

Fully funded PhD position: the effects of vegetation and built infrastructure on the urban microclimate

Cities worldwide are experiencing record-breaking summer air temperatures, and high levels of pollution, with serious consequences for people. Increased tree cover, green roofs/facades and a transformation of the built infrastructure and transport system are suggested as climate adaptation and mitigation strategies, but there is still limited understanding about how different aspects of this “green” and “grey” infrastructure work together to influence urban microclimates at multiple scales. **We are looking for a PhD student to study the effects of vegetation in the built environment on urban microclimate and air quality in Montreal.** The student will be co-advised by Dr. Carly Ziter (Biology Department) and Dr. Ursula Eicker (Building, Civil and Environmental Engineering) at Concordia University, and will be part of Concordia’s Next Generation Cities Excellence Research Cluster, which includes faculty and students in engineering, biology, design, and philosophy.

The selected candidate will actively contribute to the design and implementation of mobile sensor infrastructure to measure fine-scale changes in air temperature and pollution, urban fieldwork to collect empirical measurements, data analysis and interpretation, and writing scientific manuscripts. Project design and analysis will include consideration of the role of green (vegetation cover, structure, and biodiversity; integration of vegetation in the building envelope), grey (impervious surfaces, building structure) and mobile (cars, buses, trucks) components of the urban environment. The research should show the impact of greening the city in relation to different mobility and built environment layouts. Empirical data will also be used to validate urban heat island and airflow models in collaboration with engineering team members. Results of this work will ultimately contribute to understanding the impact of policy changes regarding urban planning, transport, and green infrastructure to create more sustainable cities.

We are looking for a passionate candidate with a masters degree in a relevant field. This can be either in the biological sciences (e.g., ecology, biology, forestry, environmental sciences), or engineering, but preference will be given to students with at least some background and interest in plant ecology and biodiversity. The successful candidate will possess an excellent academic record, strong technical and problem solving skills, and motivation to work in a collaborative, interdisciplinary research team. Financial support is available for a period of four years.

The project will begin in May or September 2020. Interested candidates must submit a letter of motivation, CV, academic transcripts, and the contact information of two references to Carly Ziter (carly.ziter@concordia.ca) and Ursula Eicker (ursula.eicker@concordia.ca).

More Information:

Concordia Next Generation Cities: <https://www.concordia.ca/research/chairs/smart-cities>
Ziter Urban Landscape Ecology Lab: <http://www.carlyziter.com>