



Australia's
Global
University



IEST7300

Environmental Management: Physical Science
Fundamentals

Term Three // 2019

Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
A/Prof Paul Brown	paul.brown@unsw.edu.au	appointment via email preferred	via Humanities and Languages office	0414385570

Lecturers

Name	Email	Availability	Location	Phone
Assoc. Prof. Mark Diesendorf	m.diesendorf@unsw.edu.au			
Dr Scott Sulway	s.sulway@unsw.edu.au			
Dr Krystyna Wilk	k.wilk@unsw.edu.au			
Dr Bill Ellis	wjellis@unsw.edu.au			

School Contact Information

School of Humanities and Languages

Location: School Office, Morven Brown Building, Level 2, 258

Opening Hours: Monday - Friday, 9am - 5pm

Phone: +61 2 9385 1681

Fax: +61 2 9385 8705

Email: hal@unsw.edu.au

Course Details

Credit Points 6

Summary of the Course

The course is a scientific introduction to the physical environment we live in, how ecosystems work, ways they can be measured and modelled, and how to interpret environmental data and statistics to assist in environmental decision making and leadership. It is for students who have NOT studied physical sciences previously at the tertiary level. The subject introduces a number of core scientific disciplines, including physics, chemistry, mathematics & statistics, geology and physical geography.

Course Learning Outcomes

1. Give a basic explanation of the principal physical and chemical processes, including energy production and conversion in an industrial society
2. Outline the key issues in managing energy, water resources, chemicals and the coastal zone
3. Define environmental parameters, their related properties, their units, dimensions and techniques of measurement
4. Describe the essential elements of scientific methods, experimental design, statistical analysis and uncertainties, and appreciate their importance in environmental management
5. Communicate effectively with environmental scientists and modellers
6. Recognise sound scientific practice and make good management decisions about the environment

Teaching Strategies

The subject introduces, through seminars and lectures aimed at an upper introductory level, a number of core physical scientific disciplines and allows students via their assignments to explore the relevance of these disciplines to environment and society leadership. Moderated on-line tuition and on-line resource packages support student learning and independent investigation.

Assessment

In this course, your assignments allow you to explore the specific approaches of particular physical sciences – Physics, Chemistry, Thermodynamics, Geology, Physical Geography, etc; and to integrate techniques of data analysis and presentation that are typical of the physical sciences. There is an on-line module on data analysis that accompanies the weekly topics – and your assignments have specific requirements for presentation of data. All details are available via your Moodle site.

Assessment Tasks

Assessment task	Weight	Due Date	Student Learning Outcomes Assessed
Assignment 1	20%	Due in Weeks 1, 4 and 7	1,2,4
Assignment 2	30%	End of Week 5	1,2,3,4
Assignment 3	30%	Due in Week 8	3,5,6
Assignment 4	20%	Due at the end of term	2,5,6

Assessment Details

Assessment 1: Assignment 1

Start date: Not Applicable

Details: Blogs: Series of three short pieces submitted on-line related to selected controversial topics in the physical sciences. Written feedback provided

Additional details:

Full details of the blogs assignment will be posted on your Moodle site. The blogs will relate to the lecture topics and to on-line tuition.

Submission notes: Submit via Moodle using the class on-line seminar portal.

Turnitin setting: This is not a Turnitin assignment

Assessment 2: Assignment 2

Start date: Not Applicable

Length: 1500 words

Details: Chemical Processes report, maximum 1500 words. Written feedback provided

Additional details:

Full details of this assignment will be available on your Moodle site.

Turnitin setting: This assignment is submitted through Turnitin and students do not see Turnitin

similarity reports.

Assessment 3: Assignment 3

Start date: Not Applicable

Details: Physical Environment Report. Max 1500 words. Written Feedback Provided

Additional details:

Full details of this assignment will be available via your Moodle site.

Turnitin setting: This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Assessment 4: Assignment 4

Start date: Not Applicable

Length: 1300 words

Details: Final essay/report on environmental change. Max 1300 words. Written feedback provided

Additional details:

Full details of this assignment will be available via your Moodle site.

Turnitin setting: This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Course Schedule

[View class timetable](#)

Timetable

Date	Type	Content
Week 1: 16 September - 20 September	Seminar	Course Introduction: Overview of Scientific Method and perspectives on the role of the physical sciences in environmental management (Lectuer: Paul Brown). Includes orientation to the class and on-line activities for the course, and overview of assignments. For this course, you will also undertake an on-line module on data analysis, including approaches to presentation of data (Lecturer: Bill Ellis). Your work on this module will commence in Week 1.
Week 2: 23 September - 27 September	Lecture	Geological processes and physical geography (Paul Brown).
Week 3: 30 September - 4 October	Lecture	Heat and Thermodynamics (Krystyna Wilk). Part 1 Introduction to theory and practice in relation to environmental problem solving.
Week 4: 7 October - 11 October	Lecture	Heat and Thermodynamics (Krystyna Wilk). Part 2 Theory and Practice.
Week 5: 14 October - 18 October	Lecture	Physics and the environment Part 1 (Mark Diesendorf): includes an introduction to climate science.
Week 6: 21 October - 25 October	Lecture	Physics and the environment Part 2 (Mark Diesendorf): the science and technology of energy systems.
Week 7: 28 October - 1 November	Lecture	The Chemical Environment (Scott Sulway): Part 1 Inorganic Chemistry: an introduction to chemistry and the environment. Heavy metals in the enviroment and the chemistry of the hydrosphere.
Week 8: 4 November - 8 November	Lecture	The Chemical Environment (Scott Sulway): Part 2 Organic Chemistry: includes atmospheric chemistry; the challenges of living with the chemical age.
Week 9: 11 November - 15 November	Seminar	Review of integrated environmental sciences: towards environmental solutions. (Paul Brown)
Week 10: 18 November - 22 November	Seminar	Conclusion: Assessing the role of the Physical Sciences. (All course lecturers) Panel discussion and seminar on multi-disciplinary environmental management.

