



# ENVS2266

## Earth Surface Processes

Session 1, In person-scheduled-weekday, North Ryde 2025

*School of Natural Sciences*

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#### **Disclaimer**

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## General Information

### Unit convenor and teaching staff

Convenor

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Contact via iLearn

Associate Professor

Paul Hesse

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Credit points

10

Prerequisites

ENV51017 or EESC1150

Corequisites

Co-badged status

### Unit description

Understanding how and why the Earth's surface looks and changes in the way it does is fundamental to effective environmental management. This unit examines earth surface processes from a catchment perspective: hill slopes and soils; rivers and floodplains; and the materials, including contaminants, that comprise them. We draw on Australian and overseas examples from diverse environments to demonstrate how biophysical processes shape our landscape. Students gain practical, laboratory and field-based skills that help them interpret the landscape. These are taught in both on-campus sessions and weekend field trips. This unit builds on themes introduced in ENV51017 and GEOS1110, and provides a sound conceptual background for students continuing in environmental sciences, environmental management and courses in ecology, biology, geology and archaeology. The compulsory fieldtrips have an additional cost of approximately \$100.

Learning in this unit enhances student understanding of global challenges identified by the United Nations Sustainable Development Goals ([UNSDGs](#)) Clean Water and Sanitation; Climate Action; Life on Land

## 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:** Apply knowledge and understanding of important concepts in geomorphology

**ULO2:** Interpret geomorphic processes from landforms and materials in a wide range of environments

**ULO3:** Demonstrate geomorphological and sedimentological skills in data collection and analysis in laboratory and field settings

**ULO4:** Critically evaluate and analyse scientific literature, including the interpretation of data.

**ULO5:** Complete a field research project including data gathering and interpretation

**ULO6:** Communicate scientific information and concepts through oral, visual and written formats, including scientific reports

## General Assessment Information

### Requirements to Pass this Unit

To pass this unit you must achieve a total unit mark equal to or greater than 50%.

We strongly encourage all students to actively participate in all learning activities in order to achieve a mark >50%. Regular engagement is crucial for your success in this unit, as these activities provide opportunities to deepen your understanding of the material, collaborate with peers, and receive valuable feedback from instructors, to assist in completing the unit assessments. Your active participation not only enhances your own learning experience but also contributes to a vibrant and dynamic learning environment for everyone.

### 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 the [Service Connect Portal \(http://connect.mq.edu.au\)](http://connect.mq.edu.au).

### Assessment Submission Deadlines and Late Submissions

All assessments (except for the exam) must be submitted by **11.55 pm** on their due date. A 1-hour grace period will be provided to students who experience a technical concern. Should these assessments be missed due to illness or misadventure, students should apply for an extension via the Special Consideration process. If you anticipate not being able to meet the deadline ahead of time then also apply for Special Consideration.

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<sup>th</sup> day (including weekends). After the 7<sup>th</sup> day, a grade of '0' will be awarded even if the assessment is submitted.

Late submissions will be accepted (with penalty) for the two field reports.

Late submissions are not possible for the weekly quizzes or the exam.

## Submission of Assessments

The two reports must be submitted online through [Turnitin](#). Links for the submission of each assignment will be available on [iLearn](#). The quizzes are to be completed on iLearn, and your final exam will be held on-campus during the formal examination period. The due dates for all assessment tasks are not negotiable. If you have commitments that will significantly impact your study during the session then you must plan for this in advance as part of an effective individual study plan.

## Assessment Criteria

Assessment at Macquarie University is standards-based, as outlined in the [Assessment Policy](#). This means that your work will be assessed against clear criteria (see below for each assessment task). Grades for each assessment item and for the unit as a whole will be awarded according to the following general criteria:

	Developing	Functional	Proficient	Advanced
<b>General description of the level of attainment</b>	Has not yet reached the desired standard. Limited understanding of required concepts and knowledge.  A fail grade (or under some circumstances, a conceded pass) 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.

## Assessment Marking and Feedback

The two major assignments will be marked through Turnitin and feedback will be noted on the assignment and provided to the class in a summarised format via iLearn. Your grades will be returned using the Grades Report on iLearn. Quizzes will be marked in iLearn and the grades will also be made available on in the Grades Report. The exam will be marked at the end and the grades also made available through the Grades Report.

