ENVS270

Environmental Science Fieldwork

WV Day 2016

Dept of Environmental Sciences

Contents

General Information

Unit convenor and teaching staff
Course Convenor
Neil Saintilan
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AHH Level 2
Wednesday afternoons or by appointment

Tutor
Jeffrey Kelleway
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AHH Level 2

Credit points
3

Prerequisites
ENVE266(P) or ENVS266(P) or GEOS266(P)

Corequisites

Co-badged status

Unit description
This unit introduces students to widely used field practices, equipment and analytical methods used in environmental science. Quantitative measurement and analytical techniques for water, soil, sediment and contaminants are emphasised. The field school will be offered from 19-25 July, and although the location and content of the unit varies each year, students will undertake their studies in the field or remote laboratories. Students should enrol in this unit at the start of Session 1, and attend a compulsory lecture during March-April. The unit is ideal for students in one of the majors in natural and environmental sciences, and should be taken by those planning to work in environmental and engineering consulting or research.

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 variability of natural environments in space and time.
Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment Tasks

Name	Weighting	Due
Assessment 1	20%	13 July 2016
Assessment 2	30%	15 July 2016
Assessment 3 - Final Report	50%	05 August 2016

Assessment 1

Due: **13 July 2016**
Weighting: **20%**

In-field written assessment task based on literature and Days 1-3 of the fieldwork. One hour duration, 15% of the unit value. Due 1600 h, Wednesday 13 Jul 2016.

You must have understood the readings provided, and paid attention to the field orientation and overview of the field manual 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 variability of natural environments in space and time.
- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment 2

Due: **15 July 2016**
Weighting: **30%**

In-field written assessment task based on data collected and analysed during Days 1-5 of the

fieldwork. 90 minute duration, 25% of the unit value. Due 1300 h, Friday 15 Jul 2016.

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 variability of natural environments in space and time.
- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment 3 - Final Report

Due: **05 August 2016**
Weighting: **50%**

Report written in the format of a scientific journal article (Abstract, Introduction, Methods, Results, Discussion). Data for this report will be collated from measurements taken in the field as well as laboratory measurements undertaken in the week immediately after the field trip. Final datasets will be distributed to the class by Friday 22 July 2016. It is the individual student's responsibility to present the data in the most appropriate format (e.g. tables, figures), report the findings and discuss their implications and limitations.

Length: 3,000 words maximum

50% of the unit value. Due 1200 h Friday 5 Aug 2016

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 variability of natural environments in space and time.
- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Delivery and Resources

Pre-Departure: The text for this unit is available for download from "The Blue Carbon Initiative". Visit www.thebluecarboninitiative.org, select "Resources", then "Manual". Enter the answers to the questions asked (type of work, country) and you will be provided with the download. The

manual covers both the theoretical context and detailed methods associated Blue Carbon and sampling in coastal wetland environments.

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 and Google Earth installed. Assessment task 1 will be completed on sheets provided by the convenor and technology is not required. For assessment tasks 2 and 3, you will need to have access to a word processor, a spreadsheet and charting program (like excel). . 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

• Gum boots or sturdy shoes which can get muddy (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

The University will supply leather work gloves, hearing and eye protection and other PPE as required.

Strongly recommended items

• Long sleeves (arms and legs)

• Sunglasses

• Sunscreen

Optional

• Swimmers (the Middle Rock Resort has swimming pools)

Accommodation

• Bed in a shared room at Middle Rock Resort ($180 for 4 nights)

(www.middlerock.com.au)

• Total cost = $180

• To make the field trip faster, the convenor will pay your accommodation costs initially and you

will make a payment to Macquarie University. Payment is required by 23 May 2016. Involvement in the field trip and unit results will be withheld until evidence is provided that the payment has been made.

Transport

• Provided by Macquarie University

Food

• Middle Rock Resort has kitchens in the units and a small supermarket nearby.

Laboratory processing

Each student will be required to undertake sample processing and measurement in the week after the field trip (approx 3 hours) on either Monday 18th July or Thursday 21st July.

