

**GGR 481 H1F**  
**ENVIRONMENTAL FIELD COURSE: TORONTO'S URBAN METABOLISM**

**COURSE SYLLABUS**  
**FALL TERM 2017**

Department of Geography and Planning, University of Toronto

**Instructor: Scott Prudham, Professor**  
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**University of Toronto**

**Teaching Assistant: Bryan Dale,**  
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There is on one hand, as David Harvey (1996) has reminded us, nothing unnatural about New York City and its concentrated flows of capital and people. On the other hand, there is also nothing "natural" about it, as all the complex processes that keep New York and New Yorkers together are produced through intricate and continuous labor as well as other socioecological exchanges involving millions of people and acres of land around the globe.

— Roger Keil (2003: 724)<sup>1</sup>

**Overview: Cities and Networks of Energy and Material Provisioning**

This course is concerned with the role of networks of material and energy provisioning in sustaining and giving shape to the city of Toronto, and more generally, with the changing character of Toronto's *urban metabolism*.

Questions we will address include:

- What does it take to sustain Toronto and how and why do the answers to this question change over time?
- What various material and energy inputs and throughputs (including water; building materials; food; waste treatment and disposal; electricity, petroleum and other energy supplies and systems; etc.) underpin the growth and maintenance of a city such as Toronto and what in turn underpins or propels the city's energy and material needs?
- How does the *networked provisioning* (i.e., production, storage *and* distribution) of inputs and throughputs enable and constrain the development of the city and the production of space over time?

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<sup>1</sup> Keil, Roger (2003) Urban Political Ecology. *Urban Geography*, 24(8): 723–738.

- How does the city function as a site within networks of provisioning, drawing in energy and raw materials for processing, transformation, and distribution to points near and far?
- How do flows of energy and raw materials influence the way people and groups of people experience and live in urban spaces, and how do these flows shape what the city means to them?
- How do calls for a more sustainable city require us to rethink the city as an ecosystem?
- How does the development, maintenance and transformation of networks of provisioning intersect with issues of social and environmental justice, that is, who enjoys the benefits and who bears the costs associated with urban networks of material and energy provisioning?
- Who shapes the development and character of these networks and how?
- Finally, how do the processes of sustaining the city shape the way we come to understand and give meaning to the very notion of the “city” as an urban space (both in general and specific terms)?

### **Points of Departure: Political Ecology and Urban Metabolism**

Cities are often framed as the opposite of nature. That is, in the commonly held dualism of “culture” versus “nature”, the city is often understood as the (urban) space of the former, while the country is seen as the (rural) space of the latter. And yet these ideas are deeply misleading in many respects and not least in the sense that the spaces of the country and the city, hinterland and urban, are deeply intertwined, so much so that we may say they “co-constitute” and “co-produce” one another. In this sense, they are not separate, but rather one fractured and differentiated whole. Even if we try to think the “country” and the “city” as distinct realms, we find they can only be understood in relation to one another and in this way are not two but one.

Urban processes (transportation, manufacture, household consumption, etc.) also help propel contemporary dynamics of environmental change from local to global scales, leading to challenges such as water pollution and depletion, deteriorating air quality and climate change. In this sense, we need to think of cities as “natural” in as much as urban processes actively transform the environmental conditions of everyday life.

And, as we will discuss in this course, the city is itself in important respects a “natural” space, actively transformed (metabolized) by social relationships and institutions, but still one in which water flows, animals and birds live and migrate, organic matter decays and is returned to the soil, trees grow, etc. The city can in these respects be understood as an ecosystem

What if we stopped thinking of the city as “unnatural” and started thinking instead about the *nature of cities*? What if we looked at urban spaces as neither exclusively social nor exclusively natural, but rather as conjoined *socio-natures*? And what if we explored the ways in which cities

articulate, reflect, and reinforce changing ideas about nature, the urban, society, the economy, environmentalism, and social justice?

With cities emerging not only as important drivers of environmental change, but also as centres of global economic growth and of political economic calculation and decision-making, it seems ever more important to think about cities as socio-natural spaces and as ecosystems, to open up ways of thinking about environmental issues and challenges as simultaneously urban ones, and vice-versa.

In the course, we will make use of the notion of *urban metabolism* to explore the various conjoined social and natural (i.e., *socio-natural*) processes by which the city of Toronto has been and continues to be sustained by critical inputs of energy and raw materials. Our use of the concept of urban metabolism, now somewhat in vogue in urban studies and urban political ecology, will entail three core dimensions:

- i. the city, as an ecosystem, can be understood in terms of how it is sustained by flows of material and energy transmitted via networks of provisioning that comprise essential elements of the *city's circulatory system*;
- ii. the formation and transformation of networks of provisioning are processes from which the city emerges, that is, they are lenses through which to view geographical change and the production of space in the city and its environs, including the co-production of the “country” and the “city” as inter-connected socio-natural spaces; and
- iii. the city's urban metabolism refers not only to material connections among urban, suburban and rural spaces as physical domains, but also reflects and reinforces prevailing ideas about what the “city”, the “urban” and “nature” mean (including to different kinds of people) and how such notions are connected to one another and change over time.