Due to the number of students in the unit (>120), we aim to return your assignments with feedback within 3 weeks of the date of submission, and before your next assignment is due. We appreciate your patience and will advise you through iLearn when your marked assignments and feedback are available for viewing.

At all stages in this unit we will try to give you constructive feedback on your understanding and performance. The unit has been structured so that assessable practicals and field reports allow

us to monitor your progress and understanding throughout the unit. This includes both conceptual and practical (such as field skills) components.

If at any stage you wish to receive guidance on the content of the unit or your performance then we encourage you to approach one of the staff and arrange a meeting. Likewise, if you would like more detailed feedback or explanation of the feedback you have received then please approach the staff member who gave this feedback to arrange a meeting.

Finally, we appreciate your (constructive) feedback too. Our goal is to improve our teaching (and your learning) continuously. We ask for your feedback at the end of semester and value your specific comments. We are also happy to receive your comments throughout the semester.

### WEEKLY CONTENT QUIZZES (15%)

Each week a short quiz (on iLearn) will test your knowledge and understanding of the lecture and practical content. The rubric related to achievement and grading is as follows:

<i>Developing</i>	<i>Functional</i>	<i>Proficient</i>	<i>Advanced</i>
Unable to define or apply many terms or concepts taught in lectures and practicals.	Able to define terms introduced in lectures and practicals, and apply concepts to examples.	Able to define terms consistently and apply concepts to examples with confidence and accuracy.	As for proficient, with ability to extrapolate to new examples and situation.

### FIELD REPORT 1 (20%)

This report is based on the first fieldtrip, the preparatory practical sessions, post-fieldwork data analysis, and your own reading and research on the topic. You will be given a question which you must address in your report. The research and thought which go into each report are an important part of your learning in this unit. We expect that you will deepen your understanding of the topic and your field experience by discovering the links between your observations and previous published research in the scientific literature. The report should be presented with a high standard of presentation (clarity and accuracy, not necessarily 'pretty'), with diagrams, maps, graphs and tables (as appropriate) and standard scientific citation and referencing. You will be provided with some essential and useful readings for these reports but you should also undertake your own research of the primary scientific literature. The rubric related to achievement and grading is as follows:

<i>Developing</i>	<i>Functional</i>	<i>Proficient</i>	<i>Advanced</i>
Lacks a clear explanation of research question, hypothesis or research strategy. Results may not be presented completely or accurately and may not support interpretations. May lack support from suitable literature.	able to explain the research question clearly; explain the hypothesis and show a clear and suitable research strategy; show appropriate results clearly and with accuracy; draw main conclusions from data and outstanding limitations. Supported by reference to appropriate literature.	as for functional level but with greater insight into question, results and interpretations. Includes acknowledgement and/or discussion of limitations of data/interpretations.	as for proficient but with originality in approach and/or interpretation of results.

### FIELD REPORT 2 (30%)

This report is based on the second fieldtrip, the preparatory practical sessions, post-fieldwork data analysis, and your own reading and research on the topic. You will address a research question in your report, tailoring the presentation and discussion of your results to answer the question and placing them within a context revealed by your readings. The report should be presented in the format of scientific report, with a high standard of presentation (clarity and accuracy, not necessarily ‘pretty’), with diagrams, maps, graphs and tables (as appropriate) and standard scientific citation and referencing. You will be provided with some essential and useful readings for these reports but you should also undertake your own research of the primary scientific literature. The rubric related to achievement and grading is as follows:

<i>Developing</i>	<i>Functional</i>	<i>Proficient</i>	<i>Advanced</i>
Lacks a clear explanation of research question, hypothesis or research strategy. Results may not be presented completely or accurately and may not support interpretations. May lack support from suitable literature.	able to explain the research question clearly; explain the hypothesis and show a clear and suitable research strategy; show appropriate results clearly and with accuracy; draw main conclusions from data and outstanding limitations. Supported by reference to appropriate literature.	as for Functional level but with greater insight into question, results and interpretations. Includes acknowledgement and/or discussion of limitations of data/interpretations.	as for Proficient but with originality in approach and/or interpretation of results.

