ATOC30006 Modern and Future Climate

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	This subject is not offered in 2013. Lecture and practical classes.
Time Commitment:	Contact Hours: 1 x two hour lecture per week; 1 x two hour practical class per week. Total Time Commitment: Estimated total time commitment of 120 hours
Prerequisites:	Both **Subject** / **Study Period Commencement:** / **Credit Points:** ATOC30004 Dynamical Meteorology and Oceanography — Not offered 2013 — 12.50 ATOC30005 Global Climates of the Past — Not offered 2013 — 12.50
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students may only gain credit for # 625-332 Climate: Mechanisms and Variability (prior to 2009) or; **Subject** / **Study Period Commencement:** / **Credit Points:** ATOC30006 Modern and Future Climate — Not offered 2013 — 12.50
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
Contact:	**Email: simmonds@unimelb.edu.au (mailto:simmonds@unimelb.edu.au)**
Subject Overview:	The main area of study in this subject is the broad examination of what maintains present climate and the manner in which the relevant processes may change into the future. The topics to be covered in the subject include the global distributions of mean climatological parameters in present climate and their interconnections. Mechanisms of atmospheric instability, including baroclinicity. Maintenance of the global energy and angular momentum budgets and the roles of eddies. Radiative influences on global climate, especially variations in solar activity, carbon dioxide and methane. Atmospheric carbon dioxide and methane budgets and the Greenhouse Effect. Modelling of climate change and the use of emission scenarios. Interpretation and statistical analysis of future-climate scenarios and the use of ensemble simulations.
Objectives:	The objectives of this subject are to present an integrated description and analysis of the present state of global climate, and of the potential changes to it. The objectives will include investigations of the complex instability and feedback mechanisms which are intimately associated with climate variability and change.
Assessment:	Literature survey (1000 words) (20%) and two practicals (both 3%) and two problem sets (both 7%) during semester (not exceeding 1000 words in total); a 2-hour written examination in the examination period (60%). The literature survey will be set in the first half of semester and due

	at the end of semester. The practicals and problem sets will be set at approximately equal intervals during semester.
Prescribed Texts:	None
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2013/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2013/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2013/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2013/B-MUS)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of this subject students should have developed the following generic skills: An ability to think critically on how present climate arises and of the its sensitivity to a range of forcings.
Notes:	This subject is available for science credit to students enrolled in the BSc (both pre-2008 and new degrees), BASc or a combined BSc course.
Related Majors/Minors/ Specialisations:	Atmosphere and Ocean Science Science credit subjects* for pre-2008 BSc, BASc and combined degree science courses Science-credited subjects - new generation B-SCI and B-ENG. Core selective subjects for B-BMED.