



## UNSW Course Outline

# MERE2810 Mineral Resource Geology & Geophysics - 2024

Published on the 20 May 2024

## General Course Information

**Course Code :** MERE2810

**Year :** 2024

**Term :** Term 2

**Teaching Period :** T2

**Is a multi-term course? :** No

**Faculty :** Faculty of Engineering

**Academic Unit :** School of Minerals & Energy Resources Engineering

**Delivery Mode :** In Person

**Delivery Format :** Standard

**Delivery Location :** Kensington

**Campus :** Sydney

**Study Level :** Undergraduate

**Units of Credit :** 6

### Useful Links

[Handbook Class Timetable](#)

## Course Details & Outcomes

### Course Description

The course provides a general understanding of economic geology. Tied with useful working knowledge of the formation of different ore deposits, this course will assist students in the development of appropriate mine planning, design decisions, and to conduct an economic

feasibility study.

The course teaches a range of geological data collection and major exploration techniques used in the Australian and international minerals industries for discovering and characterising major orebodies and mineral deposits. The potential application of such techniques, as well as their limitations, are discussed to inform the usefulness and appropriate application of such techniques in the industry.

The course introduces the essential integration paths between geology and mining engineering – both in terms of the information collected and how it is applied, as well as the interaction of the professional staff involved.

Furthermore, students will have the opportunity for hands-on learning through fieldwork and relevant software packages.

## **Course Aims**

The course introduces students to the fundamental concepts and processes relating to some ore deposits' genesis and geological and geophysical characteristics. Students will be able to interpret data from geological techniques and be able to make decisions. The course is specialised and designed for those who will deal with mine geology. It will also be useful for those who are majoring in other areas such as mineral resources exploration and geotechnical engineering.

# Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe the major ore deposit types and their characteristics.
CLO2 : Analyse and interpret mineralogical and lithological data.
CLO3 : Outline and review the major exploration techniques and their applications/limitations.
CLO4 : Examine and classify the various geological parameters and their role and importance in the mine planning and operations processes.
CLO5 : Develop a geological model.

Course Learning Outcomes	Assessment Item
CLO1 : Describe the major ore deposit types and their characteristics.	<ul style="list-style-type: none"><li>• Individual Report</li><li>• Topic Quizzes</li><li>• Group Work</li><li>• Final Exam</li></ul>
CLO2 : Analyse and interpret mineralogical and lithological data.	<ul style="list-style-type: none"><li>• Individual Report</li><li>• Topic Quizzes</li><li>• Group Work</li><li>• Final Exam</li></ul>
CLO3 : Outline and review the major exploration techniques and their applications/limitations.	<ul style="list-style-type: none"><li>• Individual Report</li><li>• Topic Quizzes</li><li>• Final Exam</li></ul>
CLO4 : Examine and classify the various geological parameters and their role and importance in the mine planning and operations processes.	<ul style="list-style-type: none"><li>• Group Work</li><li>• Topic Quizzes</li><li>• Final Exam</li></ul>
CLO5 : Develop a geological model.	<ul style="list-style-type: none"><li>• Group Work</li><li>• Final Exam</li></ul>

## Learning and Teaching Technologies

Moodle - Learning Management System

# Assessments

## Assessment Structure

Assessment Item	Weight	Relevant Dates
Individual Report Assessment Format: Individual Short Extension: Yes (7 days)	20%	Start Date: Week 2 Due Date: 12/07/2024 11:59 PM
Topic Quizzes Assessment Format: Individual	15%	Start Date: W2, W3, W4, W5, W7, W8, W9 Due Date: W2, W3, W4, W5, W7, W8, W9
Group Work Assessment Format: Group	30%	Start Date: Week 2 Due Date: Week 9
Final Exam Assessment Format: Individual	35%	Start Date: UNSW Exam Period Due Date: UNSW Exam Period

## Assessment Details

### Individual Report

#### Assessment Overview

A report on a major mining deposit, including its genesis processes, geological features, and exploration techniques.

