



ENVE270

Environmental Science Fieldwork

WV Day 2014

Dept of Environment & Geography

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General Information

Unit convenor and teaching staff

Unit Convenor

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E7A630

Tutor; in-field only

Peter Johnston

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Credit points

3

Prerequisites

ENVE117(P) or GEOS112(P)

Corequisites

Co-badged status

Unit description

A range of field methods in the environmental sciences will be covered in this unit. The unit takes place as a nine day field school where students undertake studies of water, soil, sediment, and contaminants to develop competence in widely used practices, methods and equipment used in environmental science and management. The unit is for students in one of the majors in natural and environmental sciences.

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:

Develop critical reading and thinking skills through regular reading and assessment tasks.

Recognise and understand key environmental processes in the field.

Be able to use technology to locate sampling points in three dimensions.

Consider the flux of natural environmental materials (water, solutes, solids) in space and time.

Understand the composition and three-dimensional arrangement of natural solid materials.

Assessment Tasks

Name	Weighting	Due
<u>Assessment 1</u>	15%	16 July 2014
<u>Assessment 2</u>	25%	19 July 2014
<u>Assessment 3</u>	30%	26 July 2014
<u>Assessment 4</u>	30%	02 August 2014

Assessment 1

Due: **16 July 2014**

Weighting: **15%**

In-field written assessment task based on literature and Days 1-4 of the fieldwork. One hour duration, 15% of the unit value. Due 1600 h, Wed 16 Jul 2014.

You must have understood the readings provided, and paid attention to the field tasks, in order to do well in this assessment task.

On successful completion you will be able to:

- Develop critical reading and thinking skills through regular reading and assessment tasks.
- Recognise and understand key environmental processes in the field.
- Be able to use technology to locate sampling points in three dimensions.
- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.
- Understand the composition and three-dimensional arrangement of natural solid materials.

Assessment 2

Due: **19 July 2014**

Weighting: **25%**

In-field written assessment task based on literature and Days 1-7 of the fieldwork. One hour duration, 25% of the unit value. Due 1300 h, Sat 19 Jul 2014.

You must have understood the readings provided, and paid attention to the field tasks, in order to do well in this assessment task.

On successful completion you will be able to:

- Develop critical reading and thinking skills through regular reading and assessment tasks.
- Recognise and understand key environmental processes in the field.
- Be able to use technology to locate sampling points in three dimensions.
- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.
- Understand the composition and three-dimensional arrangement of natural solid materials.

Assessment 3

Due: **26 July 2014**

Weighting: **30%**

Salinity Field Report. 30% of the unit value. Due 1200 h, Sat 26 Jul 2014.

Question: What is the evidence for degradation and salinisation of Kelman Vineyards?

Hints & conditions: Specific questions are set out in the Field Guide. Length limit is <15 pages, inclusive of all text, diagrams and references. Illustrate your Report with data and examples drawn from the field, or any other data source as required. Pay particular attention to the units, and the quality of any diagrams submitted. Use a minimum of 12 point font, except in diagrams where 11 point font is permitted. The Report must be emailed to the Unit convenor by the due date.

On successful completion you will be able to:

- Develop critical reading and thinking skills through regular reading and assessment tasks.
- Recognise and understand key environmental processes in the field.
- Be able to use technology to locate sampling points in three dimensions.
- Consider the flux of natural environmental materials (water, solutes, solids) in space and

time.

- Understand the composition and three-dimensional arrangement of natural solid materials.

Assessment 4

Due: **02 August 2014**

Weighting: **30%**

Hydraulics Field Report. 30% of the unit value. Due 1200 h, Sat 02 Aug 2014.

Topic: Describe the controls on hydraulic conductivity in natural soils and sedimentary materials.

Hints & conditions: Specific questions are set out in the Field Guide. Length limit is <15 pages, inclusive of all text, diagrams and references. Illustrate your Report with data and examples drawn from the field, or any other data source as required. Pay particular attention to the units, and the quality of any diagrams submitted. Use a minimum of 12 point font, except in diagrams where 11 point font is permitted. The Report must be emailed to the Unit convenor by the due date.

On successful completion you will be able to:

- Develop critical reading and thinking skills through regular reading and assessment tasks.
- Recognise and understand key environmental processes in the field.
- Be able to use technology to locate sampling points in three dimensions.
- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.
- Understand the composition and three-dimensional arrangement of natural solid materials.

Delivery and Resources

Pre-Departure: Readings and resources will be provided via Dropbox. An invitation to that site will be sent to you once you are enrolled and have commenced the unit.

Post-Departure: A Field Guide with relevant supporting materials will be provided on the trip.

Late submissions - Late submission of assessments will incur a penalty unless you can demonstrate unavoidable disruption, properly documented. To not do so is a matter of equity for those who work hard enough to submit on time. The penalty for late submissions is 10% of the assignment per day, including weekends. The final decision for late penalties lies with the unit convenor. Please, if you are suffering hardship, contact the unit convenor as soon as you can.

Technologies used and required

Please bring a laptop, with MS Office or equivalent. Assessment tasks 1 and 2 will be completed on sheets provided by the convenor and technology is not required. For assessment tasks 3 and

4, you will need to have access to a word processor, a spreadsheet and charting program (like excel), and for the best marks in the tasks you would have access to a program which provides 3D rendering of surfaces, and basic statistical capability if required. Other technologies used and supplied by the teaching staff include GPS units and analytical equipment. Training for these will be provided in the field.

