Draft, subject to change
28 August 2013

Geography 460 – Research in Sustainability [3credits]

Fall 2013

Burnside Hall, room 308
Thursdays, 11:25a – 2:25p
Office hours: T 10 – 13; W 14 – 17 or as available

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"Research is formalized curiosity. It is poking and prying with a purpose."
- Zora Neale Hurston, Dust Tracks on a Road

Summary

Most agree that sustainable development is a desirable goal for society. However, consensus does not extend to recommendations for *how* we can live more "sustainably". Which actions are sustainable, which ones are not? What recommendations can we make to put society on a more sustainable path? What recommendations can we trust, which ones are based on weak or unfounded assumptions? Do we know enough to even feel comfortable making policy recommendations around some topics? Answers to these questions require understanding complex interactions between nature and society. Research in sustainability attempts to bring rigorous and state of the art methods to bear on some of the most pressing questions facing society today. This course allows students the opportunity to rigorously explore sustainability questions they are passionate about.

Throughout the semester students develop their own research projects on topics around sustainability. This will include: defining and honing their research question, understanding our current state of knowledge, developing testable hypotheses or theories, selecting methods with which to assess hypotheses, analyzing available data, and communicating findings. Clear and compelling communication is just as important as cleverness in research. We will emphasize how good research should tell a compelling story.

Theme

I aim to organize this year's research projects around the theme of **urban ecosystem services** in Montreal. This could include a variety of topics including water resources, urban agriculture, outdoor recreation, or energy consumption. However, deviations from this theme based on personal interest or past experience are welcome.

Learning objectives

1. Experience the research process. The primary goal of the class is to get your hands dirty and to experience how research is done. Students will leave the class having participated in the research process, from start to finish.

2. Understand the research process. Students will be better able to assess, utilize or critique others' research or research-based policy recommendations related to sustainability. For students interested in graduate school, this may give you a taste of what to expect.

Course structure
Broadly, the structure of the course will follow the steps one goes through for most research processes (but see the schedule below for week-by-week details):

1. Choose a (broad) topic	What are you passionate about? What interests you? What do you think are the most pressing issues in sustainability today?
2. Background information	Learn about the topic & understand local context
3. Define a research question	What question(s) do we need to answer to develop more sustainably (related to the topic)?
4. Collect data (& then revisit research question)	Create or look for data, case studies, or available information
5. Analysis and synthesis of the data (& then revisit research question)	Can the data I have and say something meaningful? What method should I use?
6. Interpretation of the results (& then revisit research question)	How do the results inform my research question?
7. Dissemination of findings	How do I communicate what I've learned to maximize impact and influence?

These steps give the appearance that research is logical and sequential. In reality, research is iterative and circuitous. There are many stops, starts and backtracking. Expect frustration – it is an important part of the research process! It is crucial that we clearly distinguish what our research is able to say or not say, and often it takes iteration to align the question(s) we can answer with the data that are available.

The class will be largely unstructured and designed to with the first objective in mind: to "get your hands dirty." We will work individually at first to develop interesting questions, then organize into teams do the work to answer some of those questions. Each team will summarize their research in either a final project report of publication quality or a research poster suitable for presentation at an international research conference. Each team, at a minimum, should aim to submit their final output to *Field Notes* or present their poster at the McGill Sustainability Symposium. Ideally each team will do both, although it is not required.

Course components
Short talks. Some topics deserve some introduction or background, which I will present in "short talks" of 15-20 min when necessary throughout the semester. Some examples of short-talk topics include:

- What is research, what is the research process?
- Research design
- Research proposals and storytelling
- Communicating sustainability, maximizing impact & influence of your work

Team & Prof meetings. These are ~1-hour meetings with me to discuss where you are in the research process. These are intended to be intensive discussions about your progress, so please come prepared to discuss roadblocks, explore paths forward, exciting ideas, etc.

