



ENVS338

Environmental Quality and Assessment

S2 Day 2017

Dept of Environmental Sciences

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General Information

Unit convenor and teaching staff

Unit Convenor, Lecturer & Tutor

Damian Gore

damian.gore@mq.edu.au

Contact via Email

12 Wally's Walk (E7A) Room 514

Email for an appointment

Lecturer & Tutor

Scott Wilson

scott.p.wilson@mq.edu.au

Contact via Email

12 Wally's Walk (E7A) Room 438

Email for an appointment

Credit points

3

Prerequisites

(39cp at 100 level or above) including [(ENVE266 or ENV5266 or GEOS266) and (ENVE339 or ENV5339 or ENVE340 or ENV5340 or ENVE341 or ENV5341)]

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 from 16-22 September gives students practical experience of sites such as derelict 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.

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:

Contaminated site identification, sampling, assessment and remediation.

Knowledge and experience of environmental analytical methods.

Knowledge and experience of quality assurance/quality control for environmental sampling and analysis.

Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.

Apply and use multiple lines of evidence and environmental frameworks for decision-making.

Identify research needs, write research style reports, and develop and conduct research programs.

Develop professional presentation and communication skills that will assist in further study and future employment.

General Assessment Information

Assignment submission, Turnitin and Plagiarism

This is a paperless unit, and no practicals will be physically handed in. You will submit all assignments through iLearn via a Turnitin link. Turnitin is an online program that detects plagiarised pieces of work. It compares not only work between students in the current year but also across previous years, across institutions, with all published materials, and the internet. It is an incredibly effective tool. Please write your work in your own words – in fact it is a requirement for all assignments in the course that they be written in your own words. Do not lend your work to other students - if that student plagiarises your work you too will be penalised. Do not copy and paste text into your document with the thought you will modify it later. Plagiarism involves using the work of another person and presenting it as your own. Penalties imposed by the University for plagiarism are serious and may include expulsion from the University. We are obliged to deal with any suggestion of plagiarism according to University policy. The University's policy on plagiarism is at www.mq.edu.au/policy/docs/academic_honesty/policy.html. This website includes a general discussion of plagiarism, definitions, examples of plagiarism, procedures that will be followed by the University in cases of plagiarism and recommended penalties. Students are expected that they will be familiar with the content of the website.

Extensions and penalties

10% of the assessment value will be deducted for each day an assessment is late, including

each day of a weekend. If you are unable to submit the assignment by the due date then an extension must be sought before the due date unless this is absolutely impossible. To support your extension you will be asked to submit a Disruption to studies request via ask.mq.edu.au (see “If you miss...” below). All applications for extensions of deadlines must be submitted to the unit convener (damian.gore@mq.edu.au).

If you miss an assignment submission

Through:

Illness, misfortune, or special events

- Submit a request for Disruption to Studies via ask.mq.edu.au (do not give doctor's certificates to your lecturers).
- You will need to provide documentation for illness. You cannot provide a medical certificate to ask.mq.edu – you must have the doctor complete a Professional Authority form (www.mq.edu.au/__data/assets/pdf_file/0009/183375/professional_authority_form_paf.pdf). If you do not submit this form with the request, the Disruption to Studies request will be declined by ask.mq.edu.au without ever being sent to the unit convener.
- For other situations you must provide a supporting letter explaining the circumstances that led to you missing the submission date/time (www.mq.edu.au/policy/docs/disruption_studies/schedule_evidence.html).
- The unit convener will process your Disruption to Studies request. If approved it is your responsibility to arrange with the unit convener (via email) to complete your practical at another time.

Neglect (i.e. forgot or just slack)

- Be honest! - there's no point in submitting the paperwork above.
- Contact the unit convener (via email) to plead your case.

Email Protocol

1. Be courteous i.e. address the intended reader appropriately and say thank you!
2. Spell our names correctly - we extend that courtesy to you; please do the same for us.
3. We endeavour to reply to emails in a timely fashion, but may only check and respond Monday to Friday, during working hours.

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Professional Portfolio</u>	20%	No	Wk 3 - Fri 18 Aug
<u>Ecotoxicology Report</u>	40%	No	Wk 5 & 10
<u>Mine Report</u>	40%	No	Wk 7 & 12

Professional Portfolio

Due: **Wk 3 - Fri 18 Aug**

Weighting: **20%**

You will produce a Professional Curriculum Vitae (value: 10%) and LinkedIn profile (<https://au.linkedin.com>), with an invitation from you to "connect" with Damian and the Department of Environmental Sciences, or for those who would prefer not to develop a profile, a mock-up of content using Word; value: 10%) containing evidence of your skills. The portfolio will be assessed for completeness, legibility and adequacy. This is part of capstone unit requirements for authentic content and to help you prepare a professional portfolio.

