ENVS3238

Environmental Quality and Assessment

Session 2, In person-scheduled-weekday, North Ryde 2024

School of Natural Sciences

Contents

General Information

Unit convenor and teaching staff
Convenor, Lecturer
Damian Gore
damian.gore@mq.edu.au
Contact via Email
12WW Room 1.24
By appointment

Teaching staff (Field trip only)
Peter Johnston
peter.johnston@mq.edu.au
Contact via Email
By appointment

Teaching staff (Field trip only)
Jessica Honor
jessica.honor@mq.edu.au
Contact via Email
By appointment

Credit points
10

Prerequisites
(130cp at 1000 level or above) including (ENVE266 or ENVS266 or ENVS2266 or GEOS266)

Corequisites

Co-badged status

Unit description
Understanding and protecting the environment are key goals for environmental scientists and managers. This unit integrates the knowledge students have gained during their studies, and develops critical professional skills in the assessment of environmental quality and the application of environmental protection tools and processes. This unit assesses environmental health using current practice qualitative and quantitative methods for the measurement of soils, sediments, waters and biota. Students undertake classroom, field and laboratory studies which provide practical experience and develop their knowledge and assessment of environmental impacts, rehabilitation and management. A field trip in the first week of the mid session break gives students practical experience of sites such as legacy mines. This unit prepares graduates for employment in environmental consulting and local, state and federal government workplaces. Students will also prepare material to assist with their transition to the workplace. Note that there are costs associated with the fieldtrip to cover accommodation and food.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: identify knowledge gaps and develop plans for contaminated site investigation, to develop professional skills.

ULO2: describe analytical methods and apply quality assurance/quality control programs for environmental analyses, to ensure the accuracy of sampling and analytical programs.

ULO3: collate multiple lines of evidence and apply regulatory frameworks for environmental decision making, in order to create professional-level studies.

ULO4: create remediation action plans, in order to plan to remediate contaminated environments.

General Assessment Information

Requirements to Pass this Unit: To pass this unit you should attempt and submit all assessments, and must achieve an aggregate mark equal to or greater than 50%.

Assessment Criteria: Assessment at Macquarie University is standards-based. This means that your work will be assessed against clear criteria, which will be made available when the assessment tasks are released to you on iLearn.

Referencing: Students often ask about preferred referencing style. The University approves five styles (https://libguides.mq.edu.au/referencing). I prefer the APA 7th style

(https://libguides.mq.edu.au/APA7_referencing), but any of the five are acceptable. However, ensure you include the Digital Object Identifier (doi) in your reference list.

Use of generative artificial intelligence tools: Many students have experimented with AI tools to write or re-write their text. Read this advice: https://students.mq.edu.au/study/assessment-exams/academic-integrity/ai-tools and feel free to refer to the relevant Macquarie University Academic Integrity policy. Please do not use these tools in this unit.

Submission of Assessments: Links to the assesssments are provided in iLearn ("Assessments" tab). Do not submit written assessments via email or in hard copy unless requested. Due dates for all assessments are in the unit schedule (iLearn, "Unit information" tab).

- **Quiz**: A quiz in week 2 will help you (and the teaching staff) gauge how you are going with the unit content. This quiz does not count toward your unit mark and grade.
- **Minor written report**: The minor written report consists of a topic relevant to the unit content, and is designed to help you explore unit-related material in depth. The report must be submitted online through Turnitin.
- **Examination:** The final examination is a summative piece which will encapsulate all unit material - lectures, practicals, field and laboratory work, and compulsory readings. The examination will be held in the practical class time.
- **Major written report/RAP**: The major report is deisgned to help consolidate, integrate and analyse your field and laboratory investigations, and carry that information through into a professionally-presented report. The report must be submitted online through Turnitin.

Marking of Assessments: Your written assessments will be marked through Turnitin and feedback will be noted on them. Your assignment grade will be returned using the Grades Report on iLearn. We aim to return your assessments with feedback within 2-3 weeks of the date that you submit them. We appreciate your patience and will advise you through iLearn when your marked assessments and feedback are available for viewing.

Late Assessment Submission Penalty: Unless a Special Consideration request has been submitted and approved, a 5 % penalty (of the total possible mark of the task) will be applied for each day a written report or presentation assessment is not submitted, up until the 7^{th} day (including weekends). After the 7^{th} day, a mark of '0' will be awarded even if the assessment is submitted. The submission time for all uploaded assessments is 2355 h. A 1 h grace period will be provided to students who experience technical concerns. In the case of late submission of assessments with justifiable reason, please apply for Special Consideration.

Assessments where Late Submissions will be accepted: In this unit, late submissions will accepted as follows;

- Minor written report – YES, Standard Late Penalty applies.
- Examination – NO, unless Special Consideration is granted.

- Major written report – YES, Standard Late Penalty applies.

