



# GEOS112

## The Planet Earth

S1 External 2019

*Dept of Environmental Sciences*

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#### **Disclaimer**

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## General Information

Unit convenor and teaching staff

Unit Convenor and lecturer

Kira Westaway

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12 Wallys Walk Room 4.29 (ENVS)

Anytime by email appointment

Lecturer

Simon George

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12 Wally's Walk 3.29 (EPS)

During Module by email appointment

Lecturer

Craig O'Neill

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12 Wally's Walk 1.07 (EPS)

During Module by email appointment

Lecturer

Stuart Browning

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12 Wally's Walk 4.06 (ENVS)

During Module by email appointment

Credit points

3

Prerequisites

Corequisites

Co-badged status

### Unit description

This is a unit recommended for all environmental scientists, geologists, geographers, biologists and others seeking an integrated view of the Planet Earth. The unit deals with the Earth as a dynamic system, tracing both the origins and workings of the solid earth, the atmosphere, the oceans and the biosphere. The Earth's internal structure and tectonic processes (earthquakes, volcanism and plate movements), climate systems, climate variability and change, landforms, surface processes and the role of the biosphere are investigated. Models for the genesis of life are considered and patterns of evolution and extinction are traced through fossils and other evidence. Wherever possible, interactions (for example, between landscape and climate, atmosphere and life, plate movements and landforms) are examined to develop a unified model of the global system. Special lectures are included to illustrate the human significance of the models examined.

## 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:

Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them

To develop an appreciation of a wide range of scientific methods and be better equipped in the use and synthesis of available information

Present ideas and the supporting evidence clearly in written and verbal form

Building on and further developing skills in literacy, numeracy and information technology

Developing independence and skills for working in a group

Demonstrate critical thinking in your reading and interpretation of the literature and restate and draw original inferences from scientific papers.

Developing a hypothesis for testing and applying prior knowledge and understanding to a scientific problem

Applying knowledge to new situations and landscapes. Developing a means of presenting and synthesizing data in a creative way

Demonstrate foundational learning skills including active engagement in your learning process

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Assessment 1</a>	10%	No	10 am 5/4/19
<a href="#">Assessment 2</a>	20%	No	10 am 24/05/19
<a href="#">Assessment 3</a>	15%	No	N/A
<a href="#">Assessment 4</a>	15%	No	N/A
<a href="#">Practical participation</a>	0%	Yes	All weeks
<a href="#">Assessment 5</a>	40%	No	TBA

### Assessment 1

Due: **10 am 5/4/19**

Weighting: **10%**

**First Assignment;** Scientific discussion on the Module 1 content

On successful completion you will be able to:

- Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them
- To develop an appreciation of a wide range of scientific methods and be better equipped in the use and synthesis of available information
- Present ideas and the supporting evidence clearly in written and verbal form
- Building on and further developing skills in literacy, numeracy and information technology
- Demonstrate critical thinking in your reading and interpretation of the literature and restate and draw original inferences from scientific papers.
- Developing a hypothesis for testing and applying prior knowledge and understanding to a scientific problem
- Applying knowledge to new situations and landscapes. Developing a means of presenting and synthesizing data in a creative way

### Assessment 2

Due: **10 am 24/05/19**

Weighting: **20%**

## Second assignment; Scientific Report on Modules 2 and 3 content

On successful completion you will be able to:

- Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them
- To develop an appreciation of a wide range of scientific methods and be better equipped in the use and synthesis of available information
- Present ideas and the supporting evidence clearly in written and verbal form
- Building on and further developing skills in literacy, numeracy and information technology
- Demonstrate critical thinking in your reading and interpretation of the literature and restate and draw original inferences from scientific papers.
- Developing a hypothesis for testing and applying prior knowledge and understanding to a scientific problem
- Applying knowledge to new situations and landscapes. Developing a means of presenting and synthesizing data in a creative way

## Assessment 3

Due: **N/A**

Weighting: **15%**

### True/False Quizzes (15%)

There are a total of 12 true/false quizzes. They are completed online at home during weeks 2-13 for all students. The quizzes are done by you alone, closed-book. Each true/false quiz comprises 20 questions, based on **lecture material** for that week. The quiz will open on Tuesday at 10 am and close on Sunday at 11:59 pm each week. Your overall true/false quiz assessment will be based on your best 10 individual true/false quiz results. If you do not complete a true/false quiz in its scheduled week you will receive 0/20 for that individual true/false quiz.

On successful completion you will be able to:

- Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them
- To develop an appreciation of a wide range of scientific methods and be better equipped in the use and synthesis of available information
- Present ideas and the supporting evidence clearly in written and verbal form
- Building on and further developing skills in literacy, numeracy and information technology

## Assessment 4

Due: **N/A**

Weighting: **15%**

### Assessed Practical Quizzes (15%)

There are a total of 13 assessed practicals and associated quizzes that must be completed after each on campus session. The content of the practicals is of equal importance to the lectures so the quizzes are of equal weighting. As you conduct your practicals in the on campus session days ensure that every section is completed so that you can conduct your practical quiz at home. There will be 6 multiple choice questions related to the information and understanding you gained from the practical. The quiz has a time limit of 10 mins so you will need your answers ready. The practical quiz deadlines will be 10 am 7/4/19 for Modules 1 and 2 and 10 am 26/5/19 for Modules 3 and 4.

