School of the Environment
UNIVERSITY OF TORONTO

ENV461H/ENV1103H The U of T campus as a living lab of sustainability

Syllabus
Fall 2020

Instructor:
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Note that in the fall of 2020, this will be an entirely online course. Quercus will be used to link to course content (readings, videos, assignments, etc.), while we will use Zoom for synchronous online plenary and breakout group meetings during class times each week. A link to the weekly Zoom calls will be posted on the Quercus site for the course.

This course will have its first class on Tues Sept 15.

Overview:
Sustainability is a growing priority for universities all over the world. Many are developing strong operational sustainability goals and targets and are giving increasing emphasis to teaching and research on sustainability issues. Yet relatively few have committed at the executive level to integrating academic and operational sustainability in the context of treating their campus as a living laboratory of sustainable practice, research and teaching. Such living lab approaches offer a large potential for universities to play a significant role in the sustainability transition. This course will explore and apply the living lab concept, in the context of operational sustainability at the University of Toronto. We will begin by looking briefly at the literature on university sustainability and the living lab concept. The bulk of the course will involve undertaking an applied research project on some aspect of campus sustainability, working in close partnership with operational and/or administrative staff at the University of Toronto. Students will develop the skills needed to produce information relevant to real-world problem-solving across disciplines and fields of study, and with non-academic partners.

Course details and Requirements:
Fall term, Tuesdays 2 – 5 PM
Location: online via Quercus and Zoom
Instructor: Professor J. Robinson (johnb.robinson@utoronto.ca)
Teaching Assistant: Sarah Hasan (sar.hasan@mail.utoronto.ca)

Contact information: Email is the best way to reach me. I do not have specific online office hours but will respond quickly to email and schedule individual and group online meetings upon request.

Organization:
This course will put students to work on operational sustainability projects identified by U of T staff working in various offices at the University of Toronto. Students will be organized into groups, each of which will be assigned one project, to be overseen by one or more U of T staff members (clients). The bulk of the course will consist of weekly meetings, organized into project groups, with the staff clients and instructors, in order to undertake the group project. Each group will produce a mid-term and final report and give a mid-term and final presentation. Each student will also submit two 360° reviews of the group process.

Grad students in the course will have one additional assignment to produce an annotated bibliography, as described in more detail below. The groups will be organised such that undergraduate students will be in different groups than grad students.

The first two weeks of the course will be devoted to hearing from project clients about their projects, assigning students to project groups, providing background on the concept of university as a living lab of sustainability, and providing some instruction on group process.

In week 1 (Sept 15), following a discussion of the course objectives and requirements, course clients will present their projects. Students will choose, and submit, their preferences as to which project they would like to work on before the next class. Based on past experience, it is expected that students will be assigned to one of their top two choices, though this cannot be guaranteed in advance.

In week 2 (Sept 22), there will be a lecture on the role of the university in sustainability transitions, followed by a session on group process best practice. Students will then be told which project they have been assigned to and will be assigned to group breakout rooms. They will meet with their clients in the breakout rooms and each group will make arrangements for regular meetings with clients.

Subsequent weeks will have occasional lectures or other activities in plenary, but class time will primarily consist of group discussion, in group breakout rooms, including regular meetings with clients, and discussion with course instructors. Each group will meet as a group during class time. The instructor and TA will be available at those times and each group will meet with one or both of them each week, to discuss progress on their project.

Each group will be expected to meet periodically with their client. These meetings will occur in the class time breakout rooms or outside class at a time to be arranged with the client.