Why are these issues and concepts important? One reason is that the city's urban metabolism involves people living, working, and playing in the city and the conditions under which they do so. The social organization and arrangement of these activities reflects and reinforces social differentiation, including by race, class, age, and gender. Urban metabolism is thus one way into thinking about a socio-spatially segmented city. The city's metabolism is also a subject of contestation, struggle, and change. Understanding how past and present have been shaped by social conflict and changing imperatives helps us understand the prospects and limits for future change. In addition, and as noted above, urban metabolic processes are important drivers of environmental change, desirable and otherwise. If we wish to confront the various demands and challenges of sustainability and of building sustainable cities in particular, we need to know how the city's metabolism has taken shape over time and how it can be re-directed.

Through field visits, readings, discussions and assigned course work we will explore some of the ways in which the aspects of the city's urban metabolism have shaped and continue to

shape the city over time. And we will examine challenges to current patterns of urban provisioning, including those posed by climate change, resource depletion, and environmental degradation.

## Course Objectives

This course has several objectives. These include:

1. Learning about the city of Toronto's urban metabolism.
2. Putting together some lessons and insights from environmental geography, environmental studies, urban geography and urban studies.
3. Pursuing the course themes and questions through hands-on, field-based learning.
4. Developing some experience with self-directed research, including in collaborative group projects.
5. Having some fun!

## Course Instructor:

Scott Prudham, Professor, Department of Geography, Program in Planning and the School of the Environment, Room 5007, Sidney Smith Hall.

- home page: <http://scottprudham.ca>
- email: [scott.prudham@utoronto.ca](mailto:scott.prudham@utoronto.ca) (Note: Please try to ask questions that can be answered with a “yes” or “no”. If you have a question that requires more detail and perhaps dialogue, then please speak to me during a field trip, make an appointment to meet with me in my office, or drop in during my weekly office hours).
- office hours: Thursdays 2-4 pm (or by prior arrangement), Sidney Smith Hall #5007

**Teaching Assistant:** Bryan Dale, Ph.D. candidate, Department of Geography and Planning, University of Toronto [bryan.dale@mail.utoronto.ca](mailto:bryan.dale@mail.utoronto.ca)

**Course Meetings:** See the **Detailed Schedule** (posted to Blackboard) for details on the schedule of meetings. On September 5<sup>th</sup>, we will meet from 10:00 – 11:30 am in Sidney Smith Hall, Room 5017A and then in the afternoon from 1:30 – 3:30 pm in High Park. We have a field trip all day on September 6<sup>th</sup>, and in the afternoon of the 8<sup>th</sup>. For more information and details, see the **Detailed Schedule**.

After the week of September 4<sup>th</sup> we will meet periodically for field trips on Friday afternoons between noon and 4 pm, and also on other specified Friday afternoons from 2-4 pm for in-class discussions of the trips, course themes, and group projects. **In-class sessions, with the exception of the very first meeting of the term, will take place in OISE Room 5290 from 2-4 pm (unless a different time is specified).** Attendance is a course requirement as is completion of assigned readings in advance of these meetings.

**Course Reading Material:** see **Detailed Schedule** for details. All readings are available via the course site in Blackboard unless otherwise specified.

**Assignments and Grading:**

Item	Grade weight	Due Date
Field Trip Reflection Paper	15%	Oct. 27, before midnight
Group Project Report and Presentation	35%	Nov. 10, before midnight, Group Project Progress Report (10%)
		Dec. 6, before midnight: Final Group Project Report (25%)
Interview Exam	20%	TBA (Exam period is Dec. 11 to 20)
Participation	30%	Ongoing

Notes:

- Details regarding the group project and field trip reflection paper will be provided in separate documents.
- For important dates, see the Faculty of Arts & Science calendar at: <https://fas.calendar.utoronto.ca/sessional-dates#fall2017> ...For example, Nov. 6, 2017 is the drop/add deadline for the term.

**Assignment Submissions and Late Penalties**

Assignments must be submitted electronically by 11:59 p.m. to Blackboard on the due date in question (Go to *Course Materials > Assignments*). Hard copies will not be accepted unless you have cleared that with me in advance. This is in part for your protection!

Late assignments will be penalized 5% per day of lateness and weekends count as one day (e.g., if an assignment is due Friday before midnight and it is handed in Sunday before midnight, that is one day late. Handing it in the following Monday before midnight would be two days late).

**Missed Term Work or Tests**

Students are expected to complete all assignments and exams within the time frames and by the dates indicated in this outline. Exemption or deferral of an assignment or examination is only permitted for a medical or personal emergency or due to religious observance. Please notify me if you anticipate any problems in meeting the deadlines outlined here. A student who misses an assignment deadline or test should come forward as soon as possible, and usually no later than one week after the date in question. Where appropriate, I will request documentation in order to accommodate missed term work or tests, e.g.