On successful completion you will be able to:

- Develop professional presentation and communication skills that will assist in further study and future employment.

Ecotoxicology Report

Due: **Wk 5 & 10**

Weighting: **40%**

Students will complete a comprehensive but succinct scientific report based on data compiled and assessed during the practical classes and fieldwork. The report will focus on identifying and quantifying aquatic toxicity from the mine site visit on the mid session field trip. There are two parts to the assignment.

Part (a) will be a literature review which will prepare you for the fieldtrip. Further details of the assignment will be given in class. This first part, valued at 15%, is due in Week 5 (Fri 01 Sep).

Part (b) will use both water quality and biological data collected during the fieldtrip. You will use multiple lines of evidence, including (i) the scientific and grey literature, (ii) data observed or measured in the field, and (iii) data derived from laboratory work to determine toxicity and the likely causes. Further details of the assignment requirements will be provided in class. This second part, valued at 25%, is due in Week 10 (Fri 20 Oct).

On successful completion you will be able to:

- Contaminated site identification, sampling, assessment and remediation.
- Knowledge and experience of environmental analytical methods.
- Knowledge and experience of quality assurance/quality control for environmental sampling and analysis.
- Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.
- Apply and use multiple lines of evidence and environmental frameworks for decision-making.

- Identify research needs, write research style reports, and develop and conduct research programs.
- Develop professional presentation and communication skills that will assist in further study and future employment.

Mine Report

Due: **Wk 7 & 12**

Weighting: **40%**

Students will complete a comprehensive but succinct scientific report based on data compiled and assessed during the practical classes and fieldwork. The report will focus on identifying and quantifying mine contamination and outline plans for remediation. There are two parts to the assignment.

Part (a) will be a literature review which will prepare you for the fieldtrip. This first part, valued at 15%, is due in Week 7 (Fri 15 Sep).

Part (b) will use the data collected during the fieldtrip. You will use multiple lines of evidence, including (i) the scientific and grey literature, (ii) data observed or measured in the field, and (iii) data derived from laboratory work. The report will be a maximum of 5,000 words and must be written and formatted in the style of the journal *Science of the Total Environment*. Further details of the assignment requirements will be provided in class. This second part, valued at 25%, is due in Week 12 (Fri 03 Nov).

On successful completion you will be able to:

- Contaminated site identification, sampling, assessment and remediation.
- Knowledge and experience of environmental analytical methods.
- Knowledge and experience of quality assurance/quality control for environmental sampling and analysis.
- Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.
- Apply and use multiple lines of evidence and environmental frameworks for decision-making.
- Identify research needs, write research style reports, and develop and conduct research programs.
- Develop professional presentation and communication skills that will assist in further study and future employment.

Delivery and Resources

Delivery mode

2 hr of lectures + ~2 to 4 hr of prac classes during weeks 2-7 and 9. There is a compulsory 7 day

field trip during the mid-session break from 16-22 September. Lecture slides and related material are provided on the unit website just before the lecture. Lectures will be recorded. You are expected to participate in full and to the greatest of your ability. This includes reading the literature, web materials, and completing the assessment tasks to a standard that you would expect to provide to an employer or relevant external body.

ENV5338 is a field and practical intensive unit. We aim to give you the field experience and hands on application to knowledge and theory learnt in class. The objective is to prepare you with skills for the workplace – it is not a content driven course; instead we use content to illuminate skills, practice, method and approach, all of which you will require when working. Content can change constantly in the workplace and you will need flexibility to deal with new or variable content and situations.

Weekday and mid-session fieldwork

We run practical classes in the laboratory or field in the weekly classes and a longer mid-session field trip – all of which are compulsory. Assessment tasks are framed partly around the lectures but mainly around the practical and field components. A few notes about working in the field;

Weather - We do not normally cancel field trips for bad weather (except at contaminated sites - but we can cross that bridge when we come to it). You must be prepared to work in the rain and sun with the appropriate clothing, and avoid dehydration, heat or cold.

Transport - In the practical classes, you must provide your own. On the longer mid-session break field trip, transport will be supplied.

Cost - Transport is provided by the University on the mid-session field work. All other costs on the mid-session field work (e.g. accommodation, food) are yours. During weekday field work, we expect that you can carpool or provide your own transport.

Food - On the mid-session field work, we will stay at or near delightful Bathurst (200 km west of Sydney) and Crookwell (234 km southwest of Sydney). Most supplies can be purchased at those towns. For those with special food requirements, taking some food out of Sydney is advisable.

