



**UNSW**  
SYDNEY

Australia's  
Global  
University



## **IEST7300**

Environmental Management: Physical Science  
Fundamentals

Semester Two // 2018

## Course Overview

### Staff Contact Details

#### Convenors

Name	Email	Availability	Location	Phone
Dr Justin Lathlean	<a href="mailto:j.lathlean@unsw.edu.au">j.lathlean@unsw.edu.au</a>	Wednesdays: 4-6pm (by appointment only)		

#### Lecturers

Name	Email	Availability	Location	Phone
Assoc. Prof. Mark Diesendorf	<a href="mailto:m.diesendorf@unsw.edu.au">m.diesendorf@unsw.edu.au</a>			
Dr Scott Sulway	<a href="mailto:s.sulway@unsw.edu.au">s.sulway@unsw.edu.au</a>			
Dr Krystyna Wilk	<a href="mailto:k.wilk@unsw.edu.au">k.wilk@unsw.edu.au</a>			
Dr Bill Ellis	<a href="mailto:wjellis@unsw.edu.au">wjellis@unsw.edu.au</a>			

### 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](mailto:hal@unsw.edu.au)

### Attendance Requirements

A student is expected to attend all class contact hours for a face-to-face (F2F) or blended course and complete all activities for a blended or fully online course.

A student who arrives more than 15 minutes late may be penalised for non-attendance. If such a penalty is imposed, the student must be informed verbally at the end of class and advised in writing within 24 hours.

If a student experiences illness, misadventure or other occurrence that makes absence from a class/activity unavoidable, or expects to be absent from a forthcoming class/activity, they should seek permission from the Course Authority, and where applicable, their request should be accompanied by an original or certified copy of a medical certificate or other form of appropriate evidence.

A Course Authority may excuse a student from classes or activities for up to one month. However, they may assign additional and/or alternative tasks to ensure compliance. A Course Authority considering the granting of absence must be satisfied a student will still be able to meet the course's learning outcomes

and/or volume of learning. A student seeking approval to be absent for more than one month must apply in writing to the Dean and provide all original or certified supporting documentation.

For more information about the attendance protocols in the Faculty of Arts and Social Sciences: <https://www.arts.unsw.edu.au/current-students/academic-information/protocols-guidelines/>

## **Academic Information**

For essential student information relating to: requests for extension; review of marks; occupational health and safety; 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/>

## **Course Details**

### **Credit Points 6**

### **Summary of the Course**

The course is an introduction to the physical environment we live in; how it works, the way it can be measured and modeled, and how to interpret environmental data and statistics. It is for students who have NOT studied physical sciences previously at the tertiary level. The subject introduces, at an elementary level, a number of core scientific disciplines, including physics, chemistry, mathematics & statistics, and physical geography. As such, the main body of the course has been developed by academics across the Faculty of Science, and by external practitioners from these disciplines, drawing on specialist knowledge in several areas of the physical environment. In addition, a number of the units have been developed by interdisciplinary practitioners from environmental studies/humanities. An understanding of the physical sciences underpins the management of our environment. Without an ability to understand the physics, chemistry and geography of environmental phenomena, management strategies would be little more than guesswork. Environmental managers therefore need, at the very least, basic literacy in physical and chemical science.

### **At the conclusion of this course the student will be able to**

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 lectures and tutorials aimed at an elementary level, a number of core scientific disciplines, including physics, chemistry, mathematics & statistics, and physical geography. There are dedicated lectures on chemistry, physics, geoscience, statistics and environmental science/management followed by tutorials or labs, quizzes and assignments.

## Assessment

[Here you can outline any relevant information that was not included in AIMS but may prove helpful for your students. For example, you might provide details on the referencing system, links to previous student exemplars or the designated week in the course that you will discuss the assessment at length. Importantly, this section is an area for you to provide information that does not go through the approved governance structure.]

