 Demonstrate and apply knowledge of environmental chemistry incorporating regional and global perspectives	Knowledgeable
3 Design, optimise and demonstrate environmental chemistry experiments	Empowered Engaged
4 Communicate in scientific writing and orally (to post graduate students and staff)	Empowered

5. Am I eligible to enrol in this course?

Refer to the [UniSC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

SCI105

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Early feedback is supplied by way of formative assessment in the first few weeks of trimester.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Examination - not Centrally Scheduled	Individual	25%	1 hour, <1000 words	Week 6	Online Test (Quiz)
All	2	Report	Individual or Group	35%	1 x 2000 words	Week 12	Online Assignment Submission with plagiarism check
All	3	Examination - Centrally Scheduled	Individual	40%	2 hours < 1500 words	Exam Period	Online Test (Quiz)

All - Assessment Task 1: Mid-trimester exam

GOAL:	Demonstrate and apply knowledge of environmental chemistry and propose and justify solutions to problems		
PRODUCT:	Examination - not Centrally Scheduled		
AUTHORSHIP STATEMENT:			
FORMAT:	Short and extended answer, problem solving, calculations based on material from learning material, tutorials, laboratory activities to date.		
CRITERIA:	No.		Learning Outcome assessed
	1	Apply and discuss key concepts in relation to environmental chemistry and sustainability.	①
	2	Effectively communicate both orally and in scientific writing.	④
GENERIC SKILLS:	Collaboration		

All - Assessment Task 2: Scientific report

GOAL:	Produce environmental chemistry data (from field samples and laboratory experiments) to write a report.		
PRODUCT:	Report		
AUTHORSHIP STATEMENT:			
FORMAT:	Title, abstract, introduction, methods, results, discussion, conclusion, references. Report submitted through Turnitin.		
CRITERIA:	No.		Learning Outcome assessed
	1	Analyse environmental chemistry information in formal contexts.	③
	2	Analyse data and effectively communicate.	④
GENERIC SKILLS:			

All - Assessment Task 3: Final Exam

GOAL:	Demonstrate and apply knowledge of environmental chemistry and propose and justify solutions to problems									
PRODUCT:	Examination - Centrally Scheduled									
AUTHORSHIP STATEMENT:										
FORMAT:	Short and extended answer, problem solving, calculations based on material from the learning materials, tutorials, laboratory and field activities.									
CRITERIA:	<table border="1"><thead><tr><th>No.</th><th></th><th>Learning Outcome assessed</th></tr></thead><tbody><tr><td>1</td><td>Demonstrate and apply knowledge of environmental chemistry incorporating regional and global perspectives</td><td>1 2 4</td></tr><tr><td>2</td><td>Propose and justify ethical, sustainability-focused solutions to current and potential environmental chemistry problems</td><td>1 2 4</td></tr></tbody></table>	No.		Learning Outcome assessed	1	Demonstrate and apply knowledge of environmental chemistry incorporating regional and global perspectives	1 2 4	2	Propose and justify ethical, sustainability-focused solutions to current and potential environmental chemistry problems	1 2 4
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1	Demonstrate and apply knowledge of environmental chemistry incorporating regional and global perspectives	1 2 4								
2	Propose and justify ethical, sustainability-focused solutions to current and potential environmental chemistry problems	1 2 4								
GENERIC SKILLS:										

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

You need regular access to the resource(s) below. Many texts are available as ebooks through the [Library](#) at no additional cost.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Recommended	Colin Baird, Michael Cann	2012	Environmental Chemistry	5th Edition	W. H. Freeman

8.2. Specific requirements

Laboratory coat, safety glasses, closed in footwear for laboratory.

9. How are risks managed in this course?

Risk assessments have been performed for all laboratory classes and a moderate level of health and safety risk exists. Moderate risks are those associated with laboratory work such as working with chemicals and hazardous substances. You will be required to undertake laboratory induction training and it is also your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

- (a) The final mark is in the percentage range 47% to 49.4%; and
- (b) The course is graded using the Standard Grading scale

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:

- (a) One day: deduct 5%;
- (b) Two days: deduct 10%;
- (c) Three days: deduct 20%;
- (d) Four days: deduct 40%;
- (e) Five days: deduct 60%;
- (f) Six days: deduct 80%;
- (g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:

Less than 15 minutes: No penalty

From 15 minutes to 30 minutes: 20% penalty

More than 30 minutes: 100% penalty

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The [Student Charter](#) sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- [UniSC Student Central](#)
- [UniSC Adelaide Student Central](#)