#### Course Learning Outcomes

- CLO1 : Describe the major ore deposit types and their characteristics.
- CLO2 : Analyse and interpret mineralogical and lithological data.
- CLO3 : Outline and review the major exploration techniques and their applications/limitations.

#### Assessment Length

No more than 10 pages.

#### Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

### Topic Quizzes

#### Assessment Overview

Individual multiple-choice weekly quizzes covering each of the modules for the course.

#### Course Learning Outcomes

- CLO1 : Describe the major ore deposit types and their characteristics.
- CLO2 : Analyse and interpret mineralogical and lithological data.
- CLO3 : Outline and review the major exploration techniques and their applications/limitations.

- CLO4 : Examine and classify the various geological parameters and their role and importance in the mine planning and operations processes.

#### Assignment submission Turnitin type

Not Applicable

## Group Work

#### Assessment Overview

Field visit and produce a geological model. A presentation will be delivered by the students.

#### Course Learning Outcomes

- CLO1 : Describe the major ore deposit types and their characteristics.
- CLO2 : Analyse and interpret mineralogical and lithological data.
- CLO4 : Examine and classify the various geological parameters and their role and importance in the mine planning and operations processes.
- CLO5 : Develop a geological model.

#### Assessment Length

No more than 15 pages

#### Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

## Final Exam

#### Assessment Overview

Students are tested on the whole course content.

#### Course Learning Outcomes

- CLO1 : Describe the major ore deposit types and their characteristics.
- CLO2 : Analyse and interpret mineralogical and lithological data.
- CLO3 : Outline and review the major exploration techniques and their applications/limitations.
- CLO4 : Examine and classify the various geological parameters and their role and importance in the mine planning and operations processes.
- CLO5 : Develop a geological model.

#### Assessment information

The final exam will take place during the UNSW Exam Period.

#### Assignment submission Turnitin type

Not Applicable

# **General Assessment Information**

## **Grading Basis**

Standard

# Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 27 May - 2 June	Lecture	Minerals and Rocks Tuesday 04:30pm - 06:30pm Law Theatre G23
	Workshop	Introduction to the Workshops Monday 04:00pm - 06:00pm OMB G48 Computer Lab
Week 2 : 3 June - 9 June	Lecture	Tectonics and Geological Structures Tuesday 04:30pm - 06:30pm Law Theatre G23
	Workshop	Vulcan Training Monday 04:00pm - 06:00pm OMB G48 Computer Lab
Week 3 : 10 June - 16 June	Lecture	Introduction to Geological Mapping Coal Deposits Tuesday 04:30pm - 06:30pm Law Theatre G23
	Workshop	Desktop Study for Geological Mapping Field Mapping Equipment Monday 04:00pm - 06:00pm OMB G48 Computer Lab
	Fieldwork	Fieldwork on Saturday 15 June, 10am to 4pm at Maroubra Beach
Week 4 : 17 June - 23 June	Lecture	Ore Deposits Tuesday 04:30pm - 06:30pm Law Theatre G23
	Workshop	Geological Mapping Monday 04:00pm - 06:00pm OMB G48 Computer Lab
Week 5 : 24 June - 30 June	Lecture	Mineral Exploration Tuesday 04:30pm - 06:30pm Law Theatre G23
	Workshop	Geological Mapping Monday 04:00pm - 06:00pm OMB G48 Computer Lab
Week 6 : 1 July - 7 July	Lecture	Review of the Materials Tuesday 04:30pm - 06:30pm Law Theatre G2
	Workshop	Review of the Materials Monday 04:00pm - 06:00pm OMB G48 Computer Lab
Week 7 : 8 July - 14 July	Lecture	Borehole Geophysical Logging Tuesday 04:30pm - 06:30pm Law Theatre G2
	Workshop	Geological Mapping and Modelling Monday 04:00pm - 06:00pm OMB G48 Computer Lab
Week 8 : 15 July - 21 July	Lecture	Introduction to Exploration Geochemistry Tuesday 04:30pm - 06:30pm Law Theatre G2
	Workshop	Geological Mapping and Modelling Monday 04:00pm - 06:00pm OMB G48 Computer Lab
Week 9 : 22 July - 28 July	Lecture	The Tectonic Stress Field Rock Discontinuities Tuesday 04:30pm - 06:30pm Law Theatre G2
	Workshop	Geological Mapping and Modelling Monday 04:00pm - 06:00pm OMB G48 Computer Lab
Week 10 : 29 July - 4 August	Lecture	Review of the Materials Tuesday 04:30pm - 06:30pm Law Theatre G2
	Workshop	Review of the Materials