Special Consideration: The Special Consideration Policy aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through ask.mq.edu.au.

Assessment Tasks

Name	Weighting	Hurdle	Due
Literature review	20%	No	Week 5 (34), Friday, 2355 h.
In-Class exam	40%	No	Week 8 (40), In practical class.
Field and laboratory investigation with Remediation Action Plan	40%	No	Week 10 (42), Friday, 2355 h.

Literature review

Assessment Type [1]: Literature review
Indicative Time on Task [2]: 18 hours
Due: **Week 5 (34), Friday, 2355 h.**
Weighting: **20%**

Literature review on a contaminated site.

On successful completion you will be able to:

- identify knowledge gaps and develop plans for contaminated site investigation, to develop professional skills.
- describe analytical methods and apply quality assurance/quality control programs for environmental analyses, to ensure the accuracy of sampling and analytical programs.
- collate multiple lines of evidence and apply regulatory frameworks for environmental decision making, in order to create professional-level studies.
- create remediation action plans, in order to plan to remediate contaminated environments.

In-Class exam

Assessment Type [1]: Examination
Indicative Time on Task [2]: 28 hours
Due: **Week 8 (40), In practical class.**
Weighting: **40%**

Final examination to be undertaken within class time.

On successful completion you will be able to:

- identify knowledge gaps and develop plans for contaminated site investigation, to develop professional skills.
- describe analytical methods and apply quality assurance/quality control programs for environmental analyses, to ensure the accuracy of sampling and analytical programs.
- collate multiple lines of evidence and apply regulatory frameworks for environmental decision making, in order to create professional-level studies.
- create remediation action plans, in order to plan to remediate contaminated environments.

Field and laboratory investigation with Remediation Action Plan

Assessment Type [1]: Plan
Indicative Time on Task [2]: 40 hours
Due: **Week 10 (42), Friday, 2355 h.**
Weighting: **40%**

Field and laboratory investigation with Remediation Action Plan. Following from the literature review, fieldwork will be conducted and samples taken and analysed. The data will be used to formulate a Remediation Action Plan for the site.

On successful completion you will be able to:

- identify knowledge gaps and develop plans for contaminated site investigation, to develop professional skills.
- describe analytical methods and apply quality assurance/quality control programs for environmental analyses, to ensure the accuracy of sampling and analytical programs.
- collate multiple lines of evidence and apply regulatory frameworks for environmental

decision making, in order to create professional-level studies.
- create remediation action plans, in order to plan to remediate contaminated environments.

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[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Required and Recommended Texts and/or Materials: The freely-available textbook (available as an e-book online from the library) for this unit is; Lottermoser, B.G. 2010. Mine Wastes. Characterization, Treatment and Environmental Impacts. 3rd edition. Springer, Heidelberg, 400 pp. Other recommended readings for each week will be noted on the iLearn site.

Technology Used and Required: This unit will use iLearn and associated technology. Essential computer-based components of this unit include recorded lectures, practical exercises (not all weeks - refer to the unit schedule), and online discussion fora for communicating with staff and other students in this unit. If you're unsure of how to connect to the internet or use the computer system, help can be obtained at http://students.mq.edu.au/support/.

Announcements and General Discussion Forum: The "Announcements" and "General Discussion Forum" link on the unit's homepage are used to share unit-wide announcements and discuss important issues related to the unit. You are expected to read every posting to the discussion forum because important administrative and academic information will be posted there - it is your responsibility to stay up to date.

What is Required to Complete This Unit Satisfactorily? You must receive an aggregate unit mark of at least 50 % to pass this unit. In order to receive a Pass grade, you should spend around 66 h on this unit during weeks 1-9 for lectures, practicals, reading and assessment preparation and completion. On top of that, around 50 hours for the field work and 40 hours for the final assessments. However, grades are awarded on a demonstration of your understanding and ability, not on time or effort! Lectures and practicals provide the framework with which to focus your study of the subject and they are essential for you to engage with.

You should supplement them by reading, especially from the text, but also from current journals, which contain the most up-to-date information. The set readings are relatively modest for a 3000 level unit, and they will be assessable. All lecture and practical material is assessable. You should participate in six 2 h practicals, held at times stipulated by the timetable. Each student should complete all practical sessions. Practicals contain material to supplement the lectures, or comprise exercises which give you skills to help with your understanding of the unit topics and

the workplace. All practical material is assessable, and the final practical is also a final opportunity for help with the Major Report, prior to the examination.

Practicals provide greater depth to related lecture materials and will assist learning by encouraging your active participation. Important material for the practical classes may be included on iLearn: check the weekly folders. Classroom and practical workload will be spread over the first half of the session, fieldwork in the mid-session break, and assessments distributed throughout the session. Understanding this will help you manage your time effectively throughout the session and work around your other units and commitments.

