

Landscape Ecology
Fall 2009

Lecture:	Tuesday 6-7:50	Holt 268
Lab:	Thurs 5-7:50	Butte 501

Instructor:**Dr. Colleen A. Hatfield**

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Office Hours: T 2-3; W/R 2-4**Level:** Open to graduate and advanced undergraduate students.**Prerequisites:** A course in general ecology or biogeography and a statistics course. If you do not have these prerequisites, please see me.**Text:** Landscape Ecology in Theory and Practice. 2001. Turner, Gardner and O'Neill.
Springer Verlag**OBJECTIVE:** Landscape ecology emphasizes spatial patterning - its causes, development and relevance to ecological systems. Students will become familiar with the conceptual and theoretical framework of Landscape Ecology as well as the quantitative and modeling tools that facilitate our understanding of spatial processes. Readings from the contemporary literature will introduce students to the current approaches in this field and encourage critical thinking and effective communication in the process.**COURSE FORMAT:** Course topics are scheduled for each week (see Syllabus). The class will meet two hours weekly for lecture/discussion and three hours for lab. Each lecture class meeting will be devoted to a formal lecture (30-35 minutes), student presentations (35 minutes), and discussions (40 minutes) of assigned readings from the primary literature. The labs will be held in Butte 501 (unless otherwise noted) and will generally follow the week's topic.**STUDENT PRESENTATIONS:** Each student will present one 25min powerpoint presentations and lead a short discussion (10 min) on landscape ecology lecture topics during the course of the semester. The presentations allow students to more thoroughly explore a particular subject area and present that information in a clear, cohesive manner. It also provides experience in public speaking skills including leading a discussion. However, the presentation is NOT to be a methodical listing of facts or main points from the chapter or literature. Rather the goal is to become sufficiently familiar with the topic to inform and engage the class (a mere listing of facts accomplishes neither of these). When it is your turn to present you can anticipate referencing a number of different sources (not just the text) and the need to synthesize the information. The weekly scheduled literature might be a place to start as well as a host of on-line reference resources and don't forget the library! It is your job to seek them out.

Remember, graduate level classes are intended to provide higher order learning and hence they require more work. Thus the expectation is that the presentations will be of a higher quality and

character than one would expect in undergraduate work. The goal is to make you think, wrestle and reason with ideas and then present that journey in a coherent manner.

The presentations will be evaluated by your peers and by me. The presentations will be evaluated based on 1. Organization and clarity; 2. Familiarity with the material and 3. Style. Peers are to come to class prepared (having read the assigned readings) so that their evaluations are informed and balanced. Peer evaluations will be handed in to me at the end of class and they will be returned to the presenter at the next meeting. A presentation grade will be assigned based on my evaluation, loosely informed by student comments. Peer evaluations contribute to participation points.

READING ASSIGNMENTS: One of the goals in this course is to develop critical thinking skills. In that vane, we will devote time to discussing papers from the primary literature. Readings will be assigned weekly and copies will be posted as pdf format on the course Vista webpage. Students will come prepared with a list of questions or topics for discussion related to the papers. A list will be generated for each assigned paper. The list(s) will be handed in each week and used as Discussion points.

DISCUSSION LEADER: Each discussion will be led by a student and the responsibility will rotate among all students in the class. As discussion leader, the student should be familiar with background materials (**this could require additional reading!**), provide an evaluation of the significant contributions of the paper, and raise questions and issues for discussion with the group. An additional objective of the discussion leader will be to stimulate active involvement of all the class members and part of the leaders evaluation will be based on this. Again as a reminder, this is a graduate class and as such you should anticipate higher expectations and time commitment.

LAB: The labs will meet weekly with the goal of gaining hands-on experience with the tools and techniques that are used to study landscape patterns. Homework will be due at the beginning of class one week after assigned unless otherwise indicated. Late assignments will be penalized 10% per late day up to two days after the due date. No assignments will be accepted if they are later than 3 days. All assignments are to be typed unless otherwise indicated.

PAPER ASSIGNMENT AND FINAL ORAL PRESENTATIONS: - Details will be forthcoming

ATTENDANCE:

Attendance is part of the participation grade as there is a considerable amount of information that is presented in the lecture that is not in the readings. In the event you feel compelled to miss class, you are permitted one excused absence. After that, any further absences will affect your participation and final grade.

GRADING:

Presentation	100
Discussion Leader	100
Paper/Project	100
Lab Exercises	<u>200</u>
Participation	100
Total	600

Lecture Schedule

Week	Week of	Topic	Discussion	Presentation
1	8/24	Introduction and History		
Theme I		Detecting and Characterizing Landscape Pattern		
2	8/31	The concept of scale & scaling techniques	Hatfield	
	9/7	NO LECTURE – CAMPUS FURLOUGH DAY		
3	9/14	Utility of models – an introduction		Invasion
Theme II		Agents of Landscape Pattern		
4	9/21	Abiotic Processes Disturbance		Restoration
5	9/28	Biotic Processes		Sustainability
Theme III		Measuring Landscape Pattern		
6	10/5	Measuring landscapes		Climate Change

7	10/12	Landscape Elements: Patches, boundaries, connectivity		Disease
8	10/19	Analyzing landscape patterns		Cultural Landscapes
Theme IV		Implications of Landscape Pattern		
9	10/26	Populations and Meta- Populations Communities		Ecological Risk
10	11/2	Ecosystems		Biofuels
Theme V		Applications of Landscape Ecology Principles		
11	11/9	Landscape Change		Human-Nature Interactions
12	11/16	Conservation Biology		Landscape Genetics
	11/23	THANKSGIVING		
13	11/30	Adaptive Management Regional Planning		Cultural Landscapes
14	12/7 12/14	Presentations		Final Project/Paper

Lecture Schedule

Week	Week of	Topic	Readings (more detailed list to follow)	Lab (Tentative)
1	8/24	Introduction and History	Turner et al. Ch 1 Turner 1989 Pickett and Cadenasso 1995	Data input and interpretation
Theme I		Detecting and Characterizing Landscape Pattern		
2	8/31	The concept of scale & scaling techniques	Turner et al. Ch 2 Wiens 1989 Levin 1992	Scale Dispersion and uniformity
	9/7	NO LECTURE -- CAMPUS FURLOUGH DAY		Simulating Change
3	9/14	Utility of models – an introduction	Turner et al. Ch 3 With & King 1997	GIS/Remote Sensing
Theme II		Agents of Landscape Pattern		
4	9/21	Abiotic Processes Disturbance	Turner et al. Ch 4,7	Disturbance
5	9/28	Biotic Processes	Turner et al. Ch 8	Creating Landscape Pattern
Theme III		Measuring Landscape Pattern		
6	10/5	Measuring landscapes	Turner et al. Ch 5, Gustafson 1998	Understanding Landscape Metrics