625-336 Modern and Future Climate

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus. Lecture and practical classes.
Time Commitment:	Contact Hours: Two 1-hour lectures per week; one 2-hour practical class per week. Total 48 hours. Total Time Commitment: 120 hours total time commitment.
Prerequisites:	*Dynamical Meteorology and Oceanography* and *Global Climates of the Past*
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	625-332 Climate: Mechanisms and Variability (prior to 2009).
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.
Coordinator:	Prof Ian Simmonds
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) and three problem sets during semester (totalling 1000 words) (40%); a 2-hour written examination in the examination period (60%). (The literature survey will be set in the first half of semester and due on the last day of semester. The problem sheets will be set at approximately equal intervals during semester and three weeks will be allowed for their completion.)
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/2009/D09)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2009/F04)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2009/A04)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2009/M05)**

	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:	Students enrolled in the BSc (pre-2008 BSc), BASc or a combined BSc course will receive science credit for the completion of this subject.
Related Majors/Minors/ Specialisations:	Atmosphere and Ocean Sciences