### EXAMINATION (35%)

The exam will be scheduled in the regular University examination period. The exam will be 2 hours in length and will cover all subjects covered in the lectures, practicals and fieldtrips. There is a combination of short answer and longer problem-solving questions. The rubric related to achievement and grading is as follows:

<i>Developing</i>	<i>Functional</i>	<i>Proficient</i>	<i>Advanced</i>
Unable to explain basic terms and concepts clearly or accurately. Unable to illustrate terms and concepts with specific examples or conceptual diagrams. Unable to extrapolate concepts to new situations.	able to explain terms and concepts clearly and accurately; can illustrate terms and concepts with specific examples and conceptual diagrams. Can apply knowledge to new situations with some competence.	as for Functional level but with greater critical insight. Includes acknowledgement and/or discussion of limitations or drawbacks of own knowledge.	as for Proficient but with originality in approach and/or interpretation.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#"><u>Weekly content quizzes</u></a>	15%	No	Weekly
<a href="#"><u>Field Report 1</u></a>	20%	No	20/04/2025
<a href="#"><u>Field Report 2</u></a>	30%	No	01/06/2025
<a href="#"><u>Final Exam</u></a>	35%	No	Formal examination period

## Weekly content quizzes

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 12 hours

Due: **Weekly**

Weighting: **15%**

A short quiz testing knowledge and understanding of each week's workshop content

On successful completion you will be able to:

- Apply knowledge and understanding of important concepts in geomorphology

## Field Report 1

Assessment Type <sup>1</sup>: Report

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **20/04/2025**

Weighting: **20%**

Written report including maps, graphs and tabled data based on the findings from a fieldtrip to a coastal location

On successful completion you will be able to:

- Apply knowledge and understanding of important concepts in geomorphology
- Interpret geomorphic processes from landforms and materials in a wide range of environments
- Demonstrate geomorphological and sedimentological skills in data collection and analysis in laboratory and field settings
- Critically evaluate and analyse scientific literature, including the interpretation of data.
- Complete a field research project including data gathering and interpretation
- Communicate scientific information and concepts through oral, visual and written formats, including scientific reports

## Field Report 2

Assessment Type <sup>1</sup>: Report

Indicative Time on Task <sup>2</sup>: 20 hours

Due: **01/06/2025**

Weighting: **30%**

Written report including maps, graphs and tabled data based on the findings from a fieldtrip to a river

On successful completion you will be able to:

- Apply knowledge and understanding of important concepts in geomorphology
- Interpret geomorphic processes from landforms and materials in a wide range of environments
- Demonstrate geomorphological and sedimentological skills in data collection and analysis in laboratory and field settings
- Critically evaluate and analyse scientific literature, including the interpretation of data.
- Complete a field research project including data gathering and interpretation
- Communicate scientific information and concepts through oral, visual and written formats, including scientific reports

## Final Exam

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 25 hours

Due: **Formal examination period**

Weighting: **35%**

Covers all material in the lectures and practical classes

On successful completion you will be able to:

- Apply knowledge and understanding of important concepts in geomorphology
- Interpret geomorphic processes from landforms and materials in a wide range of environments
- Critically evaluate and analyse scientific literature, including the interpretation of data.
- Communicate scientific information and concepts through oral, visual and written formats, including scientific reports

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<sup>1</sup> 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.

<sup>2</sup> 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

### Classes and Attendance

The class timetable can be found through the [Timetable](#) portal.

A detailed class schedule with workshop and practical topics, assessment due dates, etc. will be made available to all enrolled students through [iLearn](#).

- Each week you must attend one 3-hour **practical class**.
- Each week you should attend two 1-hour live **lectures** (slides provided on iLearn and recordings posted to Echo360 for revision purposes).
- Attend two compulsory **fieldtrips**: 4th-5th or 5th-6th March (1.5 days, overnight), and 16th, 17th or 18th May (1 day).

Remember that classes start in week 1, when each student should attend one practical class (in a laboratory) and two lectures.

