

# Course Syllabus

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## INSTRUCTOR CONTACT

**Sara Knox****Email:** [sara.knox@ubc.ca](mailto:sara.knox@ubc.ca)**Office Hours:** Thursdays 11 - 11:50 @ Rm 235

During my office hours, my door & my virtual door are always open. Stop by or call me during the office hour. If the office hour does not work with your schedule, please let me know & I will try to work out a time to meet you.

I welcome you to contact me outside of class and office hours. I aim to respond to emails within 48 hours.

## TA CONTACT

**Xinru Li****Email:** [xinru.li@alumni.ubc.ca](mailto:xinru.li@alumni.ubc.ca)**Office Hours:** Will vary by week. Please see Announcements for updates on TA office hours.

## SYLLABUS

'Urban Meteorology' focuses on the impact of urbanization upon atmospheric processes and climates. Cities significantly alter exchange processes at the land-atmosphere interface. We elaborate and quantify how meteorology and climate on different scales are affected by the presence of an urban surface (trace-gas exchange, urban heat island, precipitation modification, etc.). We explore methods to measure and model those urban land-atmosphere interactions. We discuss the significance of urban climate in applications such as architecture, urban planning and management, health, weather forecasting, dispersion modelling and global climate change.

### Course Information

#### Lecture

Term 1 2019/10

Tue / Thu 9:30 to 11:00

Geography Room 201

### Course prerequisites

The course is scientific in approach. You must have at least one of those prerequisite courses: [GEOB 204](http://ibis.geog.ubc.ca/courses/geob204/) [\(http://ibis.geog.ubc.ca/courses/geob204/\)](http://ibis.geog.ubc.ca/courses/geob204/) or [APBI 244](http://ibis.geog.ubc.ca/courses/geob204/) [\(http://ibis.geog.ubc.ca/courses/geob204/\)](http://ibis.geog.ubc.ca/courses/geob204/) or [GEOB 300](http://ibis.geog.ubc.ca/courses/geob300/) [\(http://ibis.geog.ubc.ca/courses/geob300/\)](http://ibis.geog.ubc.ca/courses/geob300/).

Note, there is **no final exam in this course**. All dates and topics might be still subject to change.

### Textbook














Oke, T., Mills, G., Christen, A., & Voogt, J. (2017). *Urban Climates*. Cambridge: Cambridge University Press. doi:10.1017/9781139016476.














The UBC library has the eBook version or a copy can be purchased at the UBC bookstore. Chapters will also be posted on Canvas.








### Academic Integrity

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, you are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. A more detailed description of academic integrity, including the University's policies and procedures, may be found in the [Academic Calendar](http://www.calendar.ubc.ca/okanagan/?tree=3,54,111,0) [\(http://www.calendar.ubc.ca/okanagan/?tree=3,54,111,0\)](http://www.calendar.ubc.ca/okanagan/?tree=3,54,111,0).

## Course Summary:

Date	Details	
Thu Sep 5, 2019	 <b><a href="#">1. Course overview and introduction</a></b> <a href="https://canvas.ubc.ca/calendar?event_id=136923&amp;include_contexts=course_41564">           (https://canvas.ubc.ca/calendar?event_id=136923&amp;include_contexts=course_41564)         </a>	9:30am to 11am
Tue Sep 10, 2019	 <b><a href="#">2. The urban 'surface'</a></b> ( <a href="https://canvas.ubc.ca/calendar?event_id=137339&amp;include_contexts=course_41564">https://canvas.ubc.ca/calendar?event_id=137339&amp;include_contexts=course_41564</a> )	9:30am to 11am
Thu Sep 12, 2019	 <b><a href="#">3. The urban atmosphere</a></b> ( <a href="https://canvas.ubc.ca/calendar?event_id=137953&amp;include_contexts=course_41564">https://canvas.ubc.ca/calendar?event_id=137953&amp;include_contexts=course_41564</a> )	9:30am to 11am
	 <b><a href="#">Meteobike team selection/project preparation</a></b> <a href="https://canvas.ubc.ca/courses/41564/assignments/384664">           (https://canvas.ubc.ca/courses/41564/assignments/384664)         </a>	due by 11:59pm
Tue Sep 17, 2019	 <b><a href="#">Meteobike assembly</a></b> <a href="https://canvas.ubc.ca/courses/41564/assignments/382910">           (https://canvas.ubc.ca/courses/41564/assignments/382910)         </a>	due by 11pm
Thu Sep 19, 2019	 <b><a href="#">4. Urban complexity and experimental control</a></b> <a href="https://canvas.ubc.ca/calendar?event_id=138051&amp;include_contexts=course_41564">           (https://canvas.ubc.ca/calendar?event_id=138051&amp;include_contexts=course_41564)         </a>	9:30am to 11am
Tue Sep 24, 2019	 <b><a href="#">5. Weather and climate monitoring in cities</a></b> <a href="https://canvas.ubc.ca/calendar?event_id=138666&amp;include_contexts=course_41564">           (https://canvas.ubc.ca/calendar?event_id=138666&amp;include_contexts=course_41564)         </a>	9:30am to 11am
Thu Sep 26, 2019	 <b><a href="#">6. Short-wave radiation in an urban canopy.</a></b> <a href="https://canvas.ubc.ca/calendar?event_id=138427&amp;include_contexts=course_41564">           (https://canvas.ubc.ca/calendar?event_id=138427&amp;include_contexts=course_41564)         </a>	9:30am to 11am
	 <b><a href="#">Literature critique assignment</a></b> <a href="https://canvas.ubc.ca/courses/41564/assignments/363022">           (https://canvas.ubc.ca/courses/41564/assignments/363022)         </a>	due by 9:30am
Tue Oct 1, 2019	 <b><a href="#">7. Long-wave radiation exchange in an urban canopy.</a></b> <a href="https://canvas.ubc.ca/calendar?event_id=139988&amp;include_contexts=course_41564">           (https://canvas.ubc.ca/calendar?event_id=139988&amp;include_contexts=course_41564)         </a>	9:30am to 11am
	 <b><a href="#">Bring assembled meteobike to class for calibration assignment</a></b> <a href="https://canvas.ubc.ca/courses/41564/assignments/387437">           (https://canvas.ubc.ca/courses/41564/assignments/387437)         </a>	due by 11am
Thu Oct 3, 2019	 <b><a href="#">8. Radiation and the urban atmosphere</a></b> <a href="https://canvas.ubc.ca/calendar?event_id=139989&amp;include_contexts=course_41564">           (https://canvas.ubc.ca/calendar?event_id=139989&amp;include_contexts=course_41564)         </a>	9:30am to 11am
Tue Oct 8, 2019	 <b><a href="#">Meteobike proposal presentation</a></b> <a href="https://canvas.ubc.ca/courses/41564/assignments/373716">           (https://canvas.ubc.ca/courses/41564/assignments/373716)         </a>	due by 11:59pm

