



ENVS3102

Urban Climate and Air Quality

Session 1, Weekday attendance, North Ryde 2020

Department of Earth and Environmental Sciences

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General Information

Unit convenor and teaching staff

Convenor

Paul Beggs

paul.beggs@mq.edu.au

Contact via Email

Lecturer

Vladimir Strezov

vladimir.strezov@mq.edu.au

Contact via Email

Credit points

10

Prerequisites

(130cp at 1000 level or above) including (ENVE216 or ENV5216 or ENV52116 or GEOS216)

Corequisites

Co-badged status

Unit description

More than half of the world's population lives in urban areas, and virtually all countries are becoming increasingly urbanised. Australia is one of the most urbanised countries in the world, with about 90% of our population living in urban areas. For these reasons, urban climate and air quality are extremely important, directly influencing the health and wellbeing of billions of people around the world. This unit explores urban climate and air quality through detailed study of interactions between the atmosphere and the Earth's surface in the relatively thin veneer of air that we live in known as the planetary boundary layer. The unit will be of interest to all students in science and engineering and more generally any student with an interest in the environment, and provides knowledge and skills that will be of value for a range of careers and employers, ranging from environmental consultancy and local and state government, to private industry.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

- ULO1:** describe urban climate and air quality, including the physical, chemical and biological processes operating to produce or change the state of the urban atmosphere.
- ULO2:** demonstrate knowledge and conceptual understanding of the dispersive capabilities of the atmospheric environment near the surface of the earth, how pollutants emitted into the atmospheric environment move and interact with the surface.
- ULO3:** examine and integrate scientific information from various primary and secondary sources.
- ULO4:** apply practical knowledge to undertake analysis of climate and air quality data.
- ULO5:** demonstrate practical laboratory and field based skills associated with typical measurement problems in the field of climate science.

Assessment Tasks

Coronavirus (COVID-19) Update

Assessment details are no longer provided here as a result of changes due to the Coronavirus (COVID-19) pandemic.

Students should consult [iLearn](#) for revised unit information.

[Find out more about the Coronavirus \(COVID-19\) and potential impacts on staff and students](#)

Delivery and Resources

Coronavirus (COVID-19) Update

Any references to on-campus delivery below may no longer be relevant due to COVID-19.

Please check here for updated delivery information: https://ask.mq.edu.au/account/pub/display/unit_status

Required Text

The required text for this unit is:

Oke TR, Mills G, Christen A, Voogt JA (2017) Urban climates. Cambridge University Press, Cambridge.

There may be copies in the Co-op Bookshop for you to purchase a copy. The Library provides online access [QC981.7.U7 O34 2017].

Also highly recommended:

Oke TR (1987) Boundary layer climates (2nd ed). Routledge, London. [QC981.7.M5.O34/1987]

Recommended Texts

- Arya SPS (2001) Introduction to micrometeorology (2nd ed). Academic Press, San Diego. [QC883.8.A79/2001]
- Foken T (2008) Micrometeorology. Springer-Verlag, Heidelberg, [QC883.8]
- Hewitt CN, Jackson AV (2009) Atmospheric science for environmental scientists. Wiley-Blackwell UK. [QC861.3 AB66]
- Monteith JL, Unsworth MH (2008) Principles of environmental physics (3rd ed). Edward Arnold, Melbourne. [QH505.M58/1990]
- Scorer RS (2002) Air pollution meteorology. Horwood, Chichester. [QC882.S35]

Recommended Journals

Agricultural and Forest Meteorology [S600.A35 and Electronic journal]

Atmospheric Environment [TD881.A8 and Electronic journal]

Boundary-Layer Meteorology [QC851.B6 and Electronic journal]

Energy and Buildings [TJ163.5.B84.E523 and Electronic journal]

International Journal of Biometeorology [QH543.I5 and Electronic journal]

Journal of Applied Meteorology [QC851.A66 and Electronic journal]

Journal of Applied Meteorology and Climatology [QC851.A66 and Electronic journal]

Journal of Geophysical Research [QC811.J6]

Meteorological Applications [QC851.M15]

Technical Note / World Meteorological Organization [QC851.W6444]

Theoretical and Applied Climatology [QC851.A732 and Electronic journal]

Urban Climate [Online access]

Unit Web Site

The web page for this unit can be found at: <https://ilearn.mq.edu.au/>

Required Storage and Calculator

You will be required to supply your own computer storage media – USB - for data storage or records of what you have been working on in the practical classes.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)

- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/study/getting-started/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)

- [Ask a Librarian](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

Changes since First Published

Date	Description
20/02/2020	Assessment due dates and delivery and resources information has been added.