Each student group will submit a problem statement on Oct 6, give a presentation and submit a short paper on preliminary findings on Nov 3, give a final presentation on or around Dec 8 (depending on scheduling with the client), and submit a final paper by Dec 11. Each student will also submit 360° reviews of the relative contributions of the other members of their group, the first on Oct 27 and the second on Dec 11. Graduate students will have an extra assignment—an annotated bibliography—which is due Oct 27

A critical aspect of this course is the ability of students to work collaboratively together in a group environment, and to work effectively with a university staff person acting as a client for their work. Students will be provided with a Handbook outlining information on working in groups and the focus of the class in the second week will be on this issue. The first 360° peer review will serve to provide information on how

well each group is working. Students are encouraged to discuss and resolve group process issues in the weekly group meetings, and in their regular meetings with the instructor and TA. The second 360° review will occur at the end of the term. The results of the second 3360° 60 review will be used, as appropriate, to adjust individual marks from the group averages.

Learning Objectives

A key purpose of this course is to expose students to the real-world constraints and opportunities involved in trying to implement a sustainability agenda in specific institutional contexts of the university. Sustainability solutions that are desirable in principle may be difficult to implement in practice, given institutional mandates, capabilities and cultures. A key outcome of the course will be a better understanding of how to pursue sustainability goals in real world contexts.

The specific learning objectives of the course are:
- Learn to identify and articulate a sustainability problem of practical import to the university
- Learn to develop and articulate a realistic workplan to address that problem
- Learn to work effectively with other members of a group to fulfil that workplan
- Learn to work effectively with a client from the organization
- Contribute in a concrete way to the university's actions to improve sustainability
- Learn about the role of the university in achieving operational sustainability, and the practical institutional constraints on sustainability action
- Develop an understanding of the campus as living lab approach to university sustainability, its potential and limitations
- Develop substantive knowledge in one area of operational sustainability at the university

Confidentiality:
You will be working on real issues for U of T staff. Although the information you are likely to research and analyze is not secret, it may certainly be sensitive in nature and you may be given access to internal or proprietary information. You are to maintain confidentiality in all the work that you do on behalf of your client. Outside of class, you may comment generically that you are working on a project for a given organization. However, you should not discuss, tweet, Facebook, reference in LinkedIn or otherwise publicize the content of your work before checking with your client on his/her preferences on the subject and receive that acknowledgement in writing via email. **Breeching the confidence of the client will result in an academic sanction**.

Posting Final Reports Online
In order to provide future students with useful raw material for their projects in this course, and to allow knowledge to be built up cumulatively over time through this course, we plan to post all final reports on a U of T website. The final report as submitted on Dec 11, complete with the names of all students in that group, but not containing any comments or grades from instructors, would be posted. If you have any concerns about this (e.g. would prefer your name not to be included), please contact Prof Robinson.

Assignments:

All written assignments should be submitted by email to Professor Robinson and the course TA (preferably as Word files, to allow comments in Track Changes). No hard copies are required, and assignments will be returned by email or through Quercus.

Undergraduate Student Assignments	Due Date	Worth
Group problem statement	Oct 6	10%
Initial 360° peer review	Oct 27	5%
Mid-term group presentations	Nov 3	10%
Mid-term group report	Nov 3	10%
Final group presentation to client	Dec 8*	20%
Final 360° review	Dec 11	5%
Final paper	Dec 11	40%

Graduate Student Assignments	Due Date	Worth
Group problem statement	Oct 6	10%
Annotated Bibliography	Oct 27	20%
Initial 360° peer review	Oct 27	5%
Mid-term group presentations	Nov 3	10%
Mid-term group report	Nov 3	10%
Final group presentation to client	Dec 8*	10%
Final 360° review	Dec 11	5%
Final paper	Dec 11	30%

* The actual date of the final presentations will depend on client availability.

Group Problem Statement
Your first task upon meeting with your assigned U of T staff "client", is to agree on a specific project topic and the question that will be addressed by the group. It is extremely important to articulate this early so that the group knows exactly what is required. You will submit a description of the topic area and the specific question, in the form of a problem statement, which must be approved by the client before submission. It is due on Oct 6, so needs to be shown to the client before this. Your group should come with a draft statement to the class on Sept 29.