On successful completion you will be able to:

- Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them
- To develop an appreciation of a wide range of scientific methods and be better equipped in the use and synthesis of available information
- Building on and further developing skills in literacy, numeracy and information technology
- Developing independence and skills for working in a group
- Developing a hypothesis for testing and applying prior knowledge and understanding to a scientific problem

## Practical participation

Due: **All weeks**

Weighting: **0%**

**This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)**

### Student Engagement in 100-level Units

In an effort to develop good study skills from the outset the Faculty of Science and Engineering have made all practicals compulsory for 100 level units - this is now a hurdle assessment for the unit i.e., you must comply with this requirement to pass the unit.

While we expect 100% attendance at all practicals to guarantee a successful outcome the GEOS112 hurdle assessment requires that you attend and participate in at least 10 out of the 13 practicals. Therefore you must attend and participate in ALL four days of the on campus session to pass the unit. Your tutor will provide you with further details on what we define as participation.

Please contact your convenor [kira.westaway@mq.edu.au] as soon as possible if you have

difficulty attending and participating in any of the on campus session days and you may be able to attend the internal pracs to catch up. If there are circumstances that mean you miss any of the on campus days, you can apply for a disruption to studies request through ask and if approved these missed practicals will be removed from your record.

On successful completion you will be able to:

- Demonstrate foundational learning skills including active engagement in your learning process

## Assessment 5

Due: **TBA**

Weighting: **40%**

### **Final Examination (40%)**

The University Examination period in First Half Year 2019 is from Monday 10th June 2019 to Friday 28th June 2019.

You are expected to present yourself for examination at the time and place designated in the University Examination Timetable. The timetable will be available in Draft form approximately eight weeks before the commencement of the examinations and in Final form approximately four weeks before the commencement of the examinations.

<http://www.timetables.mq.edu.au/exam>

You are advised that it is Macquarie University policy not to set early examinations for individuals or groups of students. All students are expected to ensure that they are available until the end of the teaching session, that is, the final day of the official examination period.

The examination consists of two sections. Section A comprises 10 short-answer questions. Section B consists of 4 problems, one from each module of the unit.

On successful completion you will be able to:

- Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them
- To develop an appreciation of a wide range of scientific methods and be better equipped in the use and synthesis of available information
- Present ideas and the supporting evidence clearly in written and verbal form

- Building on and further developing skills in literacy, numeracy and information technology
- Applying knowledge to new situations and landscapes. Developing a means of presenting and synthesizing data in a creative way

## Delivery and Resources

### LECTURES

There are two 1 hour lectures each week overall 25 hrs. These are on Tuesdays and Thursdays and the Echo 360 recordings for iletecture (links from ilearn) will be available for download soon after. However, this year we also have the option of live streaming the lecture so that you can experience the real live lecture and even participate (lectures will be compulsory for internals and monitored via online activities - the live stream will allow you to take part in this activity live and is strongly encouraged). If this is not possible then you need to download the recordings weekly **on the day they are delivered** so that you don't fall behind with content. Students are expected to revise lecture material weekly and ahead of each on-campus session. Make sure that you keep up with the content weekly otherwise you will struggle with the on-campus content and activities.

### ON-CAMPUS SESSIONS

The practical component of the unit is covered by two weekend sessions - overall 26hrs. Students are expected to read practical notes prior to each session and participate. Practicals are in E5A 250 - see section 'on-campus sessions' As the practicals are compulsory **it is an assessment requirement of this unit that all students attend both on campus sessions.**

### READING

Read from the textbook and other sources listed in this unit guide and also research your own sources.

### ASSESSMENTS

Two written assessments are required (see Assessment tasks) the workload for these is likely to vary from week to week, with some weeks being more than the average of the overall workload for these and some being less - overall 48 hrs. The submission method varies for the first three assessments so make sure you read the instructions carefully in: *Assessment: submission and grading*

### QUIZZES

Weekly True/False quizzes on the lecture content are to be completed at home (online) and the 13 assessed practical quizzes are also conducted at home (online) after the on-campus sessions - overall 13 hrs

### EXAM

A test of knowledge and understanding of the lecture content and skills developed during the practical classes. Private study for the final exam will vary from week to week, with some weeks being more than the average of the overall workload for these and some being less - overall 7 hrs



# TECHNOLOGIES USED AND REQUIRED

## GEOS112 ILEARN AND ILECTURE

**Public page:** <http://www.eps.mq.edu.au/GEOS112.htm/>

The iLearn web page for this unit can be accessed from here: <http://ilearn.mq.edu.au>

A link in here leads you to the iLecture content for geos112.

