INTD 497-003
“Understanding land use and land cover change”
Fall 2018

Class time: Fridays, 8:35am-11:25am
Room: Leacock Building 109
Instructor: Professor Yann le Polain de Waroux
Office hours: Fridays, 1pm-2pm
Email: yann.lepolaindewaroux@mcgill.ca

Course description: Why are forests being cut in some places and growing back in others? How to protect the environment without harming local livelihoods and stifling development? What happens to agricultural land when half the population of a region migrates to the city? Land and its uses are at the core of many of today’s main development and environment challenges. Issues such as food security, biodiversity loss, or climate change are all, at some level, related to land use choices and their consequences. Now more than ever before, as the world becomes more and more connected, these choices are determined by factors at multiple scales and in multiple locations. In this course, we will look at different perspectives, theories and tools used to understand land use and land cover change and examine the growing challenge of land governance in a connected world. The themes and approaches broadly fall under the umbrella of “land system science”, a field of inquiry centered around a systemic view of land and a concern for sustainability. The course is structured around the main processes of land use and land cover change and will combine theoretical perspectives with multiple case studies and hands-on exercises. We will cover various issues, methods and geographic regions, but greater emphasis will be put on forests and deforestation in South America, and on quantitative approaches.

Learning outcomes

By the end of this course, students should be able to:
- Recognize the role of land in a variety of development and sustainability issues
- List and explain the main methods, conceptual tools and theories used to describe and analyze land use and land cover change
- Relate these methods, conceptual tools and theories to real-life examples
- Understand the main types of land use changes and the key processes driving them
- Conceptualize land as part of a system, and recognize its interconnectedness across space and scales
- Critically engage with land use literature and other materials related to land use
- Critically engage with land governance policies and their potential desired and undesired impacts
- Develop and present persuasive oral and written analyses of the topics under discussion
- Conduct independent research and writing that explores the themes of the course

The teaching methods used to achieve these objectives include:
- Lectures
- Class discussions
- Student presentations
- Audiovisual and web-based materials
- Guided reading and independent research

Required course materials

All papers used in the course will be provided on MyCourses. The detailed list of readings per class is provided in the detailed outline below.
Course requirements

Attendance and participation (14%): Active participation counts towards the final grade and is expected of all students. Because this is a seminar rather than a lecture course, students are expected to come to class having closely read all the assigned texts and prepared to speak about them. Highlight interesting or unclear passages and write down questions you have. There will be a discussion of papers in each class.

Reading quizzes (10%): There will be five short unannounced in-class comprehension quizzes about the readings, each worth 2 points. Where relevant, comments on specific readings (e.g., parts to skip or focus on) will be attached to the article file in MyCourses. Readings in the list are subject to changes up to one week before the class - changes, if any, will be announced on myCourses. There are no make-up quizzes: for students who are absent for one of the quizzes, I will report their average over the other quizzes.

Group facilitation (20%): For classes 4, 5, 6, 7, 8, 11, and 12, groups of 3-4 students (assigned by the instructor) will be responsible for organizing a one-hour presentation and discussion of additional materials related to the class. The students will find and present materials not included in the readings that explore a topic relevant to the class. Acceptable materials are for example: peer-reviewed academic papers, video or audio material, news reports, or “gray” literature. Audio and video equipment will be provided in the classroom. Students will present at least two pieces of material (e.g., one video and one paper) providing complementary perspectives on a common topic. Students will be expected to 1) present the topic engaging critically with the selected materials, and 2) lead a discussion and/or in-class activities. The presentations must include at least 30 minutes of facilitated class discussion and/or activities. Students are required to get in touch with the instructor one week in advance at the latest (so, on the preceding Friday) to talk about the direction of their proposed discussion, so as to discuss strategies and minimize overlap with the themes covered by the instructor.

Question & answer papers (8%): Students will write two 1000-word (+ or – 10%) question & answer (Q&A) papers consisting of two questions about the weekly readings, and answers to these questions. The questions should not be clarification or factual questions, but rather critical inquiries into the materials. The first Q&A paper will cover the readings of classes 2, 3 & 4, and the second, those of classes 5, 6 & 7. The first paper will count for 3 points, the second for 5 points. For each of these, students will be free to focus on one paper from the readings or to engage with several of them. Q&A papers are to be submitted on MyCourses by 12pm on the Sunday after lectures 4 and 7 (see timeline below).

Practical assignments (8%): For classes 2 and 8, students will prepare assignments consisting of a written report based on the interpretation of publicly available data. The first assignment will be worth 3 points, the second will be worth 5 points. Instructions for these assignments will be available on MyCourses two weeks before the assignment due date. Practical assignments are to be submitted on MyCourses by 12pm on the Sunday after lectures 2 and 8.