Date	Details	
Thu Oct 10, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=140184&amp;include_contexts=course_41564">9. Anthropogenic heat release (https://canvas.ubc.ca/calendar?event_id=140184&amp;include_contexts=course_41564)</a>	9:30am to 11am
Tue Oct 15, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=141894&amp;include_contexts=course_41564">10. The urban energy balance (https://canvas.ubc.ca/calendar?event_id=141894&amp;include_contexts=course_41564)</a>	9:30am to 11am
Wed Oct 16, 2019	 <a href="https://canvas.ubc.ca/courses/41564/assignments/373717">Meteobike calibration report (https://canvas.ubc.ca/courses/41564/assignments/373717)</a>	due by 11:30pm
Thu Oct 17, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=142267&amp;include_contexts=course_41564">11. The surface urban heat island (https://canvas.ubc.ca/calendar?event_id=142267&amp;include_contexts=course_41564)</a>	9:30am to 11am
Tue Oct 22, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=144147&amp;include_contexts=course_41564">Midterm exam 1 (https://canvas.ubc.ca/calendar?event_id=144147&amp;include_contexts=course_41564)</a>	9:30am to 11am
Thu Oct 24, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=142825&amp;include_contexts=course_41564">12. The canopy and boundary-layer urban heat island (https://canvas.ubc.ca/calendar?event_id=142825&amp;include_contexts=course_41564)</a>	9:30am to 11am
Tue Oct 29, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=143641&amp;include_contexts=course_41564">13. Flow around buildings and in the urban canopy. (https://canvas.ubc.ca/calendar?event_id=143641&amp;include_contexts=course_41564)</a>	9:30am to 11am
Thu Oct 31, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=144348&amp;include_contexts=course_41564">14. Wind, turbulence and dispersion in cities (https://canvas.ubc.ca/calendar?event_id=144348&amp;include_contexts=course_41564)</a>	9:30am to 11am
Tue Nov 5, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=144349&amp;include_contexts=course_41564">15. Regional effects of cities on wind (https://canvas.ubc.ca/calendar?event_id=144349&amp;include_contexts=course_41564)</a>	9:30am to 11am
Thu Nov 7, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=144350&amp;include_contexts=course_41564">16. The water balance of cities. (https://canvas.ubc.ca/calendar?event_id=144350&amp;include_contexts=course_41564)</a>	9:30am to 11am
Tue Nov 12, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=144352&amp;include_contexts=course_41564">17. Urban effects on humidity, dew, and fog. (https://canvas.ubc.ca/calendar?event_id=144352&amp;include_contexts=course_41564)</a>	9:30am to 11am
Thu Nov 14, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=138667&amp;include_contexts=course_41564">18. Urban effects on clouds and precipitation. (https://canvas.ubc.ca/calendar?event_id=138667&amp;include_contexts=course_41564)</a>	9:30am to 11am
Tue Nov 19, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=144150&amp;include_contexts=course_41564">Midterm exam 2 (https://canvas.ubc.ca/calendar?event_id=144150&amp;include_contexts=course_41564)</a>	9:30am to 11am

Date	Details	
Thu Nov 21, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=144355&amp;include_contexts=course_41564">19. Climate sensitive urban design and planning. (https://canvas.ubc.ca/calendar?event_id=144355&amp;include_contexts=course_41564)</a>	9:30am to 11am
Tue Nov 26, 2019	 <a href="https://canvas.ubc.ca/courses/41564/assignments/373718">Meteobike final presentation (https://canvas.ubc.ca/courses/41564/assignments/373718)</a>	due by 9:30pm
Thu Nov 28, 2019	 <a href="https://canvas.ubc.ca/calendar?event_id=146878&amp;include_contexts=course_41564">Meteobike final presentation (https://canvas.ubc.ca/calendar?event_id=146878&amp;include_contexts=course_41564)</a>	9:30am to 11am
Tue Dec 3, 2019	 <a href="https://canvas.ubc.ca/courses/41564/assignments/363025">Meteobike final report (https://canvas.ubc.ca/courses/41564/assignments/363025)</a>	due by 9:30am
	 <a href="https://canvas.ubc.ca/courses/41564/assignments/402360">Aggregate Participation (https://canvas.ubc.ca/courses/41564/assignments/402360)</a>	
	 <a href="https://canvas.ubc.ca/courses/41564/assignments/417846">Midterm exam 1 (https://canvas.ubc.ca/courses/41564/assignments/417846)</a>	
	 <a href="https://canvas.ubc.ca/courses/41564/assignments/429770">Midterm exam 2 (https://canvas.ubc.ca/courses/41564/assignments/429770)</a>	