**Accessing the Web Site:** Usernames and passwords

Usernames

Your iLearn username will be your standard Macquarie **Student OneID Number** (an 8-digit number found on your Campus Card).

Open University Australia students will find your **Student OneID Number** in the Confirmation of Enrolment letter included with your Macquarie study package.

Passwords

You will use your OneID password for your iLearn online units.

When you have finished using the web site you must **log out**, or **exit** or **quit** your browser. To log out of iLearn, click the 'logout' link near the top right of the screen. If you don't log out, or exit or quit your browser, other people can continue to use your account which means they can use your mail, discussions and other course tools.

### ***iLearn Communication Tools***

The unit iLearn page includes three messaging tools, the Announcements tool, the Discussions forum and the Dialogue tool. In the Announcements Forum, the teaching staff will make unit-wide announcements. These will mostly concern administrative matters (Please note: Students cannot post in this forum). All participants are subscribed to this forum and will automatically receive email notification of these important announcements. The Discussions forum is used for messages that either everyone enrolled or selected groups in an online unit can read. Students and lecturers can post and reply to these messages. The Dialogue tool is used for private messages between you, your lecturer and students in a unit. It is suggested that you check for new discussion and mail messages at least once a week.

## **Required and recommended texts and/or materials**

· The prescribed textbook for the unit is:

### **GEOS112: The Planet Earth - compiled by Dr Kira Westaway - Pearson**

This textbook has been specially compiled by Pearson Publishing for this unit and may be purchased from them as either an ebook or as a hard copy. Links for the ebook will be provided before the start of semester. The Co-op Bookshop will stock the hard copy together with the GEOS112 Practical Manual, which you can purchase in the bookstore or online through the printery. It is essential that you purchase the core text and practical book before or during the first week of session.

It is also essential that you spend some time becoming familiar with the textbook - the index, glossary and layout, at the beginning of the unit. It covers most of the aspects we shall be studying, some in greater detail than is required. Thus, you should read the sections which are related to the lecture and practical material covered each week. You need to use your own initiative to pick out the appropriate parts, and hopefully you will find it of interest to read "around" these parts as well.

- The prescribed unit material is the:

**GEOS112 Practical Manual.**

This can be purchased online through the printery. It is essential that you receive this before or during the first week of session.

- You should find the following recommended textbooks helpful for reference. They should provide useful supportive material to the lectures and practicals, and supplement the prescribed textbook. Most or all of them should be available in the "Reserve" section of the Library.

Christopherson R. W. 2005. *Geosystems: An Introduction to Physical Geography* (5th edition). Pearson Prentice Hall, Upper Saddle River.

Cowen R. 2005. *History of Life* (4th edition). Blackwell Scientific Publications, Boston.

Cox C. B. & Moore P. D. 2005. *Biogeography: An Ecological and Evolutionary Approach* (7th edition). Blackwell Science, Malden, Ma.

Grotzinger J. P. & Press F. 2007. *Understanding Earth* (5th edition). W. H. Freeman, New York.

Hamblin W. K. & Christiansen E. H. 2004. *Earth's Dynamic Systems* (10th edition). Prentice Hall, Pearson Education, Upper Saddle River.

Monroe J. S. & Wicander R. 2005. *Physical Geology: Exploring the Earth* (5th edition). Brooks/Cole-Thomson Learning, Pacific Grove.

Montgomery C.W. 1993. *Physical Geology* (3rd edition). Wm. C. Brown, Dubuque.

Open University. 1989. *Ocean Chemistry and Deep-Sea Sediments*. Pergamon Press, Oxford.

Parry M., Canziani O., Palutikof J., van der Linden P. & Hanson C. eds. 2007. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge.

Prothero D. R. 2004. *Bringing Fossils to Life. An Introduction to Paleobiology* (2nd edition). McGraw-Hill, Boston.

Skinner B.J., Porter S.C., Botkin D.B., 1999. *The Blue Planet: an introduction to earth system science*. J. Wiley, New York

Skinner B. J., Porter S. C. & Park J. 2004. *Dynamic Earth: An Introduction to Physical Geology* (5th edition). Wiley, Hoboken.

Solomon S., Qin D., Manning M., Marquis M., Averyt K., Tignor M. M. B., Miller Jr H. L. & Chen Z. eds. 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group*

*I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.*  
Cambridge University Press, Cambridge.

Sturman A. P. & Tapper N. J. 2006. *The Weather and Climate of Australia and New Zealand* (2nd edition). Oxford University Press, Melbourne.

Tarbuck E. J. & Lutgens F. K. 2005. *Earth: An Introduction to Physical Geology* (8th edition). Pearson/Prentice Hall, Upper Saddle River.

Taylor P. D. ed. 2004. *Extinctions in the History of Life.* Cambridge University Press, Cambridge, U.K.; New York.