The problem statement should be short (1 page) and should:
- Describe the general topic area (e.g. monitoring GHG emission on campus)
- Specify the objectives of the project (i.e. the research questions to be answered)
- Outline the method(s) to be followed
- Describe the expected deliverables

Mid Term Presentation and 1-2 page Written Memo
In the 10-minute mid-term presentation and written 1-2 page memo, both due on Nov 3, students are expected to provide:
- A brief description of the topic area, scope, overall goals and specific objectives of the project
- A description of the methodology your team has chosen
- A description of the data or information you are collecting
- Initial findings and conclusions

- A description of major analytical questions that still need to be answered
- A description of any unforeseen issues you have encountered in your relationship with the client, and your strategy to deal with these (this should be included in the written memo only, not the presentation)

Since you have only 10 minutes for the presentation, we recommend that you not use more than 10 slides. It is not necessary for everyone to speak at your presentation. Since it is hard to have a tight and coherent presentation with many speakers, you may prefer that only one or two people give the presentation.

Final Deliverable and Final Presentation
The final 20 minute presentation to the client will take place toward the end of the term, and occur at a time scheduled with the client. The presentations may be grouped into several sessions, or occur individually with the client. The presentations will occur around Dec 8 and the final report (max 6000 words, not including appendices) will be submitted by Dec 11, giving you some time to incorporate feedback you receive at the presentation.

These reports and presentations should be organized in a similar manner as the mid-term presentation and report, but contain the final findings. They should include:
- A description of the topic area and scope of the project,
- A presentation of the overall goals and specific objectives of the project
- A description of the methodology you employed, and reasons for this choice
- A description of your data and analysis
- Main findings from your research and analysis
- Conclusions and Recommendations

We recommend you not use more than 20 slides, and, as with the mid-term presentation, it is not necessary for everyone to speak.

Since all assignments are group projects, learning how to work effectively with other members of your group is a critical requirement for successful completion of the assignments. Please consult the course Handbook for more information on effective group work.

A note on professionalism:
Whether in draft or final form, work plans, interim reports and presentations that are distributed to the professor and client are expected to be of professional quality. This includes an expectation of superior intellectual ideas, writing, formatting and presentation of products. Remember that an important aspect of successful interactions includes the way in which you prepare, rehearse your material, look and sound when you communicate with clients and staff in their organizations. Please note that client satisfaction throughout the term will inform their interactions with you.

Additional Grad student assignment
Each group should prepare an annotated bibliography, consisting of 20-30 references that speak to the current state of the literature on your project topic. There are sets of literature around each of the project topics-areas. If you consult relevant journals you will be able to see who is writing around them (and most likely citing each other - so it's a good idea to look at reference lists). There should be one well-written paragraph for each of the references, in which you identify the main theoretical issues raised in the reading and discuss key findings relevant to your class project. This assignment is due on Oct 27, although we

suggest you get started on it sooner since it will be helpful in situating and designing your project. We expect that your group will include all of most of these references in your final report.

<u>360º Peer Reviews</u>
The first peer review will be used only to determine if there are issues in your group that need to be addressed. The second peer review may be used to adjust the individual marks on group projects. They are due on Oct 27 and Dec 11. The group projects will each be assigned a single grade. If the second peer review provides strong evidence of better than average, or worse than average, performance by a member of the group, then the grade of that individual for that group project may be adjusted up or down by 5%.

Important Term Work Policies:
All assignments are due **on the due dates stipulated above**. Because these are group projects, requests for extensions necessarily impact everyone in the group. In addition, it is critical to meet deadlines for clients. As a result, requests for late submission of the assignments will require compelling reasons and must work for everyone in the group.

There can be no exceptions to the deadlines for the group presentations.

Readings:

There exists a rich literature on various forms of applied problem-based learning in the sustainability arena. For a good list, see the References and Recommended Reading section of:
- Wiek, A. and B. Kay (2015) "Learning while transforming: solution-oriented learning for urban sustainability in Phoenix, Arizona," *Current Opinion in Environmental Sustainability*, 16: 29-36, 2016).

That paper is also a leading-edge example of such work.

