



ENVS2237

Natural Hazards, Disasters and their Management

Session 2, In person-scheduled-weekday, North Ryde 2026

School of Natural Sciences

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General Information

Unit convenor and teaching staff

Convenor

Assoc/Prof. Kerrie Tomkins

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Contact via iLearn

Tutor

Mr Peter Johnston

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Contact via iLearn

Not based on campus

Zoom by appointment

Credit points

10

Prerequisites

40cp at 1000 level or above

Corequisites

Co-badged status

Unit description

The importance of natural hazards and their impacts is growing as population increases and the world is increasingly overshadowed by a changing climate. Natural hazards include those from the solid earth, such as earthquakes and volcanoes; weather-related impacts from floods, tropical cyclones, drought and bushfires; biohazards; and rarer 'megahazards' such as asteroid impacts. The impacts from natural hazards can cause humanitarian disasters and cost billions of dollars. But what are the most important hazards, and where do the disasters occur? How can we manage and reduce disaster impacts? This unit approaches natural hazards via an understanding of how they occur, what they do and how we can mitigate their impacts. This approach allows future societies to be more resilient to the impacts of natural hazards.

Learning in this unit enhances student understanding of global challenges identified by the United Nations Sustainable Development Goals ([UNSDGs](#)) Good Health and Well Being, Sustainable Cities and Communities; Climate Action

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: Explain concepts of hazard, vulnerability and risk to inform professional, managerial and lay audiences of risk and risk management.

ULO2: Assess the key spatial and temporal patterns and processes by which natural hazards and disasters occur to help understand and quantify risk at any particular location.

ULO3: Describe the physical, economic and social consequences of natural hazards to help understand and quantify vulnerability and risk.

ULO4: Explain critical pathways between natural hazards and their impacts to help understand the complexity of disasters and their management.

ULO5: Demonstrate written communication skills to present relevant material for diverse audiences, including government and community.

General Assessment Information

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

We strongly encourage all students to actively participate in all learning activities. 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.

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, and these criteria (e.g. in a rubric) will be made available when the assessment tasks are released to you on iLearn.

Referencing: Students often ask about the preferred referencing style. The University approves five styles (<https://libguides.mq.edu.au/referencing>). The default is APA 7th style (https://libguides.mq.edu.au/APA7_referencing), but any of the five are acceptable.

Use of Generative Artificial Intelligence Tools: Many students have experimented with AI tools to write or re-write their text. Read this advice: <https://students.mq.edu.au/study/assessment-exams/academic-integrity/ai-tools> and refer to iLearn for more information ("Using AI in this Unit" tab). Please use AI tools in a responsible manner to enhance, but not replace,

your learning.

Submission of Assessments: Instructions and submission links for the assessments are provided in iLearn ("Assessments" tab). Do not submit written assessments via email. Due dates for all assessments are shown in the unit schedule on iLearn ("Unit information" tab). 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.

Automatic Short-Extensions: Students are able to request a short 3-day extension for Assessments 1 and 2. The short extensions are approved automatically and recorded, however, iLearn will still show the original due date for the assessment. The short-extensions do not apply to the final exam.

Marking of Assessments: Assessments will be marked by a tutor and feedback will be noted on the assignments. Assessment marks will be available via the Grades Report on iLearn. We aim to return your written assessment with feedback within three weeks of the date of submission although sometimes other factors can affect release dates, particularly late submissions due to short-extensions. We appreciate your patience and will advise you through iLearn when your marked assessments are available for viewing.

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

For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, please apply for [Special Consideration](#).

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 unit assessments on time, please inform the convenor and submit a Special Consideration request through <https://connect.mq.edu.au>.

Second Chance Strategy: Second chance strategies may be offered to you to ensure that you successfully complete the unit. Circumstances where this may apply are: if you fail an assessment, OR if you don't submit an assessment but remain engaged in the unit, OR if you fail the exam. The maximum grade for second chance attempts is 50 % and will be offered on a case-by-case basis. Students wishing to improve their mark where they have already passed the unit, will not be offered a second chance.