Grades for each assessment task and the unit as a whole will be awarded according to the following general criteria (course rubric);

Aspect	Developing	Functional	Proficient	Advanced
Grades	Has not yet reached the desired standard. A Fail grade would be given.	Has reached basic academic standards. A Pass grade would be awarded.	Has completely reached the standards expected. A Credit would be awarded.	Has gone beyond the expected standard. A grade of Distinction or High Distinction would be awarded.
Concepts	Limited understanding of required concepts and knowledge.	Can accurately reproduce required facts, but has limited depth of understanding of basic concepts.	Exhibits breadth and depth of understanding. Uses terminology accurately in new contexts and transfers ideas to new situations.	Exhibits breadth and depth of understanding of concepts. Can engage in productive critical reflection.
Analysis & Synthesis	Data analysis skills are limited.	Data analysis skills are largely descriptive with limited capacity to combine multiple factors.	Can synthesise data and critique the value and importance of scientific arguments.	Data analysis is sophisticated and is capable of placing examples in context of big ideas, problems and solutions.
Independence	Uses immediately available information without discretion.	Can select useful information. Does not always discriminate between types of sources of information.	Independently selects useful information and can discriminate between types of sources of information.	Independently selects useful information and can critically discriminate between types of sources of information.
Communications	Poor written communication skills (e.g. spelling and grammar). Does not demonstrate an understanding of what is expected in assignment writing and presentation.	Communicates ideas adequately in writing. Adheres to most basic requirements for written work and assignment presentation.	Communicates effectively and clearly in writing. Adheres to all expectations of assignment writing and presentation.	Communicates adeptly in writing. Adheres to all expectations of assignment writing.

Lectures: will be available on iLearn at the start of the week in which they are scheduled. All lectures will be online and you cannot phyically "attend" a lecture. Lectures provide the framework with which to focus your study of the subject and are essential for you to engage with. You should supplement them by reading, from the textbook, and current journals, which contain the most up-to-date information. The iLearn site contains suggested readings, but please don't

limit yourself to those. Lectures are available through iLearn https://ilearn.mq.edu.au/login.

Practicals: may contain a mixture of components online, in the classroom, laboratory or field. More information will be supplied on iLearn. Each student must attend all practical sessions. Practicals may contain material to supplement the lectures, or comprise practical exercises to give you skills to help with fieldwork or the workplace. Practicals provide greater depth to related lecture material and will assist learning by encouraging your active participation. The venue of the practical classes varies (see iLearn). Important material for the practical classes is included on iLearn. You must wear appropriate clothes for the laboratory: closed toe shoes where no part of your foot is visible (imagine dropping a rock on your foot - choose the footwear you'd like to be wearing should that happen).

Fieldwork: There is a compulsory mid-session fieldtrip for all students. This fieldwork forms an essential component of this unit's learning and assessment. We will conduct site assessments and propose remediation plans (if necessary) for contaminated sites outside of the Sydney metropolitan area. For this, we will survey and collect soil and water samples. You will measure the elemental compositions of the soil on site, and I will measure (back at the MQU laboratories) the elemental compositions of the water, and perhaps soil mineralogy. You will then use all of this information – collected by all students, or me – to write your major report. On fieldwork, there are professional standards to adhere to for use of Personal Protective Equipment (PPE) and Personal Protective Clothing (PPC). Everyone should have sturdy footwear - no running shoes or other inadequately protective shoes (you don't need steel capped boots). You will wear hi-vis tops - either your own hi-vis shirts or a vest that I can supply. Your shirts must have a collar and long sleeves. You must wear a hat with a wide brim - no baseball caps. Either shorts or long pants are acceptable. Gloves will be required according to the task you are conducting (I will supply nitrile gloves for chemical safety). Safety glasses may be required by the task you are conducting (I can supply these). In summary, no sleeves, no collar, no hat, no sturdy shoes = no work. Non-adherance with required PPE and PPC will result in exclusion from fieldwork.

Week 1 classes: Lectures are pre-recorded, and they will be released on the Sunday night at the start of the week. Practicals start in week 1.

Methods of Communication: We will communicate with you via your university email and through announcements on iLearn. General queries to the convenor can be placed on the iLearn discussion board; if your query is more specific to you, or you want more privacy, email the unit convenor or other teaching staff directly via their email (see iLearn for these communication details).

Unit Schedule

The unit schedule is under the "Unit Information" tab on iLearn.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

The Writing Centre

The Writing Centre provides resources to develop your English language proficiency, academic writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader

- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues
- Student Advocacy provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via AskMQ, or contact Service Connect.

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Changes from Previous Offering

The unit content this year includes a lecture and practical on WSUD and stormwater, replacing lecture content on landfills, asbestos and unconventional energy, and a practical on hydrogeology. The minor written assessment replaces the professional portfolio. Fieldwork has changed location and includes more downstream depositional context.

Unit information based on version 2024.03 of the Handbook