There exists an overlapping literature on the idea of university-community partnerships on developing "living labs" of sustainability. For a discussion of this idea, see

- König, A. and J. Evans (2013) "Introduction: experimenting for sustainable development? Living laboratories, social learning and the role of the university", in In Ariane Konig, ed., *Regenerative sustainable development of universities and cities: the role of living laboratories*. Cheltenham, UK: Edward Elgar.

The various chapters of that book report on living lab activities in ten universities in Europe, North America and Asia.

Much of this literature describes living lab activities that are focussed university-city partnerships that address sustainability problems in the world outside the university. Less attention has been paid to seeing the physical campus of the university itself as a living lab of sustainability. This is the approach that has been taken at The University of British Columbia (UBC). This version of a living lab is described in:

- Robinson, J., Berkhout, T., Cayuela, A., Campbell, A. (2013). Next Generation Sustainability at The University of British Columbia: The University as Societal Test-Bed for Sustainability. In Ariane Konig,

ed., *Regenerative sustainable development of universities and cities: the role of living laboratories*. Cheltenham, UK: Edward Elgar.

See also:
- Evans, J., Jones, R., Karvonen, A., Millard, L., & Wendler, J. (2015). Living labs and co-production: university campuses as platforms for sustainability science. *Current Opinion in Environmental Sustainability*, 16, 1-6.

Finally, the Environmental Association of Universities and Colleges in the UK has developed a national living labs program for UK universities. They have three reports on living labs, which can be found here: http://www.eauc.org.uk/eauc_living_labs_project.

The readings listed above will be posted in Quercus, and students are asked to read them to familiarize themselves with the context within which the work undertaken in this course takes place. However, the specific knowledge needed for the group projects themselves will be supplied by the client or determined by you as the project is articulated.

Academic Integrity:
The University of Toronto treats cases of academic misconduct very seriously. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that your UofT degree is valued and respected as a true signifier of your individual academic achievement.

The University of Toronto's *Code of Behaviour on Academic Matters* outlines the behaviours that constitute academic misconduct, the processes for addressing academic offences, and the penalties that may be imposed. You are expected to be familiar with the contents of this document. Potential offences include, but are not limited to:

In papers and assignments:
- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the Professor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment (this includes working in groups on assignments that are supposed to be individual work).

On tests and exams (***not applicable for this course***):
- Using or possessing any unauthorized aid, including a cell phone.
- Looking at someone else's answers.
- Letting someone else look at your answers.
- Misrepresenting your identity.
- Submitting an altered test for re-grading.

Misrepresentation:
- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.
- Falsifying institutional documents or grades.
- Signing attendance reports on behalf of other students.

Any instance of suspected academic dishonesty will be reported to the appropriate University authorities. For further information on "How Not to Plagiarize", you might find Margaret Proctor's guide helpful – click "Using sources" in the advice link: http://www.writing.utoronto.ca/advice

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: http://studentlife.utoronto.ca/accessibility.

Course Schedule:
Sept 15 – Introductions; review syllabus; client presentations; choose preferred topics
Sept 22 –; lecture on campus as living lab and the role of the university; session on group process; meet in groups with clients
Sept 29 – meet in groups during class time; meet clients separately as needed; have draft problem statement
Oct 6   – lecture on RS and SDGs; meet in groups during class time; meet clients separately as needed
        – **problem statement due**
Oct 13   – meet in groups during class time; meet clients
Oct 20   – lecture on Normalizing sustainability; meet in groups during class time; meet clients separately
Oct 27   – meet in groups during class time; meet clients separately as needed
        – **first 360° review due**
        – **grad student annotated bibliography due**
Nov 3   – **mid-term presentations**
        – **mid-term reports due**
Nov 10 – READING WEEK
Nov 17 – meet in groups during class time; meet clients separately as needed
Nov 24 – meet in groups during class time; meet clients separately as needed
Dec 1   – meet in groups during class time; meet clients separately as needed
Dec 8   – **final presentations sometime this week**
Dec 11 – **second 360° review due**
Dec 11 – **final report due**