### Assessment Tasks

Assessment task	Weight	Due Date	Student Learning Outcomes Assessed
Assignment 1	10%	15/08/2018 11:59 PM	1,2,4
Assignment 2	30%	29/08/2018 11:59 PM	1,2,3,4
Assignment 3	25%	19/09/2018 11:59 PM	3,5,6
Assignment 4 - short quiz	15%	11/10/2018 06:00 PM	3
Assignment 5	20%	07/11/2018 11:59 PM	2,5,6

### Assessment Details

#### Assessment 1: Assignment 1

**Start date:** Not Applicable

**Details:** Small energy project, with basic problem solving required. Max 500 words  
Written feedback provided

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

#### Assessment 2: Assignment 2

**Start date:** Not Applicable

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

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

#### Assessment 3: Assignment 3

**Start date:** Not Applicable

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

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

**Assessment 4: Assignment 4 - short quiz**

**Start date:** Not Applicable

**Length:** 30min

**Details:** Short data analysis quizWritten Feedback provided

**Turnitin setting:** This is not a Turnitin assignment

**Assessment 5: Assignment 5**

**Start date:**

**Details:** Final essay/report on environmental change. Max 1300 wordsWritten feedback provided

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

## Submission of Assessment Tasks

Students are expected to put their names and student numbers on every page of their assignments.

## 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](mailto: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.

## Late Assessment Penalties

Students are responsible for the submission of assessment tasks by the required dates and times. Depending on the extent of delay in the submission of an assessment task past the due date and time, one of the following late penalties will apply unless special consideration or a blanket extension due to a technical outage is granted. For the purpose of late penalty calculation, a 'day' is deemed to be each 24-hour period (or part thereof) past the stipulated deadline for submission.

- **Work submitted less than 10 days after the stipulated deadline** is subject to a deduction of 5% of the total awardable mark from the mark that would have been achieved if not for the penalty for every day past the stipulated deadline for submission. That is, a student who submits an assignment with a stipulated deadline of 4:00pm on 13 May 2016 at 4:10pm on 14 May 2016 will incur a deduction of 10%.

### ***Task with a non-percentage mark***

If the task is marked out of 25, then late submission will attract a penalty of a deduction of 1.25 from the mark awarded to the student for every 24-hour period (or part thereof) past the stipulated deadline.

*Example:* A student submits an essay 48 hours and 10 minutes after the stipulated deadline. The total possible mark for the essay is 25. The essay receives a mark of 17. The student's mark is therefore  $17 - [25 (0.05 \times 3)] = 13.25$

### ***Task with a percentage mark***

If the task is marked out of 100%, then late submission will attract a penalty of a deduction of 5% from the mark awarded to the student for every 24-hour period (or part thereof) past the stipulated deadline.

*Example:* A student submits an essay 48 hours and 10 minutes after the stipulated deadline. The essay is marked out of 100%. The essay receives a mark of 68. The student's mark is therefore  $68 - 15 = 53$

- **Work submitted 10 to 19 days after the stipulated deadline** will be assessed and feedback provided but a mark of zero will be recorded. If the work would have received a pass mark but for the lateness and the work is a compulsory course component (hurdle requirement), a student will be deemed to have met that requirement;
- **Work submitted 20 or more days after the stipulated deadline** will not be accepted for assessment and will receive no feedback, mark or grade. If the assessment task is a compulsory component of the course a student will receive an Unsatisfactory Fail (UF) grade as a result of unsatisfactory performance in an essential component of the course.

This information is also available at:

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

## Special Consideration Applications

You can apply for special consideration when illness or other circumstances interfere with your assessment performance.

Sickness, misadventure or other circumstances beyond your control may:

- \* Prevent you from completing a course requirement,
- \* Keep you from attending an assessable activity,
- \* Stop you submitting assessable work for a course,
- \* Significantly affect your performance in assessable work, be it a formal end-of-semester examination, a class test, a laboratory test, a seminar presentation or any other form of assessment.

