

GEOG30023 Global Climate Change in Context

Credit Points:	12.50												
Level:	3 (Undergraduate)												
Dates & Locations:	This subject is not offered in 2014.												
Time Commitment:	Contact Hours: one 10-day field trip, 24-hours of lectures weeks (including two all-day pre-field trip lectures) & 8-hours of practicals during weeks 1-4 Total Time Commitment: 118 hours												
Prerequisites:	<p>Completion of at least one of the following subjects or approval from the subject coordinator.</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>GEOG20002 Understanding Global Landforms</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>GEOG20009 Landscapes and Diversity</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>ERTH20001 Dangerous Earth</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	GEOG20002 Understanding Global Landforms	Semester 1	12.50	GEOG20009 Landscapes and Diversity	Semester 2	12.50	ERTH20001 Dangerous Earth	Semester 2	12.50
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GEOG20009 Landscapes and Diversity	Semester 2	12.50											
ERTH20001 Dangerous Earth	Semester 2	12.50											
Corequisites:	None												
Recommended Background Knowledge:	Some background in Physical Geography and/or Earth Sciences is required. Interested students who are unsure if they possess sufficient academic background are welcome to contact the coordinator for advice: rnd@unimelb.edu.au (mailto:rnd@unimelb.edu.au)												
Non Allowed Subjects:	None												
Core Participation Requirements:	It is University policy to take all steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. This course requires all students to enrol in subjects where they must actively and safely contribute to laboratory activities and field trips. Students who feel their disability will impact on meeting this requirement are encouraged to discuss this matter with the Subject Coordinator and Disability Liaison Unit.												
Contact:	<p>Melbourne School of Land & Environment Student Centre Ground Floor, Melbourne School of Land & Environment (building 142)</p> <p><i>Enquiries</i> Phone: 13 MELB (13 6352) Email: 13MELB@unimelb.edu.au (mailto:13MELB@unimelb.edu.au)</p>												
Subject Overview:	<p>This subject examines the nature and causes of past changes in Earth's climate during the Quaternary Period (the last 2.7 million years), with a particular emphasis on the last glacial-interglacial cycle. It aims to place modern climate and the projections of future global warming into a longer-term perspective, and will allow students to understand why human interference in the climate system may be a legitimate cause for concern. Emphasis is placed on how Earth materials (ice, rocks, sediments, landforms, biological materials) record past climate changes, the techniques used to extract this 'palaeoenvironmental information', and the principles that govern how this information is interpreted. Most of the subject will run prior to the start of semester one and be based around a field trip to the South Island of New Zealand. A pre-field trip essay will give students the basic background to the nature of Quaternary palaeoclimate. A series of lectures (held in New Zealand) will then cover the theoretical aspects of the subject in more detail, providing an important primer to the field work. The field component itself focuses on how particular environments (coastal, lake, fluvial, cave, and glacial) preserve evidence of past climate change. A further series of lectures and practicals will be conducted during the first 6 weeks of semester, and will focus on the nature of palaeoclimate data and how these are processed and interpreted. By the end of the subject, students will not only appreciate the dynamics of Earth's past climate and the mechanisms that have forced it, but also the way in which we practice this important and growing field of study. Student numbers are subject to a quota. Quota forms can be obtained from the Dept. of Resource Management and Geography at 221 Bouverie St or online at http://www.land-environment.unimelb.edu.au/enrolment/</p>												

	forms.html (http://www.land-environment.unimelb.edu.au/enrolment/forms.html) . The estimated cost of the field trip is in the vicinity of \$900. The field trip will take place in the weeks immediately prior to the first week of Semester 1.
Learning Outcomes:	At the completion of this subject, students will have achieved the following objectives: <ul style="list-style-type: none"> # An understanding of the nature of past climate changes, i.e. the frequency, magnitude and geographic extent; # An understanding of the range of driving mechanisms of past climate changes, particularly how they vary according to the time scales considered; # An understanding of how specific environments and materials preserve evidence of past climate changes; # An understanding of the advantages and weaknesses of the various 'palaeoclimate archives'; # Hands-on field experience in the identification, sampling and analysis of a range of important palaeoclimate archives; # Experience in organising, analysing and interpreting palaeoclimate data; # Familiarity with the key literature and current debates on past climates; and # An understanding of how the current global warming debate fits into the longer-term perspective.
Assessment:	Individual Field Report (2,000 words), due mid first semester - 50%. Computer based practicals (800 words), due after completion of each session - 20%. Research Assignment (1,200 words), due before field trip - 30%.
Prescribed Texts:	William Ruddiman 2nd Ed (2008) Earth's Climate: past and future. WH Freeman, New York.
Recommended Texts:	Michael Bender (2013) Paleoclimate, Princeton University Press; Thomas Cronin (2010) Paleoclimates: understanding climate change past and present, Columbia University Press.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<ul style="list-style-type: none"> # Ability to conduct library searches to source the latest relevant literature on key topic areas. # Ability to comprehend some of the current debates in the field. # Software skills for data handling and graphing, such as Excel. # Basic introduction to state-of-the-art laboratory analytical methods (e.g. mass spectrometry, microsampling). # Field skills, especially an ability to recognise landforms and sediments capable of preserving records of environmental change. # Data interpretation skills, informed by the relevant literature. # Group field and research activities.
Notes:	Please note that this is a quota subject. Students will need to fill out the quota subject application form found on the MSLE website (http://go.unimelb.edu.au/5o6n (http://go.unimelb.edu.au/5o6n)) and send it back to the MSLE Student Centre in Parkville before the due date listed on the form. A limited number of students will be selected for this subject on the basis of academic merit, subject to meeting the subject's prerequisites or by demonstrating other appropriate qualifications for selection. Students will be advised in writing of the outcome of their application.
Related Course(s):	Master of Science (Geography)
Related Majors/Minors/Specialisations:	Environmental Geographies, Politics and Cultures major Environments Discipline subjects Geography Geography Major Integrated Geography Integrated Geography Physical Geography Physical Geography

Science credit subjects* for pre-2008 BSc, BAsC and combined degree science courses
Science-credited subjects - new generation B-SCI and B-ENG.
Selective subjects for B-BMED