Assessment Tasks

Name	Weighting	Hurdle	Due	Groupwork/Individual	Short Extension	AI Approach
Skills Development	20%	No	27/08/2026	Individual	Yes	Open
Case Study 1	30%	No	08/10/2026	Individual	Yes	Open
Final Exam	50%	No	Exam period (TBC)	Individual	No	Observed

Skills Development

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 20 hours

Due: **27/08/2026**

Weighting: **20%**

Groupwork/Individual: Individual

Short extension ³: Yes

AI Approach: Open

Students will apply skills in analysis of topical natural hazards with disasters.

On successful completion you will be able to:

- Explain concepts of hazard, vulnerability and risk to inform professional, managerial and lay audiences of risk and risk management.
- Assess the key spatial and temporal patterns and processes by which natural hazards and disasters occur to help understand and quantify risk at any particular location.
- Describe the physical, economic and social consequences of natural hazards to help understand and quantify vulnerability and risk.
- Explain critical pathways between natural hazards and their impacts to help understand the complexity of disasters and their management.
- Demonstrate written communication skills to present relevant material for diverse audiences, including government and community.

Case Study 1

Assessment Type ¹: Problem-based task

Indicative Time on Task ²: 30 hours

Due: **08/10/2026**

Weighting: **30%**

Groupwork/Individual: Individual

Short extension ³: Yes

AI Approach: Open

The case study links theoretical concepts and practical situations using real-world scenarios and problems. Students will analyse, evaluate and relate ideas to the case and propose a solution to the problem posed. See iLearn for details of the case study.

On successful completion you will be able to:

- Explain concepts of hazard, vulnerability and risk to inform professional, managerial and lay audiences of risk and risk management.
- Assess the key spatial and temporal patterns and processes by which natural hazards and disasters occur to help understand and quantify risk at any particular location.
- Describe the physical, economic and social consequences of natural hazards to help understand and quantify vulnerability and risk.
- Explain critical pathways between natural hazards and their impacts to help understand the complexity of disasters and their management.
- Demonstrate written communication skills to present relevant material for diverse audiences, including government and community.

Final Exam

Assessment Type ¹: Examination

Indicative Time on Task ²: 30 hours

Due: **Exam period (TBC)**

Weighting: **50%**

Groupwork/Individual: Individual

Short extension ³: No

AI Approach: Observed

You will undertake a final examination during the formal examination period.

On successful completion you will be able to:

- Explain concepts of hazard, vulnerability and risk to inform professional, managerial and lay audiences of risk and risk management.
- Assess the key spatial and temporal patterns and processes by which natural hazards and disasters occur to help understand and quantify risk at any particular location.
- Describe the physical, economic and social consequences of natural hazards to help understand and quantify vulnerability and risk.
- Explain critical pathways between natural hazards and their impacts to help understand the complexity of disasters and their management.
- Demonstrate written communication skills to present relevant material for diverse

audiences, including government and community.

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

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- [Academic Success](#) for academic skills support.

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

³ An automatic short extension is available for some assessments. Apply through the [Service Connect Portal](#).

Delivery and Resources

Week 1 Classes: Lectures start in week 1. Workshops start in week 2.

Methods of Communication: We will communicate with you through announcements on iLearn, and possibly also your university email. General queries about the unit content can be placed on the iLearn discussion board. It is your responsibility to stay up to date.

If your query is of a personal nature, or if you want more privacy, please don't email us directly. Instead, post a message to the "Private Message to Unit Contacts" link (see "Communications" tab). This helps us to manage student queries and improves your response time.

Class Schedule: Students should check class availability with the Classfinder tool in [eStudent](#)

A detailed Unit Schedule with the weekly topics and assessment task due dates is available on iLearn ("Unit Information" tab).

Learning Activities: You must receive an aggregate mark of at least 50% to pass this unit. In order to receive a Pass grade, you should spend around 12 h per week on this unit, which includes lectures, practicals, reading and assessment preparation and completion. However, keep in mind, marks are awarded on a demonstration of your understanding and ability, not on time or effort!

