COURSE OUTLINE

ENS224 Soil Properties, Processes and Rehabilitation

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

Soils represent an important and essential element of the planet's ecosystems, and are particularly relevant to not only environmental scientists and the Earth sciences, but to all industry and community stakeholders. This course provides you with advanced theory, sampling and analytical skills regarding soils, specifically with regards to physical, geochemical and biological processes and culminates with a series of field trips where you will evaluate local degraded and contaminated sites, conduct assessments and evaluations of these sites and provide recommendations for their rehabilitation.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Asynchronous material	2hrs	Week 1	12 times
Laboratory 1 – On campus	2hrs	Week 3	6 times
Fieldwork – Weeks 1 2 4 9 10 and 11	3hrs	Week 1	6 times
Seminar – On campus seminar	1hr	Week 1	3 times

1.3. Course Topics

Pedogenesis; soil sampling; physical, geochemical and biological properties of soils; nutrient cycling in soils; soil laboratory basics and statistical analyses; instrument techniques appropriate for soil analysis; field work, including site assessment and field analyses

2. What level is this course?

200 Level (Developing)

Building on and expanding the scope of introductory knowledge and skills, developing breadth or depth and applying knowledge and skills in a new context. May require pre-requisites where discipline specific introductory knowledge or skills is necessary. Normally, undertaken in the second or third full-time year of an undergraduate programs.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...		GRADUATE QUALITIES Completing these tasks successfully will contribute to you becoming...
1	Demonstrate and apply theoretical and practical knowledge of soil processes and principles to regional and global contexts	Knowledgeable
2	Use practical techniques and analytical methods to collect and organise soil and sedimentary information e.g. observation, sampling, laboratory testing, recording	Empowered
3	Integrate findings to identify, classify and interpret soils and to assess, evaluate and provide recommendations for their rehabilitation	Knowledgeable Creative and critical thinker
4	Communicate findings through scientific reports and seminars.	Engaged

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

ENS103

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

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

Basic knowledge of geological and pedological theory

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

The field trip in week two is designed as a field workshop to assist in completing task 1a.

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	1a	Written Piece	Individual	10%	500 words	Week 3	In Class
All	1b	Written Piece	Individual	40%	1500 words	Week 12	In Class
All	2	Report	Individual	30%	2500 words	Week 9	Online Submission
All	3	Oral	Group	20%	15 minutes	Week 12	In Class

All - Assessment Task 1a: Field Trip Workbook A

GOAL:	The goal of this task is to develop field and reporting skills through observing, recording data and completing a workbook (provided) on different soil types and associated environments observed on the field trips taken throughout the course.
PRODUCT:	Written Piece
AUTHORSHIP STATEMENT:	
FORMAT:	You are required to complete and submit a 2000 word workbook on the observations and data collected during the field trips. (500 words per field trip) Students will receive formative feedback on the first two field trips (1a)
CRITERIA:	

No.		Learning Outcome assessed
1	Descriptions of each field site, soil parameters and associated environments observed.	1 2
2	Validity / rigour of field work conducted	1 3 4
3	Presentation and interpretation of data	1 2 3 4
4	170 Descriptions of each field site, soil parameters and associated environments observed.	1

GENERIC SKILLS:	Problem solving, Organisation

All - Assessment Task 1b: Field Trip Workbook B

GOAL:	The goal of this task is to develop field and reporting skills through observing, recording data and completing a workbook (provided) on different soil types and associated environments observed on the field trips taken throughout the course
PRODUCT:	Written Piece
AUTHORSHIP STATEMENT:	
FORMAT:	You are required to complete and submit a 2000 word workbook on the observations and data collected during the field trips. (500 words per field trip) Students will receive formative feedback on the first two field trips (1a)
CRITERIA:	

No.		Learning Outcome assessed
1	Descriptions of each field site, soil parameters and associated environments observed.	1 2 3 4

GENERIC SKILLS:	Communication, Problem solving, Organisation, Applying technologies, Information literacy

All - Assessment Task 2: Soil CoreReport

GOAL:	To produce an initial site assessment and scientific report that integrates and evaluates soil core information
PRODUCT:	Report
AUTHORSHIP STATEMENT:	
FORMAT:	You are required to submit a 2500 word report on the observations and data collected from the physical and geochemical analyses of the soil core collected during the first six weeks of the course.

CRITERIA:

No.		Learning Outcome assessed
1	Demonstration of appropriate data collection	1 3
2	Application of practical techniques and analytical methods to provide descriptions of cores observed based on soil core characteristics.	2 3 4
3	Validity and rigor of laboratory work conducted and use of appropriate statistical analysis	1 2 3 4
4	Integration of findings to provide appropriate presentation and interpretation of data	1 2 3
5	Evidence of teamwork and collaboration with peers	1 2 4
6	Communication of results	1 2 4

GENERIC SKILLS:	Communication, Problem solving, Applying technologies, Information literacy

All - Assessment Task 3: Field Trip Rehabilitation Seminar

GOAL:	You will collect and analyse complex field data from the field trips completed during trimester and develop a presentation that includes site rehabilitation activities to a group of peers and professionals.
PRODUCT:	Oral
AUTHORSHIP STATEMENT:	
FORMAT:	Student groups will present a 15 minute oral seminar supported with multimedia resources to their peers, course staff and invited environmental professionals.

CRITERIA:

No.		Learning Outcome assessed
1	Scientific communication: presentation of a scientific seminar	1
2	Assessment and descriptions of soils observed based on their characteristics.	2 3
3	Validity and rigour of field / laboratory work conducted	1 2 3
4	Recommendations	1
5	Evidence of teamwork and collaboration with peers	1 2 3 4
6	190 Scientific communication: presentation of a scientific seminar	1 2 4

GENERIC SKILLS:	Communication, Collaboration, Organisation, Applying technologies, Information literacy

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
Required	National Committee on Soil and Terrain (Australia)	2009	Australian Soil and Land Survey Field Handbook	n/a	CSIRO PUBLISHING

8.2. Specific requirements

Not applicable

9. How are risks managed in this course?

Risk assessments have been performed for all field activities and low to moderate levels of health and safety risk exists. Moderate risks may include working in an Australian bush setting, working with people, working outside normal office hours for example. It is 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

Eligibility for Supplementary Assessment Your eligibility for supplementary assessment in a course is dependent of the following conditions applying: The final mark is in the percentage range 47% to 49.4% The course is graded using the Standard Grading scale You have not failed an assessment task in the course due to academic misconduct

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