ATOC30008 Atmospheric Processes and Composition

Credit Points:	12.5
Level:	3 (Undergraduate)
Dates & Locations:	This subject is not offered in 2015.
Time Commitment:	Contact Hours: 48 hours Total Time Commitment: Estimated Total Time Commitment - 170 hours
Prerequisites:	VCE Unit 3/4 Mathematical Methods (which can be established by entry to the BBiomed, BCom or BSc), or equivalent
Corequisites:	None
Recommended Background Knowledge:	At least one of

Subject	Study Period Commencement:	Credit Points:
ATOC20001 Weather and Climate Systems	Semester 1	12.50
MAST10006 Calculus 2	Semester 1, Semester 2	12.50
CHEM20011 Environmental Chemistry	Semester 1	12.50
PHYC10001 Physics 1: Advanced	Semester 1	12.50
PHYC10002 Physics 2: Advanced	Semester 2	12.50
PHYC10003 Physics 1	Semester 1	12.50
PHYC10004 Physics 2: Physical Science & Technology	Semester 2	12.50
PHYC10005 Physics 1: Fundamentals	Semester 1	12.50
PHYC10006 Physics 2: Life Sciences & Environment	Semester 2	12.50
PHYC10007 Physics for Biomedicine	Semester 2	12.50

Non Allowed Subjects:

Subject	Study Period Commencement:	Credit Points:
ATOC20002 Atmospheric Environment Processes	Not offered 2015	12.50

Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable 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. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Contact:	Email: robyn.schofield@unimelb.edu.au
Subject Overview:	This subject presents a comprehensive view of the processes that are responsible for the structure, composition and properties of the atmosphere. It will focus on local and regional scales, covering aerosol and cloud processes such as formation, precipitation and lightning. It will address how these atmospheric processes interact with the climate system - discussing

	major weather systems, land use, air quality and greenhouse gas fluxes. This subject will involve a weekend field trip to the Creswick campus to observe the atmospheric boundary layer state and chemical composition using state of the art monitoring equipment.
Learning Outcomes:	On successful completion of this subject, students should be able to: # describe the thermal structure of the atmosphere using the fundamental principles of thermodynamics, surface energy fluxes and cloud microphysics # use these principles to explain regional scale meteorological processes such as clouds, precipitation, stability and boundary layer behaviour including air pollution # assess the dependence and influence of these processes on external factors such as larger scale weather systems, local land use, coastlines and topography # describe and implement observational techniques for measuring the atmospheric state and composition # present implications of observed atmospheric conditions and composition as written technical reports
Assessment:	Three short practical assignments/problem sets at approximately equal intervals throughout the semester not exceeding 1000 words in total (30%) Field-trip report, 1000 words due week 9 (20%) 2-hour examination (50%)
Prescribed Texts:	None
Recommended Texts:	*Atmospheric Science, An Introductory Survey* by J.M.Wallace and P.V.Hobbs (students are not required to purchase this text)
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/2015/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2015/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2015/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2015/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 skills: # demonstrate a high level of achievement in writing and problem-solving # apply outstanding analytical, quantitative and technical skills to problem solving # reflect and critique information as life-long learners # demonstrate excellent organisational, planning and time management skills # apply knowledge, skills and attitude to adapt to scientific, technological and social changes
Related Majors/Minors/ Specialisations:	Science-credited subjects - new generation B-SCI and B-ENG.