### **The Library**

Because of the large number of students enrolled in this unit, the facilities and materials of the Library will be fully extended. For your own sake and for others please do not leave your use of these facilities until the last minute. The Library is open for very liberal hours (day, evening and weekends) so there should be plenty of opportunity to find materials. When borrowing books, please return them quickly so that others also have access to them. It is extremely important that you become an efficient library user. Find out quickly how it works and organise your time properly. Do not assume you know how to use the Library and do not be embarrassed about asking. Library tours and Library staff are freely available for your consultation.

## **Unit Schedule**

Week	Lecture Dates	Lecturer*	Lecture Topics	Practical Topic
1	26 Feb	KW	1. Welcome; success in GEOS112	Module 1 1. Deep time and the history of the Earth
	28 Feb	CO'N	<b>Module 1: The Solid Earth</b> 1. The planets	
2	5 March	CO'N	1.2 The building blocks of Earth	2. Introduction to rocks, minerals and ancient environments
	7 March		1.3 How does the Earth move?	
3	12 March	CO'N	1.4 Plate boundaries: Volcanoes, Earthquakes, and making rocks	3. Earthquakes, lightning tsunamis and waves
	14 March	CO'N	1.5 Why does Earth have oceans, continents, and an atmosphere?	

4	19 March	KS	1.6 Earth's deep interior	4. Volcanoes, magma bubbles and viscosity
	21 March	SB	<b>Module 2: The Climate System</b> 2.1 Introduction to the Earth's Climate System	
<b>First On-Campus Session for external students, 23-24 March 2019</b>				
5	26 March	SB	2.2 Energy and the Climate System	Module 2
	28 March	SB	2.3 Global atmosphere and ocean circulation <i>INT Assignment 1 due by 10 am 29th March</i>	5. Field observation skills
6	2 April	SB	2.4 Short term atmospheric variability	6. Atmospheric moisture
	4 April	SB	2.5 Long term climate change <i>EXT Assignment 1 due by 10 am 5th April</i>	
7	9 April	SB	2.6 Climate change & the greenhouse effect	7. Synoptic weather and global climates
	11 April		Module 3: Surface Processes 3.1 Global geomorphic provinces	
<b>2 week recess</b>				
8	30 April	KW	3.2 Epimorphism	<b>Module 3</b> 8. Geomorphic provinces
	2 May	KW	3.3 Catchments – Erosion and lateral redistribution of products of epimorphism	
9	7 May	KW	3.4 Landscape evolution – The Timeless Land?	9. Surface processes - continental
	9 May	KW	3.5 After Gondwana: climate change	
<b>Second On-Campus Session for external students, 11-12 May 2018</b>				
10	14 May	KW	3.6 The dark recesses of the oceans	10. Sub-surface processes -oceanic
	16 May	SG	Module 4: The Biosphere 4.1 Radioactivity, dating, and the age of the Earth <i>INT Assignment 2 due by 10 am 17th May</i>	
11	21 May	SG	4.2 The origin of life on Earth (and Mars?)	Module 4 11. Dating rocks and early life on Earth
	23 May	SG	4.3 Evolution: the fossil record <i>EXT Assignment 2 due by 10 am 24th May</i>	

12	28 May	SG	4.4 Mass extinctions	12. Fossils, evolution, and extinction and unit survey
	30 May	SG	4.5 Biogeography	
13	4 June	SG	4.6 Natural Hazards and their Impacts	13. Natural hazards and exam preparation
	6 June	SG	4.7 The Future of the Biosphere and Planet Earth: The Anthropocene; exam preparation	

## Learning and Teaching Activities

### Lectures

Two hours of lectures a week - overall 25 hrs.

### On-campus sessions

Two weekend sessions to cover the practical component of the unit - overall 26 hrs.

### Reading

At least 1 hour of private reading a week - overall 15 hrs

### Assessments

Two assessments are required (see Assessment tasks)- overall 48 hrs

### Quizzes

Weekly True/False quizzes online and assessed practical quizzes- overall 13 hrs

### Exam

A test of knowledge of the lecture content and skills developed - overall 7 hrs

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). 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](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note: The Special Consideration Policy is effective from 4**

*December 2017 and replaces the Disruption to Studies Policy.)*

Undergraduate students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/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 [ask.mq.edu.au](https://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Special Consideration

The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances you may wish to consider applying for Special Consideration. The following is a link to the University's Special Consideration Policy. You are required to read this policy at the start of this session:

[http://www.mq.edu.au/policy/docs/special\\_consideration/policy.html](http://www.mq.edu.au/policy/docs/special_consideration/policy.html)

If a Supplementary Examination is granted as a result of the Special Consideration process the examination will be scheduled after the conclusion of the official examination period.

There is a procedure for appealing against final unit grades and a mechanism for solving problems like illness during the unit. We refer you to the University *Handbook of Undergraduate Studies* for details and suggest that you discuss these sorts of problems with the Unit Convenor in the first instance.