Presentation of research paper (not graded): Students will present their research papers in classes 9 and 10. It is understood that the papers will not be complete by then: the presentations will be an opportunity for students to get feedback (see below) that will help improve the final paper.

Feedback on presentations (5%). Students will be asked to provide constructive and meaningful feedback on five presentations each (assigned randomly), the quality of which will be graded (one point per presentation). Suggestions on how to provide meaningful feedback will be provided verbally and on MyCourses. Students will then be expected to incorporate that feedback into their research paper. Feedback on presentations is to be submitted on myCourses by November 11, 12pm.

Research paper (35%): Each student will write a paper about a topic of their choice that engages with key ideas of the course. Papers should have between 3,000 and 4,000 words, excluding references, tables, figures, and abstract. The paper must have a clear thesis, identify key terms, and draw on both empirical and theoretical materials from the course. Topics must be different from those chosen for the group facilitation. Students are required to submit an abstract (approximately 300 words) of the paper on
myCourses by October 14, 12pm. The abstract is not graded, but failure to send it in time will result in a 2-point penalty on the paper grade. The final paper is to be submitted on myCourses after the last class, on December 2d, by 12pm. Further instructions on both abstract and paper will be posted on MyCourses at the beginning of the course.

**Grading and assessments summary:**

- 14% Attendance and participation
- 10% Reading quizzes
- 20% Group facilitation of seminars
- 8% Two question & answer papers
- 8% Two practical assignments
- 5% Feedback on presentations
- 35% Research paper

More specific grading keys will be provided separately in the instructions for each assignment.

**General instructions and policies**

**Absences:** Each student is permitted one unexcused absence. Additional unexcused absences will lower the class participation grade by 3 points. Excused absences require advance approval and a letter of explanation. Students will be responsible for all work missed.

**Announcements:** Announcements will be made on myCourses exclusively. Students are expected to log in to their myCourses page and check announcements regularly. It will be considered that the information posted on myCourses is known to all.

**Etiquette:** Please use appropriate and respectful language with each other and with the instructor. Emails starting with “hey prof” and/or containing multiple grammatical errors will be ignored. Aggressive behavior, whether overt or passive, will not be tolerated.

**Late policy:** Assignments are due by midnight on the Sunday after class, unless otherwise specified. Late papers will be subject to a one-time penalty of 25%, plus a penalty of 5% per day starting two days after the due date. Thus, a paper handed a week late will be subject to a 50% penalty (25%+5*5%). Exceptions will be made for exceptional cases, with the professor’s prior agreement. Extensions will not be granted on the day an assignment is due, except in case of medical or family emergency, accompanied by appropriate documentation.

**Format and style:** All assignments are to be submitted through myCourses as Word documents (.doc or .docx). Students are required to type their text in 12-point font with standard margins and double spacing. Use single spacing for block quotations, footnotes, appendices and bibliographies. References and citations must follow a standard academic format. In-text citations are preferred: [http://www.chicagomanualofstyle.org/tools_citationguide/citation-guide-2.html](http://www.chicagomanualofstyle.org/tools_citationguide/citation-guide-2.html).

**Special Needs:** If you have a disability, you are welcome to contact the instructor to arrange a time to discuss your situation. Please also make contact with the Office for Students with Disabilities.

**Language:** 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.

**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/](http://www.mcgill.ca/students/srr/honest/) for more information). Any case in which the instructor suspects plagiarism will be referred to the Dean of Students.

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## Classes and assignments timeline