- Lectures provide the framework with which to focus your study of the subject and they are essential for you to engage with. There are 25 lectures, which are pre-recorded so you can listen to them in your own time. You **MUST** complete the lectures **BEFORE** the prac each week so that you understand the topics covered in the practical.
- You need to attend 10 x 2-hour on-campus practicals, starting from Week 2. The practicals contain material to supplement the lectures and comprise of exercises which give you skills to help with your understanding of the unit topics and the workplace. The practicals are run as a workshop-style consisting of tasks that you have to work through individually, but teaching staff will be available to introduce the activity, demonstrate

skills and help you to work through tasks, if you need help. The assessments for the unit will also be discussed in the pracs. Hence, the pracs provide the best opportunity for you to ask questions and seek feedback on your learning.

- You should supplement the lectures and pracs by reading from current journals. The iLearn site contains some readings related to the unit content including the Middlemann (2007) text, but please don't limit yourself to those.

All lecture content and practical material is assessable in the final exam.

Note: the lectures are pre-recorded, but the pracs are delivered face to face and will NOT be recorded.

Technologies Used and Required: You will need to bring a computer to the practicals each week. We will use basic programs such as Word and Excel. You will also need a computer to use the university systems (e.g. iLearn, library) and complete the assessment tasks. Submissions of the assessment tasks will be through iLearn using Turnitin. Help with IT can be obtained at students.mq.edu.au/support/.

Background Reading: There is no textbook set for this unit. The volume by Middlemann (Ed) 2007 is the best available for Natural Hazards in Australian (see "Unit Information" tab for the link to download).

Assessment Grading Standards: Grades for the written assessment tasks and the unit as a whole will be awarded according to a general rubric shown in the table below.

Aspect	Developing	Functional	Proficient	Advanced
Grades	Has not yet reached the desired standard. A Fail grade would be given.	Has reached basic academic standards. A Pass grade would be awarded.	Has completely reached the standards expected. A Credit would be awarded.	Has gone beyond the expected standard. A grade of Distinction or High Distinction would be awarded.
Concepts	Limited understanding of required concepts and knowledge.	Can accurately reproduce required facts, but has limited depth of understanding of basic concepts.	Exhibits breadth and depth of understanding. Uses terminology accurately in new contexts and transfers ideas to new situations.	Exhibits breadth and depth of understanding of concepts. Can engage in productive critical reflection.
Analysis & Synthesis	Data analysis skills are limited.	Data analysis skills are largely descriptive with limited capacity to combine multiple factors.	Can synthesise data and critique the value and importance of scientific arguments.	Data analysis is sophisticated and is capable of placing examples in context of big ideas, problems and solutions.

Independence	Uses immediately available information without discretion.	Can select useful information. Does not always discriminate between types of sources of information.	Independently selects useful information and can discriminate between types of sources of information.	Independently selects useful information and can critically discriminate between types of sources of information.
Communications	Poor written communication skills (e.g. spelling and grammar). Does not demonstrate an understanding of what is expected in assignment writing and presentation.	Communicates ideas adequately in writing. Adheres to most basic requirements for written work and assignment presentation.	Communicates effectively and clearly in writing. Adheres to all expectations of assignment writing and presentation.	Communicates adeptly in writing. Adheres to all expectations of assignment writing.

Policies and Procedures

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

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

Students seeking more policy resources can visit [Student Policies](https://students.mq.edu.au/support/study/policies) (<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 or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

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

Student Support

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

Academic Success

[Academic Success](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Ask a Study Coach](#)
- [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 <https://students.mq.edu.au/support/technology/service-desk>.

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

Due to retirements and course structure changes, this is planned to be the last offering of this unit. To ensure that students receive the best possible learning, the lectures were recorded by the professor who taught the unit for many years. The practicals will be taken by a tutor who has also been teaching in this unit for years, and has a wealth of knowledge and professional experience from decades spent working in industry.

Unit information based on version 2026.03 of the [Handbook](#)