## Academic Honesty and Plagiarism

The University defines plagiarism in its rules: "Using the work or ideas of another person and presenting this as your own without clear acknowledgement of the source of the work or ideas." Plagiarism is a serious breach of the University's rules and carries significant penalties. The policy explains what plagiarism is, how to avoid it, the procedures that will be taken in cases of suspected plagiarism, and the penalties if you are found guilty. Penalties may include a deduction of marks, failure in the unit, and/or referral to the University Discipline Committee. GEOS112 uses turnitin to help monitor plagiarism (see section on assignments).

## University policy on grading

Academic Senate has a set of guidelines on the distribution of grades across the range from fail

to high distinction. Your final result will include one of these grades plus a standardised numerical grade (SNG).

On occasion your raw mark for a unit (i.e., the total of your marks for each assessment item) may not be the same as the SNG which you receive. Under the Senate guidelines, results may be scaled to ensure that there is a degree of comparability across the university, so that units with the same past performances of their students should achieve similar results.

It is important that you realise that the policy does not require that a minimum number of students are to be failed in any unit. In fact it does something like the opposite, in requiring examiners to explain their actions if more than 20% of students fail in a unit.

The process of scaling does not change the order of marks among students. A student who receives a higher raw mark than another will also receive a higher final scaled mark. Grades will not be awarded by reference to the achievement of other students nor allocated to fit a predetermined distribution.

For an explanation of the policy see:

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

### **Effect of excessive paid work and other activities on student progress and success**

- Several studies on student progress have demonstrated that excessive hours of paid work and/or other activities, especially regular commitments, can have a detrimental effect on successful completion of studies. As stated in the Handbook of Undergraduate Studies (Glossary of Terms, “credit point”) the number of credit points for each unit reflects the amount of work required, and each credit point has an expectation of 3 hours of work (this includes both in class and out of class study).
- If you are undertaking an average full-time program of study, i.e. 12 credit points in a session, then you should expect to undertake 36 hours of work. Care should be taken with additional regular commitments to ensure that you are not overloading yourself. Options might include cutting back on outside commitments during the session or reducing the number of units you undertake.

## **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](http://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 Support Services

### Advice for students with disabilities/health conditions

The Disability Support Unit (DSU) provides support and assistance to students with a disability/health condition in aiming to ensure that they do not experience disadvantage in reaching their academic potential. Service provision is determined on a case-by-case basis following an assessment of a student's needs and the provision of supporting documentation. Service provision is also dependent on the availability of resources.

To register with ESU, download a Disability Service Registration form from: [http://students.mq.edu.au/campus\\_life/wellbeing/disability\\_support\\_unit/how\\_to\\_register/](http://students.mq.edu.au/campus_life/wellbeing/disability_support_unit/how_to_register/)

This form must be completed annually, irrespective of whether a disability/health condition is temporary, long-term or permanent. Students wishing to request support services from the DSU should make an appointment to see a Disability Advisor immediately after enrolling at Macquarie University.

Telephone: 02 9850 6494

TTY: 02 9850 6493

Email: [disability@mq.edu.au](mailto:disability@mq.edu.au)

In person: Level 2, Lincoln Building (C8A), Macquarie University

Website: [http://students.mq.edu.au/campus\\_life/wellbeing/disability\\_support\\_unit/](http://students.mq.edu.au/campus_life/wellbeing/disability_support_unit/)

Information on **student requests** is available on the Faculty of Science web site.

[http://web.science.mq.edu.au/intranet/lt/admin/acad\\_advice.htm](http://web.science.mq.edu.au/intranet/lt/admin/acad_advice.htm)

## 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](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@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/](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

- To develop an appreciation of a wide range of scientific methods and be better equipped in the use and synthesis of available information
- Developing a hypothesis for testing and applying prior knowledge and understanding to a scientific problem
- Applying knowledge to new situations and landscapes. Developing a means of presenting and synthesizing data in a creative way

#### Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 5

#### Learning and teaching activities

- Two weekend sessions to cover the practical component of the unit - overall 26 hrs.
- Two assessments are required (see Assessment tasks)- overall 48 hrs
- A test of knowledge of the lecture content and skills developed - overall 7 hrs

### 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

- Developing independence and skills for working in a group
- Demonstrate critical thinking in your reading and interpretation of the literature and

restate and draw original inferences from scientific papers.