		Monday 04:00pm - 06:00pm OMB G48 Computer Lab
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## Attendance Requirements

Please note that lecture recordings are not available for this course. Students should attend all classes. Weekly quizzes will be administered in person during class sessions.

## Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Hamed Lamei Ramandi		Room 156, 1st Floor, Old Main Building, UNSW Sydney, NSW 2052, Australia	+61 (2) 9065 7310		Yes	Yes

## Other Useful Information

### Academic Information

#### I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's [Special Consideration page](#).

#### II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- [Attendance](#)
- [UNSW Email Address](#)
- [Special Consideration](#)
- [Exams](#)

- [Approved Calculators](#)
- [Academic Honesty and Plagiarism](#)
- [Equitable Learning Services](#)

### III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

### IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: <https://www.unsw.edu.au/engineering/student-life/student-resources/program-design>.

*Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.*

### Academic Honesty and Plagiarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: [student.unsw.edu.au/plagiarism](http://student.unsw.edu.au/plagiarism). The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

[www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf](http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf)

## **Submission of Assessment Tasks**

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

## **Faculty-specific Information**

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash

requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

[UNSW Exchange](#) – student exchange enquiries (for inbound students)

[UNSW Future Students](#) – potential student enquiries e.g. admissions, fees, programs, credit transfer

## **Phone**

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

## **School-specific Information**

### **Course completion**

Course completion requires submission of all assessment items. Failure to submit all assessment items may result in the award of an Unsatisfactory Failure (UF) grade for the Course unless special consideration has been submitted and approved.

### **Submission of Assessment Tasks**

We encourage you to retain a copy of every assignment submitted for your own record, either in hardcopy or electronic form. All assessments must have an assessment cover sheet attached (if required).

### **Student Resources**

The School has [student resources](#) section, containing useful advice and information to ensure you're able to focus on your studies.

### **Computing Resources and Internet Access Requirements**

UNSW Minerals and Energy Resources Engineering provides blended learning using the online Moodle LMS (Learning Management System). Also see - Transitioning to Online Learning: [www.covid19studyonline.unsw.edu.au](http://www.covid19studyonline.unsw.edu.au)

Note that some specialist engineering software is not available for Mac computers.

- Mining Engineering Students: OMB G48
- Petroleum Engineering Students: TETB LG34 & LG35

For more information about system requirements is available at [www.student.unsw.edu.au/moodle-system-requirements](http://www.student.unsw.edu.au/moodle-system-requirements)

### Accessing Course Materials Through Moodle

Course outlines, support materials are uploaded to Moodle, the university standard Learning Management System (LMS). In addition, on-line assignment submissions are made using the assignment dropbox facility provided in Moodle. All enrolled students are automatically included in Moodle for each course. To access these documents and other course resources, please visit: [www.moodle.telt.unsw.edu.au](http://www.moodle.telt.unsw.edu.au)

### School Contact Information

School of Minerals and Energy Resources Engineering

Old Main Building, Level 1, 159 (K15)

UNSW SYDNEY NSW 2052 AUSTRALIA

For current students, all enquiries and assistance relating to enrolment, class registration, progression checks and other administrative matters, please see [The Nucleus: Student Hub](#).

#### Web & Important Links:

[School of Minerals and Energy Resources](#)

[The Nucleus Student Hub](#)

[Moodle](#)

[UNSW Handbook](#)

[UNSW Timetable](#)

[Student Wellbeing](#)

[Urgent Mental Health & Support](#)

[Equitable Learning Services](#)