ATOC30006 Modern and Future Climate

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus. Lecture and practical classes.
Time Commitment:	Contact Hours: 2 x one hour lectures per week;1 x two hour practical class per week. Total Time Commitment: Estimated total time commitment of 120 hours
Prerequisites:	Both # **625-334 Dynamical Meteorology and Oceanography (/view/2010/625-334)** # **625-335 Global Climates of the Past (/view/2010/625-335)**
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students may only gain credit for one of # 625-336 Modern and Future Climate # 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
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/2010/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2010/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2010/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2010/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 Course(s):	Bachelor of Science
Related Majors/Minors/ Specialisations:	Atmosphere and Ocean Science Atmosphere and Ocean Sciences