Critical dates

• 28 April -> 12pm - 1pm Attend the compulsory pre-Departure lecture - 'Continuum room' (75T – level 3. 75 Talavera road). Join the Dropbox folder.

• 23 May, 1300 h, Mon -> submit "Fieldwork participation" form to Department of Environmental Sciences Administration (AHH Level 2). Or email to jeffrey.kelleway@mq.edu.au

• 23 May, 1300 h, Mon -> Show convenors your accomodation payment ($180) receipt from the University Cashier

(photograph your receipt & email to jeffrey.kelleway@mq.edu.au).

• 6 Jun, 1300 h, Mon -> Check Dropbox for pre-trip readings. Bring these with you.

• 11 Jul -> Start trip; leave for Port Stephens at 0900 h from E5A carpark.

• 13 Jul -> Assessment 1.

• 15 Jul -> Assessment 2. Leave field area by 1500 h. Return to Macquarie around 1700 h.

• 18 & 21 Jul -> Laboratory sample processing

• 05 Aug -> Assessment 3 due.

Unit Schedule

Date	Work	Stay
11 Jul 2016	Cluster A: Orientation/Manual/Experimental Design Cluster B: Orientation/Manual/Experimental Design	Middle Rock Holiday Resort

12 Jul 2016	Cluster A: SET-MH; Elevation-Water loggers (half day field, half day data) Cluster B: Elevation-Water loggers; SET-MH (half day field, half day data)	Middle Rock Holiday Resort
13 Jul 2016	Cluster A: Biomass and Soil Carbon (Mangrove); Assessment 1 Cluster B: Biomass and Soil Carbon (Saltmarsh); Assessment 1	Middle Rock Holiday Resort
14 Jul 2016	Cluster A: Biomass and Soil Carbon (Saltmarsh) Cluster B: Biomass and Soil Carbon (Mangrove)	Middle Rock Holiday Resort
15 Jul 2016	Working up data; Assessment 2 Report (SET-Elevation)	Home
18 Jul 2016	Laboratory sample analysis day 1 (3 hours)	
21 Jul 2016	Laboratory sample analysis day 2 (3 hours)	

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

* Blue Carbon field report is due 05 August 2016.

Learning and Teaching Activities

Assessment 1

In-field written assessment task based on literature and Days 1-3 of the fieldwork. One hour duration, 20% of the unit value. To start 1600 h, Wed 13 Jul 2016.

Assessment 2

In-field written assessment task based on literature and Days 1-5 of the fieldwork. One hour duration, 30% of the unit value. To start 1300 h, Fri 15 Jul 2016.

Assessment 3

Blue Carbon Report. 50% of the unit value. Due 1200 h, Friday 05 Aug 2016.

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

New Assessment Policy in effect from Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy_2016.html. For more information visit http://students.mq.edu.au/events/2016/07/19/new_assessment_policy_in_place_from_session_2/

Assessment Policy prior to Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy prior to Session 2 2016 http://mq.edu.au/policy/docs/grading/policy.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 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/

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

- Consider the variability of natural environments in space and time.
- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3 - Final 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

- 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 variability of natural environments in space and time.
- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3 - Final 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

- Develop critical reading and thinking skills through regular reading and assessment tasks.
- Recognise and understand key environmental processes in the field.
- Consider the variability of natural environments in space and time.
- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3 - Final 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

- 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 variability of natural environments in space and time.
- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3 - Final 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

- 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 variability of natural environments in space and time.
- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3 - Final 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

- 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 variability of natural environments in space and time.
- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3 - Final 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 outcome

- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3 - Final 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 outcome

- Consider the variability of natural environments in space and time.

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3 - Final 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

- Recognise and understand key environmental processes in the field.
- Be able to use technology to locate sampling points in three dimensions.
- Consider the variability of natural environments in space and time.
- Understand the importance of planning and experimental design in undertaking field-based environmental measurements

Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 3 - Final Report