**PRACTICAL CLASSES** comprise a practical exercise, including map and air photo interpretation, numerical analysis, examination of rocks and sediments or local fieldwork. Practicals provide hands-on experience of the topics in each module and are designed to assist learning by encouraging your active participation. The week 1 practical is held in 11WW 220 and some other practicals will be held in the field within a short distance from the university. **Each student must bring the appropriate equipment to the practical session and pre-read the practical description. Equipment may include; pencils, ruler, calculator, field note book. You should also wear appropriate clothes for the laboratory (e.g. week 1) and field: closed shoes, sun protection etc.**

**LECTURES** are designed to give depth and background to the practical learning. They provide you with a framework with which to focus your study of the subject and are an essential and important component of the course. They are by no means exhaustive on each and every topic, and you are expected to supplement them by reading especially from the textbook but also from the current journals, where the most up-to-date information can be found. There is a reading list for you to use as a starting point later in this document, and additional material will be referred to during the workshop/lecture program. Slides will be available on-line through iLearn for viewing and/or printing but they are not a replacement for attending classes.

**FIELD WORK** occurs mainly during two **compulsory** weekend fieldtrips where a range of natural and human-modified landscape features are examined. Each of these fieldtrips reinforces and extends the content of the Soils and Coasts modules (first fieldtrip) or Catchments and Rivers module (second fieldtrip). The major assignments are based on these fieldtrips. In

addition, three of the weekly practicals (Pracs 2, 3 and 7) will be conducted in the field within the normal practical class times. Equipment and safety issues for field work are described below.

### **Scaffolding of workshops, practicals, fieldwork and assessment**

All modules will 'lead' with practical experiences and will be followed by large group teaching (lectures or zoom meetings) to back up and provide depth to the practical experience.

The fieldtrips build on knowledge, concepts and skills developed in the workshops/lectures and practicals. You should prepare for each fieldtrip by reading the recommended papers, attending the workshops/lectures and practicals.

Knowledge and skills developed during the **fieldtrips** (field reports) are directly **assessable**. Knowledge and understanding of **lecture and practical content** is assessed in the **weekly quizzes** and formal **examination**.

### **Textbooks and Essential Readings**

The following texts are suggested as being valuable reading. You are not required to purchase them, but may find them useful. There are some copies in the library.

- Paton TR, Humphreys GS and Mitchell PB, 1995. *Soils: A New Global View*. UCL Press.
- National Committee on Soil and Terrain, 2009. *Australian Soil and Land Survey Handbook*, 3<sup>rd</sup> edition. CSIRO Publishing, Melbourne.
- Fryirs, K.A. and Brierley, G.J., 2013. *Geomorphic Analysis of River Systems: An Approach to Reading the Landscape*. Wiley-Blackwell. ISBN 978-1-4051-9274-3. Associated online resources: [www.wiley.com/go/fryirs/riversystems](http://www.wiley.com/go/fryirs/riversystems)
- Summerfield MA. 1991 *Global Geomorphology: An introduction to the study of landforms*. Longmans, London. 537 pp.

The following articles are essential reading (also see the Leganto block on iLearn):

- ToG (Treatise on Geomorphology) is an eBook which you can search for on the Library search page and save to your computer. Note that after section 11.9 you need to search by page number (upper right).
- Bishop PM, Mitchell PB and Paton TR (1980) The formation of duplex soils on hillslopes in the Sydney Basin, Australia. *Geoderma*. 23: 175-89.
- Lambeck, K. and Chappell, J., 2001. Sea level change through the last glacial cycle. *Science*, 292: 679-686.
- Lees, B.G., 2006. Timing and formation of coastal dunes in northern and eastern Australia. *Journal of Coastal Research*, 22: 78-89.
- Lewis, S.E., Sloss, C.R., Murray-Wallace, C.V., Woodroffe, C., Smithers, S.G., 2013. Post-glacial sea-level changes around the Australian margin: a review.

*Quaternary Science Reviews* 74, 115-138 10.1016/j.quascirev.2012.09.006.