What you need to provide

Non-negotiable items

- Boots (steelcaps are not required)
- Clothing to get wet & muddy in (includes rainjacket - we work whether it rains or not)
- Hat (not a baseball cap)
- Hi-vis top (we can loan you a vest or you can bring your own shirt)
- No singlets

If you don't have these items, I will take you to Cessnock to purchase them, or you can catch public transport home. The University will supply leather work gloves, hearing and eye protection and other PPE as required.

Strongly recommended items

- Long sleeves
- Sunglasses
- Sunscreen

Optional

- Swimmers (the Middle Rock Resort has swimming pools)

Accommodation

- Bed in a shared room at Neath Hotel (\$180 for 4 nights; inc. continental breakfast)

(www.neathhotel.com.au)

- Bed in a shared room at Middle Rock Resort (\$90 for 2 nights)

(www.middlerock.com.au)

Transport

- Provided by Macquarie University

Food

- Neath Hotel has an inexpensive menu with mains ranging from \$15-30. The summer menu is available on Dropbox (indicative only – this will change for winter).
- Middle Rock Resort has kitchens in the units and a small supermarket nearby.

- Total cost -> \$180 (Neath) + \$90 (Middle) = \$270
- To make the field trip faster, the convenor will pay your remaining accommodation costs (\$260 - \$100 deposit = \$170) and that balance you will make a second payment to Macquarie University. Unit results will be withheld until evidence is provided that the second payment has been made.

Critical dates

- 17 Mar -> Attend the compulsory pre-Departure lecture. Join the Dropbox folder.
- 24 Mar, 1300 h, Mon -> Hand "Fieldwork participation" form to DG (E7A630 – under the door is fine). Fax is OK – 9850 8420.
- 24 Mar, 1300 h, Mon -> Show DG your \$100 receipt from the University Cashier (photograph & email is OK).
- 30 Mar, 1300 h, Mon -> Check Dropbox for pre-trip readings. Bring these with you.
- 13 Jul -> Start trip; leave for Cessnock at 0900 h from E5A carpark.
- 19 Jul -> Exam 2. Leave field area by 1500 h. Return home around 1700 h.
- 26 Jul -> Assessment 3 due.
- 02 Aug -> Assessment 4 due.

Unit Schedule

<u>Date</u>	<u>Work</u>	<u>Stay</u>
13 Jul 2014	Cluster A: Soil & salinity Cluster B: Hydraulics	Neath Hotel
14 Jul 2014	Cluster A: Soil & salinity Cluster B: Hydraulics	Neath Hotel
15 Jul 2014	Cluster A: Hydraulics Cluster B: Soil & salinity	Neath Hotel
16 Jul 2014	Cluster A: Hydraulics. Assessment 1 Exam. Cluster B: Soil & salinity. Assessment 1 Exam	Neath Hotel
17 Jul 2014	Cluster A: Acid sulfate soils Cluster B: Minerals	Middle Rock Resort

18 Jul 2014	Cluster A: Minerals Cluster B: Acid sulfate soils	Middle Rock Resort
19 Jul 2014	7/19 Jul Working up remaining data. Assessment 2 Exam. Home	Home

* Each night is work time – analysing samples, drawing maps, collating and sharing data.

* The salinity field report is due 26 July, and the hydraulics field report is due 02 August.

Learning and Teaching Activities

Assessment 1

In-field written assessment task based on literature and Days 1-4 of the fieldwork. One hour duration, 15% of the unit value. To start 1600 h, Wed 16 Jul 2014.

Assessment 2

In-field written assessment task based on literature and Days 1-7 of the fieldwork. One hour duration, 25% of the unit value. To start 1300 h, Sat 19 Jul 2014.

Assessment 3

Salinity Field Report. 30% of the unit value. Due 1200 h, Sat 26 Jul 2014.

Assessment 4

Hydraulics Field Report. 30% of the unit value. Due 1200 h, Sat 02 Aug 2014.

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.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

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

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

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/

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://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

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

- Develop critical reading and thinking skills through regular reading and assessment tasks.
- Recognise and understand key environmental processes in the field.
- Be able to use technology to locate sampling points in three dimensions.
- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.
- Understand the composition and three-dimensional arrangement of natural solid materials.

Assessment tasks

- Assessment 3
- Assessment 4

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

- Develop critical reading and thinking skills through regular reading and assessment tasks.
- Recognise and understand key environmental processes in the field.
- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.
- Understand the composition and three-dimensional arrangement of natural solid materials.

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

- Develop critical reading and thinking skills through regular reading and assessment tasks.
- Recognise and understand key environmental processes in the field.
- Be able to use technology to locate sampling points in three dimensions.
- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.
- Understand the composition and three-dimensional arrangement of natural solid materials.

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4

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

- Develop critical reading and thinking skills through regular reading and assessment tasks.
- Recognise and understand key environmental processes in the field.
- Be able to use technology to locate sampling points in three dimensions.
- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.
- Understand the composition and three-dimensional arrangement of natural solid materials.

Assessment tasks

- Assessment 1
- Assessment 2

- Assessment 3
- Assessment 4

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

- Develop critical reading and thinking skills through regular reading and assessment tasks.
- Recognise and understand key environmental processes in the field.
- Be able to use technology to locate sampling points in three dimensions.
- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.
- Understand the composition and three-dimensional arrangement of natural solid materials.

Assessment tasks

- Assessment 3
- Assessment 4

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

- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.
- Understand the composition and three-dimensional arrangement of natural solid materials.

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 outcome

- Be able to use technology to locate sampling points in three dimensions.

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4

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 outcome

- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4

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

- Recognise and understand key environmental processes in the field.
- Be able to use technology to locate sampling points in three dimensions.
- Consider the flux of natural environmental materials (water, solutes, solids) in space and time.
- Understand the composition and three-dimensional arrangement of natural solid materials.

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4