- Developing a hypothesis for testing and applying prior knowledge and understanding to a scientific problem
- Applying knowledge to new situations and landscapes. Developing a means of presenting and synthesizing data in a creative way

## **Assessment tasks**

- Assessment 1
- Assessment 2
- Assessment 4

## **Learning and teaching activities**

- Two weekend sessions to cover the practical component of the unit - overall 26 hrs.
- At least 1 hour of private reading a week - overall 15 hrs
- Two assessments are required (see Assessment tasks)- overall 48 hrs

## **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**

- Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them
- To develop an appreciation of a wide range of scientific methods and be better equipped in the use and synthesis of available information
- Present ideas and the supporting evidence clearly in written and verbal form
- Building on and further developing skills in literacy, numeracy and information technology
- Developing independence and skills for working in a group
- Demonstrate critical thinking in your reading and interpretation of the literature and restate and draw original inferences from scientific papers.
- Developing a hypothesis for testing and applying prior knowledge and understanding to a scientific problem
- Applying knowledge to new situations and landscapes. Developing a means of

presenting and synthesizing data in a creative way

- Demonstrate foundational learning skills including active engagement in your learning process

## **Assessment tasks**

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4
- Practical participation
- Assessment 5

## **Learning and teaching activities**

- Two hours of lectures a week - overall 25 hrs.
- Two weekend sessions to cover the practical component of the unit - overall 26 hrs.
- At least 1 hour of private reading a week - overall 15 hrs
- Two assessments are required (see Assessment tasks)- overall 48 hrs
- Weekly True/False quizzes online and assessed practical quizzes- overall 13 hrs
- A test of knowledge of the lecture content and skills developed - overall 7 hrs

## **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**

- Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them
- To develop an appreciation of a wide range of scientific methods and be better equipped in the use and synthesis of available information
- Applying knowledge to new situations and landscapes. Developing a means of presenting and synthesizing data in a creative way

- Demonstrate foundational learning skills including active engagement in your learning process

## **Assessment tasks**

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4
- Practical participation
- Assessment 5

## **Learning and teaching activities**

- Two hours of lectures a week - overall 25 hrs.
- Two weekend sessions to cover the practical component of the unit - overall 26 hrs.
- At least 1 hour of private reading a week - overall 15 hrs
- Two assessments are required (see Assessment tasks)- overall 48 hrs
- Weekly True/False quizzes online and assessed practical quizzes- overall 13 hrs
- A test of knowledge of the lecture content and skills developed - overall 7 hrs

## **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**

- Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them
- Demonstrate critical thinking in your reading and interpretation of the literature and restate and draw original inferences from scientific papers.
- Applying knowledge to new situations and landscapes. Developing a means of presenting and synthesizing data in a creative way

## **Assessment tasks**

- Assessment 1
- Assessment 2

- Assessment 5

## Learning and teaching activities

- Two hours of lectures a week - overall 25 hrs.
- Two weekend sessions to cover the practical component of the unit - overall 26 hrs.
- At least 1 hour of private reading a week - overall 15 hrs
- Two assessments are required (see Assessment tasks)- overall 48 hrs
- A test of knowledge of the lecture content and skills developed - overall 7 hrs

## 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

- Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them
- Developing a hypothesis for testing and applying prior knowledge and understanding to a scientific problem

## Assessment tasks

- Assessment 1
- Assessment 2
- Assessment 4
- Assessment 5

## Learning and teaching activities

- Two weekend sessions to cover the practical component of the unit - overall 26 hrs.
- Two assessments are required (see Assessment tasks)- overall 48 hrs
- A test of knowledge of the lecture content and skills developed - overall 7 hrs

## 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 outcomes**

- Present ideas and the supporting evidence clearly in written and verbal form
- Building on and further developing skills in literacy, numeracy and information technology
- Developing independence and skills for working in a group
- Demonstrate critical thinking in your reading and interpretation of the literature and restate and draw original inferences from scientific papers.
- Developing a hypothesis for testing and applying prior knowledge and understanding to a scientific problem
- Applying knowledge to new situations and landscapes. Developing a means of presenting and synthesizing data in a creative way

## **Assessment tasks**

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 5

## **Learning and teaching activities**

- Two hours of lectures a week - overall 25 hrs.
- Two weekend sessions to cover the practical component of the unit - overall 26 hrs.
- At least 1 hour of private reading a week - overall 15 hrs
- Two assessments are required (see Assessment tasks)- overall 48 hrs
- Weekly True/False quizzes online and assessed practical quizzes- overall 13 hrs
- A test of knowledge of the lecture content and skills developed - overall 7 hrs

## **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 outcomes**

- Understanding how our planet works and how its major components interact, to be in a

better position to evaluate environmental issues and come to more meaningful conclusions about them

- Building on and further developing skills in literacy, numeracy and information technology
- Developing independence and skills for working in a group

## Assessment task

- Assessment 5

## Learning and teaching activity

- Two hours of lectures a week - overall 25 hrs.
- Two weekend sessions to cover the practical component of the unit - overall 26 hrs.
- At least 1 hour of private reading a week - overall 15 hrs
- Two assessments are required (see Assessment tasks)- overall 48 hrs
- A test of knowledge of the lecture content and skills developed - overall 7 hrs

## 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 outcome

- Understanding how our planet works and how its major components interact, to be in a better position to evaluate environmental issues and come to more meaningful conclusions about them