Accommodation - On the mid-session field trip will be organised by you. There are various options around Bathurst and Crookwell, but almost certainly a motor inn or country pub. Shared rooms will save on cost, as will camping grounds. We are happy to drive around to a couple of places to pick up people.

Personal field equipment - Each student should bring the following on each field trip;

- Boots; No sandals or thongs in the field. Doesn't have to be steel caps, just sturdy boots.
NO BOOTS = NO FIELDWORK.
- Water bottle (full, of course! - we suggest 2 L/day) & food for each day.
- Inclement weather gear (we go irrespective of the weather). An umbrella is sometimes good to write notes under. Warm clothing, sunscreen.
- Hat - NO BASEBALL CAPS. Really. **NO BRIMMED HAT = NO FIELDWORK.**
- Waterproof (or waterproof bag) field note book and writing implements.

- Calculator, hand lens, reconnaissance maps and readings.
- Camera.
- WHS equipment, including compulsory hi-vis clothing, will be supplied by MQU. If you have your own, preferred hi-vis clothing, please bring it.

Website - Practical material and important messages will be available on www.mq.edu.au/iLearn

Class times and locations:

- Lectures - Fridays, 0900 - 1100 h, 4 Western Road (W5C) Room 303.
- Practicals - Fridays, 1100-1500 h, 3 Innovation Road (EMC²), G220. Pracs may move between various labs so watch the iLearn unit website for advice, before each class.

Recommended resources - Reading suggestions will be provided, mainly from the scientific literature, on an ongoing basis – see unit website.

WORKLOAD REQUIREMENTS AND COURSE RUBRIC

Workload for units at Macquarie University is based on a minimum of 3 hours per credit point per week to receive a Pass grade. For ENV5338 this means you are expected to work at least 9 hours per week on this unit to receive a Pass grade. Obviously this is dependent on the speed at which you learn and your ability to study effectively. You will find you need to spend extra time on different parts of the course content. Depending on when assignments are due, this workload will be spread over the session. It is critical that you manage your time effectively and work progressively towards assignment submissions well in advance. A guide of hours required to receive a Pass grade is outlined below. However, keep in mind, grades are awarded on a demonstration of understanding and ability not on effort!

Activity	Per teaching week	# weeks	Hours per session
Lectures	2	8	16
Practicals	4	7	28
Assignment 1			8
Mid-session field trip	7 days @ 7 h/day		49
Assignment 2			20
Assignment 3			20
Total for semester			141
Per week (15 weeks)			9.4

Assessment criteria

- **ANSWERING THE QUESTION THAT IS ASKED** with a well-developed discussion of

the topic, and its implications, that places the topic in a broader context.

- Appropriate use and citation of a wide range of relevant literature, including texts, research papers, and grey literature (if required).
- Demonstrating good planning with a clear structure, headings, and a logical argument based firmly on the literature cited.
- Presenting a legible paper with correct grammar and spelling, and correct use of professional terminology as appropriate. Submissions must not be hand written.
- Using correct SI units and correct abbreviations.
- Referring to figures and tables in the text, with full and appropriate titles on each figure and table, irrelevant material omitted, sources given.
- Citing references acceptably, correctly and consistently in the text as well as in the reference list, no abbreviations, correct citation of chapters in edited books.
- Staying within the word limit.

If you experience difficulty achieving a good standard in your written presentation, please talk to us. The University offers a variety of remedial writing courses and sources of advice that may help you. We emphasise the necessity for clear writing and its importance in your performance assessment.

Assessment of assignments will be based on the Macquarie University scale High Distinction (HD), Distinction (D), Credit (Cr), Pass (P) and Fail (Fail). The markers may choose to further refine these grades by use of a “+” or “-“ to indicate work towards the top or the bottom of each grade’s band of marks. Feedback will also come in the form of comments written on each assignment or emailed directly to you, as well as general commentaries directed to the entire class after all marked assignments have been returned (typically in class or via an email list).

In ENV5338 we expect quality in your assignments and a level of knowledge and comprehension of course content that demonstrates what you have learnt throughout your degree and which sets the foundations for a career in this field. Grades for the unit as a whole will be awarded according to the following general criteria (course rubric).

	Developing	Functional	Proficient	Advanced
Level of attainment	Has not yet reached the desired standard. Limited understanding of required concepts and knowledge. A Fail grade would be given.	Has reached basic academic standards. Work has limited translation of concepts and procedures to new contexts unless aided. A Pass grade would be awarded.	Has completely reached the standards expected. Can work independently in new contexts, adapting procedures to meet the context. Demonstrates awareness of own limitations. A Credit grade would be awarded.	Has gone beyond the expected standards. Exhibits high levels of independence and can use concepts to generate new ways of completing procedures. Can engage in productive critical reflection. A grade of Distinction or High Distinction would be awarded.