<table>
<thead>
<tr>
<th>Class #</th>
<th>Date</th>
<th>Class title</th>
<th>Group facilitation</th>
<th>Assignment</th>
<th>Assignment deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18/09/07</td>
<td>Introduction</td>
<td>No</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2</td>
<td>18/09/14</td>
<td>Monitoring and characterizing land systems</td>
<td>No</td>
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<tr>
<td>3</td>
<td>18/09/21</td>
<td>Analyzing and modeling land use and land cover change and its outcomes</td>
<td>No</td>
<td>Practical assignment #1</td>
<td>18/09/23 12pm</td>
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<tr>
<td>4</td>
<td>18/09/28</td>
<td>More with less: land use intensification</td>
<td>Yes</td>
<td>Q &amp; A paper #1</td>
<td>18/09/30 12pm</td>
</tr>
<tr>
<td>5</td>
<td>18/10/05</td>
<td>Land use expansion</td>
<td>Yes</td>
<td>--</td>
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<tr>
<td>6</td>
<td>18/10/12</td>
<td>Unintended and unexpected: land use spillovers</td>
<td>Yes</td>
<td>Abstract of research paper</td>
<td>18/10/14 12pm</td>
</tr>
<tr>
<td>7</td>
<td>18/10/19</td>
<td>Land use transitions</td>
<td>Yes</td>
<td>Q &amp; A paper #2</td>
<td>18/10/21 12pm</td>
</tr>
<tr>
<td>8</td>
<td>18/10/26</td>
<td>Distant interactions: telecoupling</td>
<td>Yes</td>
<td>Practical assignment #2</td>
<td>18/10/28 12pm</td>
</tr>
<tr>
<td>9</td>
<td>18/11/02</td>
<td>Student presentations I</td>
<td>No</td>
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<td>--</td>
</tr>
<tr>
<td>10</td>
<td>18/11/09</td>
<td>Students presentations II</td>
<td>No</td>
<td>Feedback on presentations</td>
<td>18/11/11 12pm</td>
</tr>
<tr>
<td>11</td>
<td>18/11/16</td>
<td>Area-based governance of land</td>
<td>Yes</td>
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<tr>
<td>12</td>
<td>18/11/23</td>
<td>Flow-based governance of land</td>
<td>Yes</td>
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</tr>
<tr>
<td>13</td>
<td>18/11/30</td>
<td>Consultation period for the research paper</td>
<td>No</td>
<td>Research paper</td>
<td>18/12/02 12pm</td>
</tr>
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</table>
**Detailed classes outline and readings**

--- BLOCK I: INTRODUCING LAND SYSTEMS ---

<table>
<thead>
<tr>
<th>Class 1</th>
<th>18/09/07</th>
<th>Introduction</th>
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**Key themes**
- Main changes in global land use and land cover
- Pillars of land system science
- Globalization and its effects on land systems

**Required readings**

<table>
<thead>
<tr>
<th>Class 2</th>
<th>18/09/14</th>
<th>Monitoring and characterizing land systems</th>
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**Key themes**
- How is land use and land cover change monitored?
- What are social-ecological systems?
- Ecosystem services as a link between social and ecological systems

**Required readings & media:**

<table>
<thead>
<tr>
<th>Class 3</th>
<th>18/09/21</th>
<th>Analyzing and modeling land use and land cover change and its outcomes</th>
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</thead>
</table>

**Key themes:**
- What is sustainable land use? What are its conditions?
- How does one analyze the causes of land use change?
- What are models of land use change?

**Required readings:**
- Lambin, E. F., Turner, B. L., Geist, H. J., Agbola, S. B., Angelsen, A., Bruce, J. W., ... & George, P. (2001). The causes of land-use and land-cover change: moving beyond the myths. Global environmental change, 11(4), 261-269.

== BLOCK II: LAND USE PROCESSES AND ISSUES ==

Class 4 18/09/28 More with less: intensification of land uses

Key themes:
- What is land use intensification?
- What are the causes and processes of intensification?
- Intensification and nature conservation

Required readings:

Class 5 18/10/05 Land use expansion

Key themes:
- Main theories of expansion: land rents, institutions, livelihoods and peasant economy
- Tropical deforestation frontiers and their explanations

Required readings:

**Class 6 18/10/12**

**Key themes:**
- What are the indirect effects of land use change?
- Biofuels and indirect land use change
- Protected areas and leakage

**Required readings:**


**Class 7 18/10/19**

**Land use transitions**

**Key themes:**
- Nonlinearity and transitions in theory
- The forest transition: evidence and pathways
- Regime shifts and abrupt change

**Required readings:**

INTD 497: Understanding, analyzing, and governing land use and land cover change in a globalized world


### Class 8 18/10/26  Distant interactions: telecoupling

**Key themes:**

- What is telecoupling? How are distant land systems connected?
- Trade, migration, land acquisitions, and ecosystem externalities as telecouplings

**Required readings:**


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**== BLOCK III: STUDENT SEMINARS ==**

**Class 9 18/11/02  Student presentations I**

No required readings. Students present their research papers in progress. All students must be present so as to be able to provide feedback.

**Class 10 18/11/09  Student presentations II**

No required readings. Students present their research papers in progress. All students must be present so as to be able to provide feedback.

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**== BLOCK IV: LAND GOVERNANCE ==**
Key themes:
- Land tenure and access to land
- Protected areas
- Payments for ecosystem services

Required readings:

Key themes:
- The rise of private regulations
- Main market-based policy instruments
- Adoption and effectiveness of private governance

Required readings:

No readings required.