



# GEOS112

## The Planet Earth

S1 External 2015

*Dept of Environmental Sciences*

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#### Disclaimer

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## General Information

Unit convenor and teaching staff

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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

## Assessment Tasks

Name	Weighting	Due
<u>Assessment 1</u>	10%	10 am 16/03/15
<u>Assessment 2</u>	20%	10 am 18/05/15
<u>Assessment 3</u>	14%	N/A
<u>Assessment 4</u>	16%	N/A
<u>Assessment 5</u>	40%	TBA

### Assessment 1

Due: **10 am 16/03/15**

Weighting: **10%**

**First Essay** 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 18/05/15**

Weighting: **20%**

**Second essay** 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: **14%**

### True/False Quizzes (14%)

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 **prior lecture material** for that 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: **16%**

## **Practical Tests (16%)**

To test your mastery of the practical exercises conducted during your prac classes - this is important preparation for your exam

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

## **Assessment 5**

Due: **TBA**

Weighting: **40%**

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

The University Examination period in First Half Year 2015 is from Tuesday 9th June 2015 to Friday 26th June 2015.

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 25hrs. These are on Mondays and Wednesdays and the Echo 360 recordings for iletecture will be available for download soon after. You need to download both weekly. Students are expected to revise lecture material weekly and ahead of each on-campus session. Both lectures each week will be recorded by Echo 360 for iLecture (links from iLearn). Make sure that you keep up with the content weekly otherwise you will struggle in the on-campus sessions.

### 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' **It is an assessment requirement of this unit that all students attend both 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 AND PRACTICAL TESTS

Weekly True/False quizzes to be completed at home (online) and four practical quizzes (one for each module) to be completed during 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:

**Merali, Z. and Skinner, B. J. 2009. *Visualizing Earth Science* (1st Edition). Wiley, National Geographic**

This textbook may be purchased from the Co-op Bookshop, this is used in conjunction with the



GEOS112 Practical Manual, which will be mailed to you before the start of semester. It is essential that you purchase the core text 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 (e.g. the ["closer look", "guest essay"] categories in the book).

- The prescribed unit material is the:

### **GEOS112 Practical Manual.**

It will be sent to you via the Centre for Open Education (COE). 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.

Tar buck 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	23 Feb 25 Feb	KW DF	1. Welcome; success in GEOS112  <b>Module 1: The Solid Earth</b>  1. Earth and its neighbours	Module 1  1. Introduction; unit guide; unit web page; Garden Rocks
2	2 March  4 March	DF  DF	1.2 The Deep Earth (earthquakes and structure)  1.3 The Earth's crust (magnetism and gravity)	2. Where things are and how fast they move
3	9 March 11 March	DF DF	1.4 Moving continents (oceans the key)  1.5 Plate tectonic model	3. Palaeomagnetism and wandering continents

4	16 March	DF	Assignment 1 due by 10 am 16 <sup>th</sup> March  1.6 Origin of the atmosphere and oceans  <b>Module 2: The Climate System</b>	4. Plate tectonics
	18 March	SB	2.1 Planetary climates	
First On-Campus Session for external students, 21-22 March 2015				
5	23 March	SB	2.2 Solar/terrestrial heat: vertical energy balance  2.3 Wind and water (horizontal energy flux)	Module 2  5. Energy balance models of climate
	25 March	SB		
6	30 March	SB	2.4 Global climates	6. Water in the Earth system
	1 April	SB	2.5 Long term climate change	
			2 week recess	
7	20 April	SB	2.6 Climate change & the greenhouse effect  Module 3: Surface Processes	7. Global climates
	22 April	KW	3.1 Global geomorphic provinces	
8	27 April	KW	3.2 Epimorphism (weathering-leaching-clays)	<b>Module 3</b>  8. Geomorphic provinces
	29 April	KW	3.3 Catchments – Erosion and lateral redistribution of products of epimorphism	
9	4 May	KW	3.4 Landscape evolution – The Timeless Land?	9. Surface processes - continental
	6 May	KW	3.5 After Gondwana: climate change	
Second On-Campus Session for external students, 9-10 May 2015				
10	11 May	KW	3.6 The dark recesses of the oceans  Module 4: The Biosphere	10. Sub-oceanic processes
	13 May	SG	4.1 Radioactivity and the age of the Earth	
11	18 May	SG	Assignment 2 due by 10 am 18 <sup>th</sup> May  4.2 Life: the beginnings	Module 4  11. (a) How to date rocks  (b) The origin and development of life on Earth.
	20 May	SG	4.3 Evolution: the fossil record	