Unit Schedule

Week 1 (SW/AB). Lecture 1: Introduction, WHS, Professional practise.

Week 2 (SW): Lecture 2: Principles of ecotoxicology & Lab toxicity tests. **Practical 1:** Ecotoxicology in the laboratory (Lab room to be confirmed).

Week 3 (SW): Lecture 3: Biomonitoring & Bioaccumulation. **Practical 2:** Measuring in the field.

Week 4 (DG). Lecture 4: Understanding and remediating inorganic contaminants. **Practical 3:** Metal analysis & QA/QC (EMC² Lab 1).

Week 5 (DG): Lecture 5: Understanding and remediating organic contaminants. **Practical 4:** Reactive barriers (EMC² Lab 1).

Week 6 (DG): Lecture 6: Groundwater & hydraulics. **Practical 5:** Piezometer installation and monitoring (E5A compound).

Week 7 (DG): Lecture 7: Mining impacts. **Practical 6:** Environmental mineralogy (EMC² Lab 1).

Fieldwork (DG/SW): Bathurst, Crookwell, 16-22 Sep. **Mine characterisation, ecotoxicology and remediation.**

Week 8: Independent study; no classes.

Week 9 (SW): Lecture 8: Ecological Risk Assessment. **Practical 7 (DG/SW):** Group data analysis.

Weeks 10-13: Independent study; no classes.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy_2016.html

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): <https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration>

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, 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.

Student Support

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

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

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.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.
- Apply and use multiple lines of evidence and environmental frameworks for decision-making.
- Identify research needs, write research style reports, and develop and conduct research programs.
- Develop professional presentation and communication skills that will assist in further study and future employment.

Assessment tasks

- Professional Portfolio
- Ecotoxicology Report
- Mine Report

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Contaminated site identification, sampling, assessment and remediation.
- Knowledge and experience of quality assurance/quality control for environmental sampling and analysis.
- Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.
- Apply and use multiple lines of evidence and environmental frameworks for decision-making.
- Identify research needs, write research style reports, and develop and conduct research programs.
- Develop professional presentation and communication skills that will assist in further study and future employment.

Assessment tasks

- Professional Portfolio
- Ecotoxicology Report
- Mine Report

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcomes

- Contaminated site identification, sampling, assessment and remediation.
- Knowledge and experience of environmental analytical methods.
- Knowledge and experience of quality assurance/quality control for environmental sampling and analysis.
- Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.
- Apply and use multiple lines of evidence and environmental frameworks for decision-making.
- Develop professional presentation and communication skills that will assist in further study and future employment.

Assessment tasks

- Professional Portfolio
- Ecotoxicology Report
- Mine Report

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Contaminated site identification, sampling, assessment and remediation.
- Knowledge and experience of environmental analytical methods.
- Knowledge and experience of quality assurance/quality control for environmental sampling and analysis.
- Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.
- Apply and use multiple lines of evidence and environmental frameworks for decision-making.
- Identify research needs, write research style reports, and develop and conduct research programs.
- Develop professional presentation and communication skills that will assist in further study and future employment.

Assessment tasks

- Professional Portfolio
- Ecotoxicology Report
- Mine Report

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Contaminated site identification, sampling, assessment and remediation.
- Knowledge and experience of environmental analytical methods.
- Knowledge and experience of quality assurance/quality control for environmental sampling and analysis.
- Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.
- Apply and use multiple lines of evidence and environmental frameworks for decision-making.
- Identify research needs, write research style reports, and develop and conduct research

programs.

- Develop professional presentation and communication skills that will assist in further study and future employment.

Assessment tasks

- Professional Portfolio
- Ecotoxicology Report
- Mine Report

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Contaminated site identification, sampling, assessment and remediation.
- Knowledge and experience of environmental analytical methods.
- Knowledge and experience of quality assurance/quality control for environmental sampling and analysis.
- Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.
- Apply and use multiple lines of evidence and environmental frameworks for decision-making.
- Identify research needs, write research style reports, and develop and conduct research programs.

Assessment tasks

- Ecotoxicology Report
- Mine Report

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Contaminated site identification, sampling, assessment and remediation.
- Knowledge and experience of environmental analytical methods.
- Identify research needs, write research style reports, and develop and conduct research programs.
- Develop professional presentation and communication skills that will assist in further study and future employment.