- Macklin, M.G., Brewer, P.A., Hudson-Edwards, K.A., Bird, G., Coulthard, T.J., Dennis, I.A., Lechler, P.J., Miller, J.R. and Turner, J.N. 2006. A geomorphological approach to the management of rivers contaminated by metal mining. *Geomorphology*, 79: 423-447.
- Mould, S., Fryirs, K., 2018. Contextualising the trajectory of geomorphic river recovery with environmental history to support river management. *Applied Geography* 94, 130-146 10.1016/j.apgeog.2018.03.008.
- Nanson, G.C. and Croke, J.C. 1992. A genetic classification of floodplains, *Geomorphology*, 4, 459-486.
- Short AD and Wright LD (1983) Physical variability of sandy beaches, in *Sandy Beaches as Ecosystems* (A. McLachlan and T Erasmus, eds).
- Thom BG and Roy PS (1985) Relative sea level and coastal sedimentation in southeast Australia in the Holocene. *Journal of Sedimentary Petrology* 55: 257-264
- Thompson, C.H., 1981. Podzol chronosequences on coastal dunes of eastern Australia. *Nature*, 291: 59-61.

## Methods of Communication

We will communicate with you via your university email or through announcements on iLearn. Queries to convenors should be placed on the iLearn discussion board (for general questions of relevance and interest to the class) or sent to the lecturer/convenor (firstname.lastname@mq.edu.au) for any individual questions. We only have access to your university email address and all iLearn announcements are sent to that address. Please add your university email address to your mail app and check regularly.

## Technology Used and Required

This unit will use iLearn and associated technology. See the [Instructions on how to log in to iLearn](#) and the links below which will help you:

- [Getting started](#)
- [Activities](#)
- [Assignments and grades](#)
- [Online study tips](#)
- [Discussion forums](#)
- [Lecture recordings](#)
- [Zoom Live Transcription](#)

You can gain access to powerpoint slides used for each lecture by visiting the iLearn page for ENV52266. iLearn will be used by staff to send reminders and notices concerning fieldtrips, practical classes and lectures. You should check the site regularly, especially the day before lectures/pracs. There is also a discussion forum between students; please feel free to use this to

discuss issues relating to any aspect of the unit and geomorphology in general. For specific questions of the lecturers, contact them directly. For practicals 4 and 8 you should use ArcMap GIS software. You will be able to access this on University laptops in the pracs, in the 11WW computer labs after hours. You may also be able to install a copy on your own computer (not on Macs), requiring a licence code issued by the University.

The major assignments must also be submitted electronically through Turnitin, via the iLearn page for this unit. This software provides a means of gauging the timing of submission, an originality checker to test for potential plagiarism and a paperless grading system, more information on this program can be found at (<http://turnitin.com/>) and ([http://mq.edu.au/iLearn/student\\_info/assignments.htm](http://mq.edu.au/iLearn/student_info/assignments.htm)) and a 'quick guide' in ilearn next to the Turnitin link. Many of the readings (scientific papers) are available on-line from the library.

## Student Workload

***We recommend that you complete the full unit workload and attempt all assessment tasks.***

ENV52266 is a 10 credit point unit and, according to University guidelines, you should spend at ~10 hours on the unit each week, or 150 hours over the 15 week session. The following is a guideline as to how that time should be spent:

Activity	Hours Per Teaching Week	No. of Weeks	Hours Per Session
Practicals	3	9	27
Lectures	2	10	20
Fieldtrips	-	-	21
Weekly content quizzes	1.2	10	12
Field Report 1	-	-	15
Field Report 2	-	-	20
Exam and exam preparation	-	-	20
Other (independent study, reading, class preparation, etc.)	1	15	15
<b>Total for session</b>			<b>150</b>
<b>Per week (15 weeks)</b>			<b>10</b>

## Unit Schedule

Please see the weekly class schedule provided on [iLearn](#) and the laboratory manual (to be issued in week 1).

There are lectures and a practical in week 1 (see iLearn for details)

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#) (<https://policie>

[s.mq.edu.au](https://www.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 \(https://students.mq.edu.au/support/study/policies\)](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 \(https://policies.mq.edu.au\)](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 [connect.mq.edu.au](https://connect.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto: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 the [Service Connect Portal](#), 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/](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

We value student feedback and aim to continually improve this unit. We encourage students to provide constructive feedback via student surveys, to the teaching staff directly, or via the FSE Student Experience & Feedback link in the iLearn page.

Student feedback from the previous offering of this unit was very positive overall, especially in terms of practical and fieldwork activities and skills developed. We took on board feedback to reduce the number of assessment items, and so this new offering does not have any practical

class assessments.

