

Land Use-Land Cover Change Seminar

Time and place: Wednesdays, 2:15-4:45 pm, Science Hall room 110

Class website: http://landcoverchange.com/courses/land_cover_change

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Office: Enzyme room 206, 1710 University Avenue
Office hours: Wednesdays, or by appointment

Course description and objectives

Land change science seeks to understand land dynamics and their various consequences through an examination of coupled human-environment systems. Changes in land-use (human use) and land-cover (biophysical condition) affect key aspects of Earth system functioning at multiple spatial and temporal scales or extents, such as land productivity, diversity of plant and animal species, and biogeochemical, circulation and hydrological cycles. Such changes also affect economies and human welfare and the vulnerability of places and people to climatic, economic and socio-political perturbations. This seminar examines the development of land change studies and the theoretical and methodological challenges to linking biophysical, socio-economic, and remote sensing/GIS analysis. Specifically, this course will focus on understanding the underlying and proximate drivers of different land cover transitions.

Targeted students

Students who take this course should be motivated individuals with a sincere interest in learning more about land cover change from an environmental perspective. The course is designed for students pursuing a graduate degree in environmental studies, geography, natural resource assessment, urban studies/urban planning, environmental engineering, agricultural economics, sociology, and forest ecology, however students outside these disciplines will not be discouraged from taking this class.

Course structure

The heart of the class will be reading and discussing scientific journal articles and chapters, and everyone in the class will take a turn leading discussion. Grading will be based on level of preparation and class participation during discussion, as well as a final literature review of the student's choice. The topic should draw on the material and readings in class, but students are encouraged to integrate the material with their own research interests. For those students actively involved in research, this paper will provide a means to advance this work.

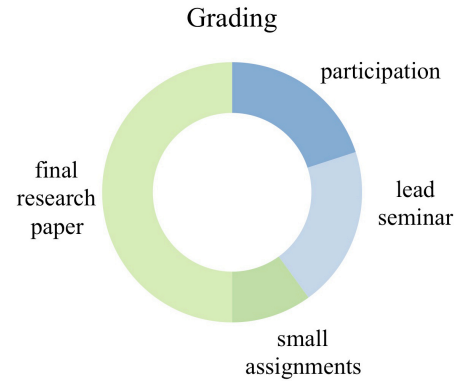
Expectations, assignments, and attendance

Regular attendance is essential. Students are expected to do the readings before class, complete mini-assignments that will help promote a lively discussion, prepare and present two topics during the semester (working in groups of two-three), and complete a final research paper.

Grading

The majority of the grade for this seminar is distributed among class participation and the final paper:

class participation, preparedness	20%
leading weekly discussions (twice)	20%
short assignments (discussion questions, etc.)	10%
final literature review	50%



Topics

This class will focus on a different type of land cover change each week, as well as a specific region of the world. In addition, we will discuss new and relevant themes in land change science, such as land grabs and teleconnections.

1. Introduction to land change science
2. Overview of land use – land cover change drivers
3. Tropical forest transitions in the Amazon
4. Deforestation and land cover change in East Africa
5. Agricultural expansion and intensification in tropical and subtropical regions
6. Land grabbing in Mainland Southeast Asia
7. Agricultural abandonment in Eastern Europe
8. Urban expansion, urban sprawl, and ex-urban development in the U.S. and Europe
9. Urban expansion and peri-urban growth in East Asia
10. Grassland change, grazing, and land degradation in arid regions
11. Desertification
12. Land cover change in the arctic tundra
13. Teleconnections in land change science
14. Temperate forest transitions
15. Decline of swidden agriculture in Southeast Asia
16. Agricultural change in the U.S.

Daily schedule

	monday	tuesday	wednesday	thursday	friday	
january			17 seminar – introduction, logistics	18	19	20 assignment: read topic 1 articles, write discussion questions
	discussion questions due	23	24 topic 1 – overview of land change science	25 <i>lecture by david gosselin: building collaborative teams</i>	26	27 assignment: read topic 2 articles, write discussion questions; prepare final paper proposal
february		30	31 field trip – networking event	1	2 final paper proposal due	3 assignment: read topic 2 articles, write discussion questions
	discussion questions due	6	7 topic 2 – land cover change drivers and recent trends	8	9 revised proposal due	10 assignment: read topic 3 articles, write discussion questions; revise final paper proposal
	discussion questions due	13	14 topic 3 – tropical forest transitions in the amazon	15 <i>lecture by emilia tjernstrom: rural development and food security</i>	16 <i>lecture by nick blomley: property, precarity, and power</i>	17 assignment: read topic 4 articles, write discussion questions; start final paper bibliography
	discussion questions due	20	21 topic 4 – agricultural change in the u.s.	22	23	24 assignment: read topic 5 articles, write discussion questions

notes: items in *italics* are optional (but strongly recommended) lectures, including weston (thursdays 4:15 pm 1163 mechanical engineering), and yi fu tuan lectures (fridays 3:30 pm science hall); all readings must be completed before class, and all discussion questions must be submitted by 11 pm on the monday preceding the discussion.

	monday	tuesday	wednesday	thursday	friday	
march	27	28	1	2	3	
	discussion questions due		topic 5 – temperate forest transitions	<i>lecture by nicola anthony: biodiversity and conservation</i>		assignment: read topic 6 articles, write discussion questions
	6	7	8	9	10	
	discussion questions due		topic 6 – urban expansion, peri-urban growth in east asia	<i>lecture by andrea hicks: agent-based modeling</i>		assignment: read topic 7 articles, write discussion questions
	13	14	15	16	17	
	discussion questions due		topic 7 – grassland change, grazing, and land degradation in semi-arid regions	<i>lecture by caitlin kontgis: monitoring agricultural yields</i>		assignment: read topic 8 articles, write discussion questions
	20	21	22	23	24	
	<i>* spring break - no class this week</i>					assignment: read topic 8 articles, write discussion questions; finalize paper bibliography
	27	28	29	30	31	
	discussion questions due		topic 8 – deforestation and land cover change in east africa		final bibliography due	assignment: read topic 9 articles, write discussion questions

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	monday	tuesday	wednesday	thursday	friday		
april		3	4	5	6	7	
	discussion questions due		topic 9 – agricultural abandonment in eastern europe	<i>lecture by alex pfaff: economics of protected land</i>			assignment: read topic 10 articles, write discussion questions
		10	11	12	13	14	
	discussion questions due		topic 10 – agricultural change in tropical and sub-tropical regions		final paper outline due		assignment: read topic 11 articles, write discussion questions
		17	18	19	20	21	
	discussion questions due		topic 11 – changes in wetland areas				assignment: read topic 12 articles, write discussion questions
		24	25	26	27	28	
	discussion questions due		topic 12 – urban expansion, suburbanization, sprawl, and ex-urban development in the u.s. and europe				assignment: read topic 13 articles, write discussion questions
may		1	2	3	4	5	
	discussion questions due		topic 13 – desertification				assignment: final paper due may 10, 2017

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	monday	tuesday	wednesday	thursday	friday
may		8	9	10	11
			topic 14 – final class (if needed)		
					12

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