Assessment tasks

- Professional Portfolio
- Ecotoxicology Report
- Mine Report

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcomes

- Contaminated site identification, sampling, assessment and remediation.
- Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.
- Apply and use multiple lines of evidence and environmental frameworks for decision-making.
- Develop professional presentation and communication skills that will assist in further study and future employment.

Assessment tasks

- Ecotoxicology Report
- Mine Report

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and

country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcomes

- Contaminated site identification, sampling, assessment and remediation.
- Knowledge and experience of environmental analytical methods.
- Knowledge and experience of quality assurance/quality control for environmental sampling and analysis.
- Experience in collating and analysing information from different disciplines to form a weight of evidence approach to assess environmental impacts.
- Apply and use multiple lines of evidence and environmental frameworks for decision-making.
- Identify research needs, write research style reports, and develop and conduct research programs.
- Develop professional presentation and communication skills that will assist in further study and future employment.

Assessment tasks

- Professional Portfolio
- Ecotoxicology Report
- Mine Report

Performance and attendance requirements

Minimum performance requirement

In order to pass this unit, the aggregate mark must be 50% or greater. It is not compulsory to pass each component.

Attendance Requirements

Attendance at the practicals and mid-session field trip is compulsory. Full details to be provided.

Assignment submission

All assignments must be submitted via iLearn. If you would like feedback through the document, use doc/docx for your submission. If you just want generic comments, feel free to submit pdf.

Extensions and penalties 10% of the mark allocated for the assignment will be deducted per day or part thereof for any work that is submitted late.

Handing work in on time is your responsibility. All applications for special consideration or extension must be sought before the due date unless this is impossible. All applications for extensions of deadlines must be submitted to the unit convenor, with sufficient evidence that

their case can be reviewed.

Returning assessment tasks

Assessment tasks will be returned via email.

Student Commitment

Students should expect to spend at least 140 hours in total over the full session on a range of tasks including class contact hours, field work and private study. These are minimum requirements and should you wish to achieve a higher than pass grade, you may choose to work harder or more efficiently.

Feedback and unit evaluation

In this unit you will receive a range of verbal and written feedback on your assessment tasks and work in class or online. To monitor how successful we are in providing quality teaching and learning, the Department of Environmental Sciences also seeks feedback from students. One of the key ways students have to provide feedback is through unit and teacher evaluation survey. The feedback is anonymous and provides the Department with evidence of aspects that students are satisfied with and areas for improvement. For example, students previously enrolled in this unit have contributed to its development through the suggestion of more group-orientated practical tasks.

Referencing and citations

Referencing and Citations

There are various referencing styles. They differ markedly between journals and journal types: medical science journals differ from law journals, which differ again from science journals. We take the opinion that there is no correct *style*, however there is a right way and a wrong way. The right way is to include enough information to attribute ideas, and allow us to find the sources. The more information the better. To help you attain this "right way", we prefer and strongly recommend the referencing style in the journal *Science of the Total Environment* as it is appropriate for this unit, and it is simple and clear.

Please try to format your assignments using the method detailed here: www.journals.elsevier.com/science-of-the-total-environment/

Referencing style

Citations in the text;

1. *Single author*: the author's name (without initials, unless there is ambiguity) and the year of publication (e.g. Smith 2000);
2. *Two authors*: both authors' names, separated by an ampersand (&), and the year of publication (e.g. Smith & Jones 2000);
3. *Three or more authors*: first author's name followed by 'et al.' and the year of publication. (Note that the "et" does not have a fullstop as it is a whole word; "al." does have a full stop, to indicate that the word is a truncation). Groups of references should be listed first alphabetically,

then chronologically. Examples: "as demonstrated (Allan, 1996a, 1996b, 1999; Allan & Jones, 1995). Kramer et al. (2000) have recently shown ..."

List:

References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters "a", "b", "c", etc., placed after the year of publication. Note that any (consistent) reference style and format may be used.

Examples:

Journal: Van der Geer, J., Hanraads, J.A.J., Lupton, R.A. 2000. The art of writing a scientific article. *Journal of Scientific Communications* 163, 51-59.

Book: Strunk Jr., W., White, E.B. 1979. *The Elements of Style*, third ed. Macmillan, New York.

Chapter in an edited book: Mettam, G.R., Adams, L.B. 1999. How to prepare an electronic version of your article, in: Jones, B.S., Smith, R.Z. (Eds.), *Introduction to the Electronic Age*. E-Publishing Inc., New York, pp. 281-304.

URL: USEPA (United States Environment Protection Authority) Method 1311. Toxicity Characteristic Leaching Procedure. <https://www.epa.gov/sites/production/files/2015-12/documents/1311.pdf> (accessed 27Jul16).