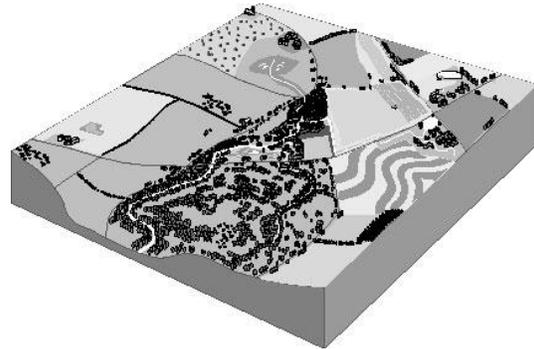
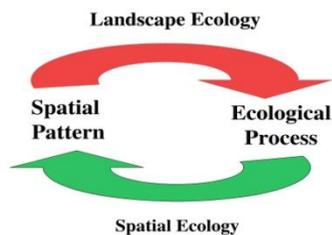


Landscape Ecology



Geography 335N, Spring 2013
MWF 9 AM, CLA1.108

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Office hours: Wednesday, 10 AM, or by appointment

Course goals:

Landscape ecology is the study of spatial patterns in the Earth's biosphere and the processes that produce those patterns in landscapes, typically portions of the Earth measured in square kilometers. This interdisciplinary approach draws from ecology and geography, but is also a perspective increasingly shared with hydrologists, foresters, wildlife biologists, social scientists, landscape architects, and others. We will examine the current state of knowledge and research on the patches and corridors that constitute landscape mosaics. We will cover the possible causal explanations for landscape heterogeneity from geographical and ecological points of view. Finally, we will explore practical applications of landscape ecology to the study of natural environments and those managed or altered by human activities.

Students are expected to read the assigned chapters and participate actively in class. The exams will test knowledge, vocabulary, and the ability to apply concepts to novel situations.

Prerequisites: Assumes background in physical geography or ecology.

Required textbook:

M. G. Turner, R. H. Gardner, and R. V. O'Neill. 2001. *Landscape Ecology in Theory and Practice: Patterns and Processes*. Springer, New York. (ISBN 0-387-95123-7, paperback).

Readings:

Arima, E.Y., R.T Walker, S.G. Perz, and M. Caldas. 2005. Loggers and forest fragmentation: Behavioral models of road building in the Amazon basin. *Annals of the Association of American Geographers* 95: 525-541.

Kupfer, J.A. 2011. Theory in landscape ecology and its relevance to biogeography. Pp. 57-74 in A.C. Millington, M.A. Blumler, and U. Schickhoff (eds.). *The SAGE Handbook of Biogeography*. Sage Publications, London.

Romme, W.H., M.S. Boyce, R. Gresswell, E.H. Merrill, H. Evelyn, G.W. Minshall, C. Whitlock, and M.G. Turner. 2011. Twenty years after the 1988 Yellowstone fires: Lessons about disturbance and ecosystems. *Ecosystems* 14: 1196-1215.

Turner, M.G. 2005. Landscape ecology: What is the state of the science? *Annual Review of Ecology and Systematics* 36: 319-344.

Young, K.R. 2008. Stasis and flux in long-inhabited locales: Change in rural Andean landscapes. Pp. 11-32 in A. Millington and W. Jepson (eds.). *Land-Change Science in the Tropics: Changing Agricultural Landscapes*. Springer, New York, NY.

Grading:

- 1.) Two exams (vocabulary, short answer, short essay)--100 points each.
- 2.) Nine in-class projects—10 points each project.
- 3.) One independent essay---40 points.

Final letter grades for the course are assigned by percentages of the 330 total possible points: $\geq 92\%$ =A; 90-91.99%=A-; 88-89.99%=B+; 82-87.99%=B; 80-81.99%=B-; 78-79.99%=C+; 72-77.99%=C; 70-71.99%=C-; 68-69.99%=D+; 62-67.99%=D; 60-61.99%=D-; < 60 =F.

My lecture notes will **not** be available if you should miss a lecture; plan on getting them from someone else in the class; lecture powerpoints will be posted on blackboard after the lecture. The exams are based on the assigned readings (available on blackboard), the lectures, the powerpoints, and the class discussions and projects. Class attendance is very important for doing well. Note that the University of Texas at Austin provides upon request appropriate academic adjustments for qualified students with disabilities; for more information, contact the Office of the Dean of Students (471-6259, 471-4641).

Class projects: The nine 10-point projects are each based on participation in a group class exercise during the class period, and are typically based on the assigned reading.

Independent final project: The final 40-point project is a three (or four) page essay based on one of three possible readings: on the Amazon by Arima et al. (2005), on Yellowstone by Romme et al. (2011), or on the Andes by Young (2008). This project is to be done independently and is due on the last day of class, along with a brief informal oral presentation of findings to the class done on either 1 or 3 May. In this essay, you should briefly summarize the main points

in the reading you have chosen relevant to the study of landscape dynamics, and then explain what specific research and policy changes are necessary, in your opinion, to do further landscape analyses in those or similar kinds of landscapes. Use Chapter 11 in the textbook for ideas on likely future research directions in landscape ecology. Cite any sources you use in the same manner as is done in the textbook. Note that this assignment replaces the final exam and so must show mastery of the topics covered in the semester.

Course schedule:

<u>Dates</u>	<u>Topics</u>	<u>Readings</u>
14 January	Introduction	
16-23 January	Landscapes	Chap. 1
25 January	1 st Class Project	Kupfer (2011)
28-30 January	Landscape patterns	Chap.4
1 February	2 nd Class Project	Kupfer (2011)
4-6 February	Landscape dynamics	Chap. 7
8 February	3 rd Class Project	Kupfer (2011)
11-18 February	Dynamics, Scale	Chaps. 7, 2
20 February	Review	
22 February	First Exam (100 points)	
25-27 Feb., 1 March	Pattern analyses	Chap. 5
4-6 March	Models	Chaps. 3, 6
8 March	4 th Class Project	Turner (2005)
11-15 March	Spring Break	
18-20 March	Species & landscapes	Chap. 8
22 March	5 th Class Project	Turner (2005)
25-27 March	Species & landscapes	Chap. 8

29 March	6 th Class Project	Turner (2005)
1-5 April	Ecosystems & Watersheds	Chap. 9
8-15 April	Land use	Chap. 10
17 April	Review	
19 April	Second Exam (100 points)	
22 April	Landscape futures	Chap. 11
24 April	7 th Class Project, Andes	Young (2008)
26 April	8 th Class Project, Amazon	Arima et al. (2005)
29 April	9 th Class Project, Yellowstone	Romme et al. (2011)
1-3 May	Independent projects presented	

