625-228 Atmospheric Environment Processes

Credit Points:	12.50
Level:	2 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus. Lectures and practical work.
Time Commitment:	Contact Hours: 24 lectures (two hours per week); 36 hours of practical work (three hours per week). Some practical work may be computer-based and take place at times decided by the students Total Time Commitment: 120 hours total time commitment.
Prerequisites:	*Weather and Climate Systems.*
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
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:	Dr Todd Philip Lane
Subject Overview:	The subject addresses the fundamental processes and variables of atmospheric thermodynamics, stability, and energetics and shows how these influence regional meteorological processes. Topics include fundamental atmospheric properties; observational methods; equations of motion and state; conservation of mass and energy; dry and moist thermodynamics; clouds and precipitation; air quality and air pollution; surface energy exchanges; boundary layer physics; and mesoscale processes. On completion of this subject, students should comprehend the fundamental processes of atmospheric thermodynamics, stability and energetics; and understand how these influence regional scale meteorological processes.
Objectives:	Students should build upon the skills and understanding obtaining in *Weather and Climate Systems* by obtaining an in-depth appreciation of the processes that are responsible for the structure and properties of the atmospheric environment, particularly at smaller scales. Students should develop an appreciation of the role of many of the fundamental atmospheric processes, including atmospheric thermodynamics, stability, energetics, and cloud microphysics, and how these processes interact with their local environment on the regional scale. Students should also gain an appreciation of the interaction between larger scale weather systems and local scale variations such as land use, coastlines, and topography.
Assessment:	Six practical assignments and problem sets due during semester (not exceeding 2000 words in total, 40%); a 2-hour written examination in the examination period (60%). The practical assignments will be set at approximately equal intervals throughout 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/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:	This subject will also offer students the chance to develop skills in problem solving, and in being able to understand the working of complex systems in terms of its component parts. Such critical skills are transferable to a wide range of problems and issues in environmental science. This subject and its first semester companion should give students enough background to pursue further studies in meteorology and oceanography, since by the end of the these two semesters students should have encountered and understood many of the relevant concepts. The subject should also build a student's ability to present technical work in written form, a skill that is useful in later studies and careers.
Notes:	Students enrolled in the BSc (both pre-2008 and new degrees), BASc or a combined BSc course will receive science credit for the completion of this subject.