Detailed Schedule

Wk	Date	Class description
1	Sept 5	Introductions. What to expect from this class. Schedule of the semester. Introduce the theme. Sample topics/ideas. *Short talk*: What is research, the research process.
2	Sept 12	11:30 - 1: Session with Julie Jones at HSS Library. *Short talk*: Research design. For next class: With your team, discuss your topic and propose potential research questions to explore.
3	Sept 19	*Short talk*: Research proposals and storytelling. As a class: review "proposal guidelines". Team & prof meetings. Come prepared to discuss where you are with your topic and potential research questions. For next class: compose a detailed outline for your proposal to review in the team & prof meetings.
4	Sept 26	Proposal development. Team & prof meetings as needed.
5	Oct 3	Proposal development. Mandatory team & prof meetings.
6	Oct 10	Teams present and defend their proposals to the rest of the class. Teams will be graded and judged by members of the other team(s).
7	Oct 17	Short talk: Communicating sustainability, maximizing impact Proposal revisions. Iterate on the question and methods. Incorporate in-class and reviewer (my) feedback.
8	Oct 24	Team & prof meetings: Research
9	Oct 31	Team & prof meetings: Research
10	Nov 7	Team & prof meetings: Research
11	Nov 14	Draft presentation: practice presentation to class Submit draft of research report for review
12	Nov 21	Panel presentation to review committee
13	Nov 28	Team & prof meetings. Incorporate feedback. Adjust analyses. Finish writing the final report.
Final	Dec 12	Final report due. Individual assessment due.

Assessment and grading

Assessment item	***Description***	***Weight***
Proposal and proposal presentation	Teams will write a proposal for their research project loosely modeled after proposals solicited by Canada's Natural Science and Engineering Research Council (NSERC) and the Social Science and Humanities Research Council SERC).	25% 10% proposal 5% presentation 5% revision 5% peer feedback
Panel presentation	Each team will present the findings of their research to a small committee of graduate students or professors. Each panelist will help assess each groups' preparedness, methodology, presentation of results, and interest of findings.	15%
Final report or poster	Final reports should be modeled after a journal article. You may find it helpful to browse some of the following academic journals to gauge expectations for length, content and format: *Global Environmental Change*, *Society and Natural Resources*, *World Development*, or *Ecology & Society*. Final posters will be of suitable quality for presentation at an international conference.	15%
Instructor assessment	My assessment of your involvement and engagement in the research and team process. This may involve my judgment of efforts in classroom exercises, team & prof meetings, or constructive participation in the classroom in general.	15%
Peer assessment	An average of peer-judged allocation of effort and contribution. I advise the teams discuss expectations early. [i.e., Is it ok to miss team meetings? How many? How will task be divided? Etc…] Keep communication open. If you feel like you're not pulling your weight, ask the team what else you can do to contribute.	25% 10% at midterm 15% at final
Individual's assessment of research	This is a final individual assignment in which each student reflects on the process of "doing research". More structure will be given for this towards the end of the semester, but broadly students will reflect on surprises, misconceptions about research, how/whether the question changed throughout the semester, etc.	

Assignments

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded." (*approved by Senate on 21 January 2009 - see also the section in this document on Assignments and evaluation.*)

Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue).

Suggested reading
Given the hands-on nature of this class, there is no required textbook. But here are some suggested takes on the research process that I have found interesting:

Luker K. 2008. *Salsa Dancing into the Social Sciences*. (Cambridge, MA: Harvard University Press).

Bradley HE and Collier D. 2004. *Rethinking Social Inquiry: Diverse tools, Shared Standards*. (Lanham, MD: Roman and Littlefield).

Charles Ragin. 1989. *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*. (Berkeley, CA: University of California Press).

Course prerequisites
Students entering the course should have sufficient background to understand multiple perspectives on sustainability – we will not explore or try to define sustainability, per se. Further, students should come with some analytic skills they are comfortable putting to use towards a particular research question.

Academic integrity
McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/students/srr/honest/ for more information). (*approved by Senate on 29 January 2003*)

To help ensure students follow proper citation and attribution practices, I reserve the right to use text-matching software to flag potential problems. If you have questions about how to properly reference work, please see me in office hours.

Course modifications
Given the nature of this course we, as a class, may feel we need to alter aspects of the syllabus as put forward here. Much like a research project, we will revisit the expectations of the class as we go along and may find it agreeable to speed up or slow down a bit. Any alterations to the course will be an open and transparent discussion among the class. If you have thoughts about our trajectory during the semester, please share them with me.

Late work
In this course, late assignments will be difficult to manage as they will disrupt the schedule and workflow of the whole semester, and is therefore strongly discouraged. Work that is up to one day late work will result in a 10% reduction in the otherwise earned grade on that assignment. Work from one day to one week late will result in a 30% reduction in the otherwise earned grade. Work more than one week late will not be accepted. Please see me for special circumstances.