## Assessment task

- Assessment 2

## Learning and teaching activity

- Two hours of lectures a week - overall 25 hrs.
- Two weekend sessions to cover the practical component of the unit - overall 26 hrs.
- At least 1 hour of private reading a week - overall 15 hrs
- Two assessments are required (see Assessment tasks)- overall 48 hrs

## Assessments: submission and grading

### ASSESSMENTS

The titles and details of the two essay assessments can be found in ilearn. **It is important that**

**you meet the deadlines for submission.** There will be a penalty of 5% of the total mark per day (or per weekend) late, unless there is a case of misadventure. This needs to be documented, and in the case of illness, supported by medical certificates. All requests for extensions must be made to the unit convenor, Dr Kira Westaway, if not available, then Dr O'Neil (assignment 1 only) or Dr Browning (assignment 2 only) may also be consulted regarding extensions. Requests for extensions must be made prior to due dates if at all possible. Cover sheets are no longer necessary due to online submissions. Please read the instructions carefully!

### **ASSESSMENT CRITERIA**

The main criteria against which scientific reports will be assessed include:

- The structure of the report, including an easily identifiable introduction, methods, results, discussion, and conclusion.
- Demonstration of a clear understanding of the question.
- A logical, clear, and concise description and discussion of the topic.
- The use of, and quality of, figures and tables.
- The quality of references used, and the accuracy of within text references and the Reference list.
- The accuracy of spelling and grammar.
- Adherence to the presentation guidelines in the Unit Guide (particularly point 4(ii)).

### **SUBMISSION OF ASSESSMENTS**

Assessments **are no longer submitted via COE**, instead both assessments must be submitted via Turnitin (via the Turnitin link in ilearn). There will be **no hard copy assignments accepted**. As the submissions are entirely online there is **no need for a cover sheet**

(1) **Turnitin:** both assessments are to be submitted using Grademark via Turnitin. Macquarie University promotes student awareness of information management and information ethics. As well as training and the provision of general information, the University tackles the issue of plagiarism through use of an online plagiarism detection tool (Turnitin). This software is used in conjunction with a set of procedures to ensure its use is equitable. The text of the two assessments for GEOS112 will be submitted to Turnitin via the Internet as part of the submission process for your assignment.

Turnitin automatically compares your work to the work of your classmates, previous students from Macquarie and other universities, with material available on the Internet, both freely available and subscription-based electronic journals. The results will be sent only to your lecturer, who will analyse these in reference to the University's standard Policy on Plagiarism. See notes on plagiarism found at the back of your practical booklet.

#### **Turnitin Procedure**

1. Go to the GEOS112 ilearn page and either find the Turnitin Assessment 1-2 links in Modules 1 and 3 or use the Turnitin Assignments link in the Activities block on the top right hand side of the



site.

2. Click on the correct Assessment and then click on Submit paper - you will be allowed a single file upload in pdf. format.

3. There will be tips on file submission when you upload your file

4. Scroll through the drop down menu to find your name, enter a submission title (Assessment 1-2 plus your own title if desired) choose the appropriate file from your computer and press Add submission. The file will automatically be uploaded to the Turnitin software (Assessments 1-2) and Grademark for online marking.

(2) **Grademark:** Both assessments will be submitted via Turnitin to be marked in Grademark - this can be found as a link in Modules 1 and 3 of ilearn. Grademark is a paperless grading system whereby your assignments will be submitted online and marked by staff and/or tutors online, and feedback will be given online via electronic comments, custom marks and even by voice comments. The staff/tutors marking will be provided with the exact time and date of submission, an overlay of the assignment, and access to the originality checker (via the Turnitin software). Your resulting grades and feedback can be found at the same link in ilearn after the post date.

## **Background to the unit**

**MACQUARIE UNIVERSITY**

**FACULTY OF SCIENCE**

**Department of Earth and Planetary Sciences**

**Department of Environmental Sciences**

**GEOS112**

This unit is run jointly by the Department of Planetary Sciences and the Department of Environment and Geography.

The Planet Earth is a broad-ranging unit that is intended to give you an overview of the character of our planet. To do this we integrate elements of environmental science, geography, geology, and geophysics; yet the unit assumes no prior specific scientific background. For those pursuing environmental or earth science, this unit provides a firm foundation for future studies. Students interested in other sciences will find The Planet Earth both relevant and interesting. For those more interested in the humanities, the unit will provide a vivid picture of our physical environment. Whatever your interests, you should find this a stimulating unit.

A Pass grade or better in The Planet Earth can be used as a prerequisite for several 200-level units in the Department of Environment and Geography and the Department of Earth and Planetary Sciences. These are: The Atmospheric Environment (ENVS216); Introduction to Field Geology (GEOS226); Earth Surface Processes (ENVS266); Introduction to Geophysics

(GEOS205); and others.