- U of T Verification of Illness or Injury Form (available [online](#))
- Student Health or Disability Related Certificate
- A College Registrar’s Letter
- Accessibility Services Letter

## Group Work

Many students hate group work and one reason is that it forces students to rely on one another while also placing your fate in one another's hands. Scary! But that is partly the point of the assignment. If you are having difficulties in your group, part of the task is for you and other members of the group to take responsibility for and leadership in working those problems out. When you leave the university environment, you will find in most walks of life, working effectively with others is important and common, more so than it is in the university. So, please come to me to report difficulties as a last resort. **All members of the group will receive the same grade unless there is a catastrophic failure in the group, and that is unlikely to be beneficial to any group members.** If you want or expect a higher grade than perhaps others in the group care to seek, then it is actually up to you to make up the difference in quality! That too is normal in other walks of life.

Please build into your work schedules enough time for those who work to deadlines to get their work in while leaving those in charge of finalizing the work enough time to do what they need to do. Part of this assignment involves managing the workflow of the group and making things cohere; it is not just an exercise in dividing things up and working on individual pieces in isolation.

## Participation

A significant portion of your overall course grade (30%) is devoted to your participation on field trips and in class. I am, however, sympathetic to the fact that some students are less talkative while others require time for reflection before they comment on the issues being discussed. This grade accounts for much more than simply how frequently you participate (i.e. *quality* of participation is generally more important than *quantity* of interventions). It includes other factors such as being on time, being prepared (including having completed the readings in advance of course meetings, being attentive and respectful during discussions, taking notes, and asking thoughtful questions before, during and after class/trips). I also ask that you make an effort not to dominate discussions and to allow your fellow classmates the opportunity to fully express their perspectives, even if you may sometimes disagree with them.

## On use of Laptops and Mobile Phones During Class Time

Moderation! Use of electronic devices is now a part of academic life, including in the classroom. I accept and even welcome that. Often students find and share materials relevant to trips and the course in real time and share those materials more widely. Great! But texting, random surfing and/or having one's eyes glued to a computer or telephone screen during class sessions and field trips, particularly when others are speaking, is not acceptable or respectable conduct. Please put your phones on vibrate during class meetings and only

answer calls or texts that are urgent. If you use a keyboard device to take notes in class, be aware of the sound it makes and the potential for that to disturb others. Be advised that there is evidence to suggest that hand-written notes lead to better conceptual understanding of material than typed notes, and that students who have open laptops during classes (i.e., lectures, etc.) tend to score lower overall on tests and exams than students who do not use laptops.

Online gaming, video and movie watching, etc., is strictly prohibited during all scheduled course meeting times with the exception of short video clips or other items from social media you find that are **directly relevant** to the course and which you are expected to share with everyone else if you find them.

Respect for one another, and for those leading discussions and excursions is an expectation and is pertinent to the quality of your participation (see above). Thank you for your consideration in this regard.

### **Impediments to Academic Performance**

If you should encounter a situation that compromises your ability to perform to your potential in this course please notify me immediately. I am committed to your success in this course so please maintain an open line of communication with me.

### **Video and Audio Recording**

You are not permitted to make any video or audio recordings of any aspects of in-class meetings on electronic devices, unless there are exceptional circumstances (e.g., accessibility needs) and unless you have secured prior permission from all involved. If you would like to take photos or videos during field trips, please ensure that you have the permission of the site host and any people you may be photographing. Permission must include whether or not they consent to you making the photos or videos available more widely, e.g., on social media. Please be advised that my own default for sharing on social media is “no”.

### **Accessibility Needs**

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible: [accessibility.services@utoronto.ca](mailto:accessibility.services@utoronto.ca) or [www.studentlife.utoronto.ca/as](http://www.studentlife.utoronto.ca/as).

### **On Writing (Well)**

There are numerous resources at your disposal at the University of Toronto which are intended to help you improve your writing. Some of these are tailored to students whose first language is not English. Some are simply meant for anyone seeking to improve their writing. I urge you to make use of these resources. They include:

"Writing at University", a leaflet you should all have received. If not, consult [www.writing.utoronto.ca](http://www.writing.utoronto.ca)

See the information sheet on Writing Centres "Writing Centres: How We Work and How to Work with Us" also available at [www.writing.utoronto.ca/writing-centres](http://www.writing.utoronto.ca/writing-centres)

"Resources at the University of Toronto for Learning English as a Second Language" corresponds to the webpage at [www.writing.utoronto.ca/faqs/english-as-second-language](http://www.writing.utoronto.ca/faqs/english-as-second-language). Note also that Communication Café will be held in five weekly sessions for ESL students seeking guidance.

"Writing Plus" is also a helpful resource, available at <http://writing.utoronto.ca/writing-plus/>.

"How Not to Plagiarise":  
<http://advice.writing.utoronto.ca/using-sources/how-not-to-plagiarize/>

"Standard Documentation Formats":  
<http://advice.writing.utoronto.ca/using-sources/documentation/>

Consult <http://advice.writing.utoronto.ca/> for more advice on writing.