## Fieldwork

### FIELDWORK

**Weather:** We never cancel fieldtrips for bad weather! You must be prepared to work in the rain with the appropriate clothing. Likewise you should always protect yourself from the sun and dehydration.

**Transport:** You will need to arrange your own transport for these fieldtrips. Ideally you should arrange to drive to each site with several other students from your practical class. There are usually a limited number of spaces available in staff vehicles.

**Arrival:** See the prac book for the arrival time for your fieldtrip. For Seal Rocks there are two options starting either (1) 8 am Friday morning, or (2) midday Saturday. For Macdonald River there will be day-trip options starting at 9 am each day.

**Cost:** You must cover your own food and transport costs and pay for accommodation. We book accommodation on behalf of the group and you must pay your money using the form to be provided on the iLearn page BEFORE THE TRIP.

**Food:** We will advise you of plans depending on which fieldtrip option you choose. You will need lunches to eat in the field and to provide your own breakfast. Depending on which fieldtrip option you choose you may need to bring one or two dinners. There are no shops nearby so you must bring everything with you for the duration of the fieldtrip.

**Accommodation:** Field accommodation is in bunk rooms with communal kitchens, dining, bathroom/toilet and work areas. You should bring (apart from the gear listed below) a sleeping bag, pillow and towel.

**Departure:** We aim to leave the field by: Seal Rocks - midday Saturday (first option) or 5 pm on the Sunday afternoon (second option), Macdonald River: by 5 pm each day, after all field equipment is returned and the accommodation cleaned. You must sign off before returning home.

**Personal Field Equipment:** Each student should bring the following aids/comforts on each field trip:

- sturdy shoes - no sandals, thongs, or high heels! (no visible skin below the ankles)
- water bottle (at least 1 litre)
- wet weather gear - we go whatever the weather!!! Cheap plastic ponchos will not survive walking through scrub.
- hat (with a wide brim, front and back), insect repellent and sunscreen
- field note book and pencils (see note below)
- calculator, hand lens, small pocket knife
- camera
- your lunch, drinks & snacks for the day - we do not stop at shops!!!

- a back pack to store it all in

## FIELD EQUIPMENT YOU SHOULD PURCHASE

- Field notebook
- Hand lens

Each student MUST purchase a small hardcover notebook for use in the field. It should be bound down the spine on the left side, or across the top (but NOT spiral bound). The notebook does not necessarily have to be used only for this unit (you may have used it on previous trips) but it should be good quality and able to withstand a week in the field – in what may be wet conditions. The best, and most expensive, option is a waterproof Rite-in-the-Rain, Markrite or Chartwell notebook. There are several versions but the best options are 1. Geological (Rite in the Rain 540F), with columns, lines and grids (good for sketching and data), included classifications; 2. Small Rite in the Rain notebook (200T) which can be inserted in a hard cover (200C). The first will last you several fieldtrips (and units), the second will probably last you this Unit.

These items can be bought online, for example, Prospectors Supplies. They can be used in many ENV5, BIOL and EESC units.

## SAFETY IN THE FIELD AND LABORATORY

Any student who has a disability that may limit their participation in field work or that could result in a medical emergency in the field should notify the unit convenor immediately. As a general guide to the level of physical fitness required, you should be able to walk 10 km over open undulating terrain in 3 hours.

**Each student must ensure his/her own safety at all times during field excursions.**

- Do not undertake fieldwork alone. You must work with at least one other person.
- You must be adequately equipped to undertake fieldwork, including wet weather clothing, warm clothing, hat and sun protection, protective footwear (closed toe boots or shoes).
- You should bring a first aid kit if you have one (they will be provided to each group but do not include any drugs/creams etc).
- Do not undertake any activity you feel to be unsafe. Discuss with the fieldtrip leader any concerns you have about particular tasks.
- Be watchful of the safety of your fellow students, if they become separated from the group or are at some other risk. Tell the fieldtrip leader as soon as you notice a potentially dangerous situation.
- If you have any medical condition (including allergies) that require medication then you should bring medication with you. We do not have and cannot provide any medication (including non-prescription).