Resources

Prescribed Resources

You will be assigned particular readings for each week's topics. On-line activities will support the course, including a module on techniques of data analysis. Details will be in your Moodle site.

Recommended Resources

N/A

Course Evaluation and Development

Your lecturers have responded to the need to integrate the weekly topics, for example by including seminars and panel discussion in the final weeks. New student feedback will be gathered via myExperience.

Submission of Assessment Tasks

Submission of Assessment Tasks

Turnitin Submission

If you encounter a problem when attempting to submit your assignment through Turnitin, please telephone External Support on 9385 3331 or email them on externalteltsupport@unsw.edu.au . Support hours are 8:00am – 10:00pm on weekdays and 9:00am – 5:00pm on weekends (365 days a year). If you are unable to submit your assignment due to a fault with Turnitin you may apply for an extension, but you must retain your ticket number from External Support (along with any other relevant documents) to include as evidence to support your extension application. If you email External Support you will automatically receive a ticket number, but if you telephone you will need to specifically ask for one. Turnitin also provides updates on their system status on Twitter.

Generally, assessment tasks must be submitted electronically via either Turnitin or a Moodle assignment. In instances where this is not possible, it will be stated on your course's Moodle site with alternative submission details.

For information on how to submit assignments online via Moodle: <https://student.unsw.edu.au/how-submit-assignment-moodle>

Academic Honesty and Plagiarism

Plagiarism is using the words or ideas of others and presenting them as your own. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement.

UNSW groups plagiarism into the following categories:

Copying: using the same or very similar words to the original text or idea without acknowledging the source or using quotation marks. This also applies to images, art and design projects, as well as presentations where someone presents another's ideas or words without credit.

Inappropriate paraphrasing: Changing a few words and phrases while mostly retaining the original structure and/or progression of ideas of the original, and information without acknowledgement. This also applies in presentations where someone paraphrases another's ideas or words without credit and to piecing together quotes and paraphrases into a new whole, without appropriate referencing.

Collusion: working with others but passing off the work as a person's individual work. Collusion also includes providing your work to another student before the due date, or for the purpose of them plagiarising at any time, paying another person to perform an academic task, stealing or acquiring another person's academic work and copying it, offering to complete another person's work or seeking payment for completing academic work.

Inappropriate citation: Citing sources which have not been read, without acknowledging the "secondary" source from which knowledge of them has been obtained.

Duplication ("self-plagiarism"): submitting your own work, in whole or in part, where it has previously been prepared or submitted for another assessment or course at UNSW or another university.

Correct referencing practices:

- Paraphrasing, summarising, essay writing and time management
- Appropriate use of and attribution for a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre (<http://www.lc.unsw.edu.au/>). Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and proper referencing of sources in preparing all assessment items.

UNSW Library also has the ELISE tool available to assist you with your study at UNSW. ELISE is designed to introduce new students to studying at UNSW but it can also be a great refresher during your study.

Completing the ELISE tutorial and quiz will enable you to:

- analyse topics, plan responses and organise research for academic writing and other assessment tasks
- effectively and efficiently find appropriate information sources and evaluate relevance to your needs
- use and manage information effectively to accomplish a specific purpose
- better manage your time

- understand your rights and responsibilities as a student at UNSW
- be aware of plagiarism, copyright, UNSW Student Code of Conduct and Acceptable Use of UNSW ICT Resources Policy
- be aware of the standards of behaviour expected of everyone in the UNSW community
- locate services and information about UNSW and UNSW Library

Some of these areas will be familiar to you, others will be new. Gaining a solid understanding of all the related aspects of ELISE will help you make the most of your studies at UNSW.

<http://subjectguides.library.unsw.edu.au/elise/aboutelise>

Academic Information

For essential student information relating to:

- requests for extension;
- late submissions guidelines;
- review of marks;
- UNSW Health and Safety policies;
- examination procedures;
- special consideration in the event of illness or misadventure;
- student equity and disability;
- and other essential academic information, see

<https://www.arts.unsw.edu.au/current-students/academic-information/protocols-guidelines/>

Image Credit

From earth's processes to human interventions via technology – understanding systems, impacts and solutions involves the physical sciences. Photos Paul Brown and Dennys Angove

CRICOS

CRICOS Provider Code: 00098G