## Changes made to previous offerings of the unit

Compared to 2015, the first two assignments have been collapsed into one, both assignments are now online submission only and account for 30% of your overall score. The True/False quizzes (online at home = 15%), and 13 assessed practical quizzes (=15%) now account for a further 30% of your score. The percentage of the exam has been decreased to 40% (down from 45%) to accommodate the increase in percentage of the quizzes. In 2019 we have changed the assignments so they are now based on data gathered in the practicals.

## GEOS112 Paton Prize

An annual Paton Prize (\$300) is awarded to the student that performs at the highest level for the unit

## On-campus sessions

### ON-CAMPUS SESSIONS FOR DISTANCE EDUCATION STUDENTS

These are the **only times** we meet face-to-face, so you have to be fully prepared to obtain the maximum benefit and ensure that you don't fall behind. To do this you will:

1. In the weeks prior to the first session (weeks 1-4 Feb-March 2019), listen to all the iLectures (and lecture graphics) for Module 1 and lectures of Module 2 that have been given, and do all the necessary background reading for Modules 1 and 2. Make sure that you have completed your True/False quizzes for the weeks 1-4
2. At the same time attempt the practicals for Module 1 in so far as you can. You will be provided with a weekly schedule of the questions that should be attempted to keep you on track for the on-campus session. Tackling certain problems will only be possible with the materials and equipment available at the on-campus session - so the schedule will direct you away from these activities.
3. In the weeks between the first session and the second on-campus session (weeks 5-9 March-May 2019), listen to the iLectures (and lecture graphics) for the remaining lectures for Module 2 and Module 3, and do all the necessary background reading for Modules 3 and 4. In addition, make sure that you have completed the True/False quizzes for the weeks 5-9.
4. Attempt questions in the schedule for Modules 3 and 4 (similar to point 2 above).
5. Revise any difficulties you had in practicals carried out at the first on-campus session to ensure you have overcome these.
6. After the second on-campus session don't forget to complete the True/False quizzes for the weeks 10-13.

**In order to complete the requirements for this unit it is compulsory to attend all the on-campus sessions. Absence means exclusion from the unit.**

At the on-campus sessions, a day will be devoted to each of the modules and you will work through each of the practicals and discuss the problems with your tutor. After the weekend you will be expected to complete the assessed practical quizzes for the first 2 modules. These quizzes, and the online lecture quizzes you will do at home, will not only provide the tutors with some idea of how you are progressing, but will be a guide to you as to your understanding of the readings and the lectures. It should be obvious from this that if you try to start the unit (without reading and listening to the relevant iLectures beforehand) on 23-24th March 2019, you will be at a distinct disadvantage! The unit starts on 25 Feb 2019 (or earlier if you have the material) and as it is a 3 credit point unit, you should spend about 9 hours each week on this unit (including on-campus session contact hours).

It also needs to be emphasised that the unit does not finish with the second on-campus session. There are another 4 weeks of term time which will give you enough time to revise everything. The first week could be used for going over everything from the second on-campus session, using the results of the true/false quizzes to locate your weaknesses. In the last three weeks you can then go through each of the modules again.

For the on-Campus sessions, food can be obtained at the Macquarie Centre, but to save a walk and time during the 40 min allocated break, we suggest that you bring your own lunch. Tea, coffee and biscuits will be provided.

### **First On-Campus Session, 23-24 March 2019**

#### **Saturday 23 March 2019**

8.30-8:50      **Sign Attendance Register in E5A 250.**

#### ***Module 1***

9:00-10:30      Practical 1: Introduction; unit guide; unit web page; Garden Rocks

20 min break

10:50-12:40      Practical 2: Where things are and how fast they move.

12:40-1:20      LUNCH

1:20-3:10      Practical 3: Palaeomagnetism and wandering continents.

20 min break

3:30-5:20      Practical 4: Plate tectonics.

#### **Sunday 24 March 2019: Proceed directly to E5A 250.**

#### ***Module 2***

9:00-10:30      Practical 5: Energy balance models of climate.

20 min break

- 10:50-12:30 Practical 6: Water in the Earth system.  
12:30-1:10 LUNCH  
1.10-2:50 Practical 7: Global climates.  
2:50-3:30 Assignments and other matters.

**Second On-Campus Session, 11-12 May 2019**

**Saturday 11 May 2019**

- 8.30-8:50 **Sign Attendance Register in E5A 250.**

***Module 3***

- 9:00-10.50 Practical 8: Geomorphic provinces.  
20 min break  
11:10-1:00 Practical 9: Surface processes - continental.  
1:00-1:40 LUNCH  
1.40-3:30 Practical 10: Sub-oceanic processes.

**Sunday 12 May 2019:** Proceed directly to E5A 250.

***Module 4***

- 9:00-10:50 Practical 11: (a) How to date rocks.  
(b) The origin and development of life on Earth.  
20 min break  
11:10-1:00 Practical 12: Evolution, extinction and palaeogeography  
1:00-1:40 LUNCH  
1.40-3:30 Practical 13: Biogeography.  
3:30-4:00 Exam and other matters.