12	25 May	SG	4.4 Mass extinctions	12. Evolution, extinction and palaeogeography
	27 May	SG	4.5 Biogeography	
13	1 June	SG	4.6 Natural Hazards and their Impacts	13. Biogeography and exam preparation
	3 June	DF	4.7 Global cycles	

## 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 and Tests

Weekly True/False quizzes online and four practical tests - 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](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy [http://mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://mq.edu.au/policy/docs/academic_honesty/policy.html)

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

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

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy [http://mq.edu.au/policy/docs/grievance\\_management/policy.html](http://mq.edu.au/policy/docs/grievance_management/policy.html)

Disruption to Studies Policy [http://www.mq.edu.au/policy/docs/disruption\\_studies/policy.html](http://www.mq.edu.au/policy/docs/disruption_studies/policy.html) *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of

Policy Central.

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: [https://students.mq.edu.au/support/student\\_conduct/](https://students.mq.edu.au/support/student_conduct/)

## Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in *eStudent*. For more information visit [ask.mq.edu.au](http://ask.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)

## IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use 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

## **Assessment tasks**

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4
- 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 four practical tests - 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

## **Assessment tasks**

- Assessment 1
- Assessment 2
- Assessment 3
- Assessment 4
- 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 four practical tests - 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 four practical tests - 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 tasks

- 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

## Assessments: submission and grading

### ASSESSMENTS

The titles and details of the three 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 Flood (assignment 1 only) may also be consulted regarding extensions). Requests for extensions must be made prior to due dates if at all possible. There also will be deductions of 10% if you fail to supply a turnitin number or tutor name on the cover sheets, or use the wrong or no cover sheet. Please read the instructions carefully!

### ASSESSMENT CRITERIA

The main criteria against which essays will be assessed include:

- The structure of the essay, including an easily identifiable introduction, 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**: all three 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 all three 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 Environment and Geography**

**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 (ENVE216); Introduction to Field Geology (GEOS226); Earth Surface Processes (ENVE266); Introduction to Geophysics (GEOS205); and others.

## **Changes made to previous offerings of the unit**

Compared to 2014, 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 = 14%), and 4 practical quizzes in class (=16%) 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.

## **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. To do this you will:

1. In the weeks prior to the first session (21-22 March 2015), listen to all the iLectures (and lecture graphics) for Module 1 and lectures of Module 2 that have been given (2.1), 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 ending 27th, 6th, 13th and 20th March.
2. At the same time attempt the practicals for Module 1 in so far as you can. Tackling certain problems will only be possible with the materials and equipment available at the on-campus session - just omit these at this time.
3. In the weeks between the first session and the second on-campus session (9-10th May 2015), listen to the iLectures (and lecture graphics) for the remaining lectures for Module 2 and lectures 3.1-3.5 of 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 ending 27th, 3rd April, 24th, 1st, and 8th May
4. Attempt practicals 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 ending 15th, 22nd, 29th and 5th June

**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. Simple true/false quizzes will be given on each of the modules in the last 10 mins of each day. 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 21-22 March 2015, you will be at a distinct disadvantage! The unit starts on 23 Feb 2015 (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, 21-22 March 2015**

#### **Saturday 21 March 2015**

8.30-8:50 Sign Attendance Register (COE Front Office X5B Level 1).

Then proceed to 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 22 March 2015: 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, 9-10 May 2015**

#### **Saturday 9 May 2015**

8.30-8:50 Sign Attendance Register (COE Front Office X5B Level 1).

Then proceed to 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 10 May 2015:** 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.