For further details in relation to Special Consideration including "When to Apply", "How to Apply" and "Supporting Documentation" please refer to the Special Consideration webstie:

<https://student.unsw.edu.au/special-consideration>



## 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>)

# Course Schedule

[View class timetable](#)

## Timetable

Date	Type	Content
Week 1: 23 July - 29 July	Lecture	<b>Introduction to energy</b> (Assoc. Prof. Mark Diesendorf)
	Reading	<b>Textbook:</b> Mark Diesendorf (2014) " <i>Sustainable Energy Solutions for Climate Change</i> ", UNSW Press and Earthscan. Available as an <a href="#">ebook</a> through UNSW Library
Week 2: 30 July - 5 August	Module	<b><i>The Chemical Environment</i></b>
	Lecture	<b>An introduction to chemistry and the environment</b> (Dr Scott Sulway)
	Reading	<b>Lecture notes &amp; exercises:</b> An introduction to chemistry and the environment - <i>available on Moodle.</i>
Week 3: 6 August - 12 August	Lecture	<b>Heavy metals in the environment and the chemistry of the hydrosphere</b> (Dr Scott Sulway)
	Reading	<b>Lecture notes &amp; exercises:</b> Heavy metals in the environment and the chemistry of the hydrosphere - <i>available on Moodle.</i>
Week 4: 13 August - 19 August	Lecture	<b>Organic chemistry, the environment and atmospheric chemistry</b> (Dr Scott Sulway)
	Reading	<b>Lecture notes &amp; exercises:</b> Organic Chemistry and the Environment/ Atmospheric Chemistry - <i>available on Moodle.</i> <b>Additional reading:</b> Coping with the Chemical Age - <i>available on Moodle.</i>
Week 5: 20 August - 26 August	Module	<b><i>The Physical Environment</i></b>
	Lecture	<b>Overview of classical physics and elementary algebra</b> (Dr Justin Lathlean)
	Reading	<b>Lecture notes &amp; exercises:</b> Classical Physics and Basic Algebra - <i>available on Moodle</i>
Week 6: 27 August - 2 September	Lecture	<b>Heat and Thermodynamics I</b> (Dr Krystyna Wilk)
	Reading	<b>Lecture notes &amp; exercises:</b> Thermodynamics I - <i>available on Moodle</i>
Week 7: 3 September - 9 September	Lecture	<b>Heat and Thermodynamics II</b> (Dr Krystyna Wilk)
	Reading	<b>Lecture notes &amp; exercises:</b> Thermodynamics II - <i>available on Moodle</i>
Week 8: 10 September - 16 September	Tut-Lab	<b>Physics laboratory: Specific and latent heat experiments</b> (Dr Krystyna Wilk)
	Reading	<b>Lecture notes &amp; exercises:</b> Physics Laboratory - <i>available on Moodle.</i>
Week 9: 17 September - 23 September	Lecture	<b>Introduction to data analysis and statistics</b> (Dr Bill Willis)
	Reading	<b>Lecture notes &amp; exercises:</b> Data analysis

		techniques and statistics - <i>available on Moodle.</i>
Break: 24 September - 30 September		
Week 10: 1 October - 7 October		
Week 11: 8 October - 14 October	Module	<b><i>The Changing Environment</i></b>
	Lecture	<b>An introduction to climate change: science, policy and public opinion (Dr Justin Lathlean)</b>
Week 12: 15 October - 21 October	Lecture	<b>Biological responses to climate change (Dr Justin Lathlean)</b>
Week 13: 22 October - 28 October	Lecture	<b>Science, technology and society: an energy case study (Dr Justin Lathlean)</b>

## **Resources**

### **Prescribed Resources**

Nil

### **Recommended Resources**

Relevant resources will be given to students in class or through Moodle.

### **Course Evaluation and Development**

[Briefly outline how student feedback (both formal and informal) on the course will be gathered, how it will be analysed and how it will be acted upon to improve the student learning experience. For example, you might discuss what was identified in past feedback and how this course was changed to address the issue.]

### **Image Credit**

Synergies in Sound 2016

### **CRICOS**

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