Laboratory work in this unit does not involve hazardous chemicals. Nevertheless, in the



laboratory you must wear safe (closed) footwear and generally follow safe practice. Where items of equipment are to be used, do not use them until you have received adequate training.

## **Geoff Humphreys Prize**

All students taking ENV52266 are eligible for the Geoff Humphreys Prize for proficiency in this unit. The prize is for \$300 (cash).

Geoff Humphreys was a lecturer in Physical Geography from 1994 to 2007 but had an association with Macquarie extending back to the early 1970s when he began his undergraduate degree here. Geoff was an energetic and enthusiastic researcher and teacher in soil science and geomorphology. His great passion was researching the processes of soil formation, especially the role of the biosphere in soil turnover and movement – bioturbation. Geoff was very much at home in the field and greatly enjoyed teaching students in the bush where it is possible to see processes in action and also the landscape context of detailed measurements.

Geoff was instrumental in devising the curriculum of ENV52266 and taught in the unit for many years. This prize, first awarded in 2007 following Geoff's sudden death, is awarded to the student who shows the most proficiency in this unit which attempts to convey some of Geoff's fascination with how landscapes work.

You can read more about our colleague, mentor and friend, Geoff, here <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1745-5871.2008.00513.x> and here <https://old.iuss.org/about-the-iuss/iuss-history/obituaries-to-great-soil-scientists/gshumphreys-1953-2007/index.html>

## **This unit and the Environmental Science program at MQ**

### **AIMS AND SCOPE OF ENV52266**

ENV52266 aims to present a unified picture of processes, materials and forms occurring at the surface of the earth. That means how and why the earth's surface looks and behaves as it does and includes the soils, sediments and landforms as well as the processes important to them. Given its antiquity, along with its geographic, tectonic and climatic character, Australia has a distinctive and diverse landscape. The unit therefore draws unashamedly on Australian, and often local, examples which have immediate relevance to Australian environmental problems. The principles and ideas, however, are certainly global and possibly universal (at least applying to the solar system). We aim to give you the 'tools' to understand landscape processes no matter where you are. Time constraints prevent coverage of all aspects of geomorphic enquiry. Emphasis is placed on soil materials, slope, river and coastal environments, although the arid interior of Australia and other exotic places are also examined briefly and the role of human activities is examined. Connections between various aspects of the landscape will be stressed, aiming to provide an integrative perspective on surface processes.

### **ENVIRONMENTAL SCIENCE AT MACQUARIE**

ENV52266 is a core 2000-level unit in the Environmental Science major (Bachelor of Environment) and Earth and Environmental Science major (Bachelor of Science) and is the main prerequisite for the 3000-level units ENV53238 (Environmental Quality and Assessment),

ENV53439 (Geomorphic Analysis of Rivers and Wetlands for Conservation and Management), ENV53240 (Environmental Change) and ENV53241 (Active Environments).

Earth Surface Processes describes the study of the earth's surface, the diverse physical processes found there and the connections between them. As the name suggests, it lies at the nexus between earth systems and biological systems – it is often concerned with landscapes and the landforms, sediments and soils within them but also, and crucially, the interaction of plants and animals in directing processes and shaping habitat. Earth Surface Processes combines aspects of Geomorphology, Soil Science, Natural Hazards, Environmental Management and Ecology. As a consequence, graduates gain skills essential for management of natural resources, including rural rivers and lands, and highly altered landscapes, including urban environments and mining areas.

Graduates enter a wide range of workplaces including: environmental and geotechnical consultancies, local government (environmental officers), state government departments (Infrastructure, Planning and Natural Resources; Environment and Conservation), National Parks and Wildlife Service, Sydney Water, mining companies (environmental officers), teaching (primary and secondary) and research.

Earth Surface Processes is offered within the Bachelor of Science and Bachelor of Environment. It is also suitable as a component of other specialised programs, including Environmental Management, Biology and Archaeology.

Please feel free to discuss your program with any of the staff in the unit at any time during the semester.

You can also find more information about the Bachelor of Environment program and units of study at: <https://coursehandbook.mq.edu.au/2025/courses/C000003>

and about the Bachelor of Science, Earth and Environmental Sciences major at: <https://coursehandbook.mq.edu.au/2025/aos/N000264>

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Unit information based on version 2025.04 of the [Handbook](#)