Geography 512  
**Advanced quantitative methods for social field research** (3 credits)  
Fall 2018

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**Summary**  
One way to try to answer questions about society is by collecting our own field data through talking to people. Once we have the data, we then need some way to analyze or synthesize the information we have. This course introduces students to advanced statistical techniques commonly confronted in empirical social sciences, and we focus on four major topics:

- designing field research for social inquiry
- methods for causal inference
- analyzing time-series data
- controlling for and measuring spatial interactions

Students are encouraged to come with their own research ideas in mind, and it is ideal for students to take this course just before going to the field to conduct primary research and data collection. For a final project in the course, students will have the option to develop a rigorous data analysis plan around those interests. Alternatively, if a student already has a dataset in hand, s/he is encouraged to use it to explore the methods we learn in the course. For students that simply want to bolster their statistical toolkit (but no relevant research project in mind), several public datasets will be available.

**Learning objectives**  
After completing this course you will be able to:

1. critique the literature that uses the techniques covered in this course
2. apply quantitative tools to estimate and control for local heterogeneity, including geographic factors, and
3. design a robust data collection strategy and an accompanying statistical analysis plan.

In the course we will highlight (a) the major assumptions that underlie the methods we investigate, (b) how field data collection relates to each analytical method, and (c) how these techniques do or do not account for contextual or geographic factors that may influence outcomes of interest.

We will use journal articles, book chapters and case studies to deepen our understanding of research design and analytical techniques. Readings will draw from a range of disciplines, but most will focus on analysis of socio-economic and environmental systems. Some of the topical questions might include:

- How do we know if an aid or development project is achieving its desired results?
- Does participation in afforestation programs have a positive effect on poor households?
- Does neighborhood choice affect residents’ health?
- How does the spatial pattern of road development affect tropical deforestation?
- Where should conservation efforts be located?

**Course prerequisite**  
My goal is that this course helps new researchers design good field studies, and field studies that answer research questions to the best of our ability with current techniques. We cannot cover all the possible
content that might be useful for everyone, but I hope the course will serve as a sample of the range of techniques available and give students confidence to explore other methodological literature on their own. Multiple regression techniques will be our starting point. Thus students must have appropriate prior coursework (e.g., GEOG 351, SOCI 504, SOCI 505, ECON 337) or equivalent experience with permission of instructor.

Assessment (detailed descriptions of each will be given prior to the assignment)

50% Labs
Students will work individually or in small teams, depending on the assignment, to practice the methods we review in class. For data analysis we will use Stata (available on the machines in the GIC).

10% In-class paper presentation
Students (or teams of students, depending on size of the class) will select a method from the course outline, and present a peer-reviewed journal article that uses this technique. Presentations should introduce the motivation for the paper, describe the method used, the data, and give a critical analysis of the paper. Presentations should be 20-30 minutes.

35% Final project (Data analysis plan or Research paper) (5% outline, 30% final report)
Students have a choice to either design their own research methods & data analysis plan, or to use data (their own data, secondary data, or a public dataset) to develop an independent research paper. The target length is 3000 words. The topic of the assignment is the student’s choice, but data analysis should be related to topics covered in the course.

5% Class participation
Participation is evaluated based on evidence that students have read assigned readings, prepared for class and give regular, thoughtful contribution to weekly discussions. Quality of contribution is preferred over quantity. Preparation, participation and performance in student-led discussion will be taken into account.

For information on university and department policies for student assessment, please go to http://www.mcgill.ca/geography/studentassessment

Readings
Readings draw from foundational journal articles, textbook treatments of methodologies, or case studies that demonstrate methodologies.
**Schedule**

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<th>Wk</th>
<th>Method (M 8:30am; BH 429)</th>
<th>Lab (M 10:30am; BH 511)</th>
<th>Readings</th>
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**Research design**

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<th>Wk</th>
<th>Method (M 8:30am; BH 429)</th>
<th>Lab (M 10:30am; BH 511)</th>
<th>Readings</th>
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<tr>
<td>Sept 17</td>
<td>Sampling &amp; field (hh) survey design</td>
<td>Stata intro &amp; descriptive stats lab</td>
<td>Rea &amp; Parker, 2004. Designing and conducting survey research Section 2. * several other resources are uploaded in MyCourses</td>
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<td>Sept 24</td>
<td>Measurement &amp; attenuation bias; Field logistics</td>
<td>Multiple regression review; checking models</td>
<td>Angelsen, et al. 2011. Chapters 7, 9, 10 from “Measuring Livelihoods”.</td>
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**Evaluating impacts of policies & programs**

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<th>Oct 01 – Election Day (QC)</th>
<th>Oct 08 – Thanksgiving Holiday</th>
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<td>Nov 05</td>
<td>Guest lecture, TBD</td>
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**Temporal considerations**

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**Space and scale**

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Final projects will be due the last week of finals. * Optional reading.
Language of 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 McGill 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).

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.

Late work
Late assignments are accepted for unexcused absences but will result in a 10% reduction in the otherwise earned grade on that assignment for work that is 5 minutes up to 24 hours late. Work from 1 day to 1 week late will result in a 30% reduction in the grade otherwise earned. Work more than one week late will not be accepted. Please see me if you have documentation of special circumstances.

Course modifications
We, as a class, may feel we need to alter aspects of the course outline as given above. We will revisit the expectations of the class as we go along and may find it agreeable to change pace or select different methods to review. Alterations to the course will be an open and transparent discussion among the class. Further, in the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change. If you have thoughts or concerns about our trajectory during the semester, please let me know.