Course Syllabus
NR 603: Landscape Ecology
Fall 2014

Instructor
Dr. Rebecca J. Rowe
Assistant Professor, NREN
Ph: 862-2810; email: rebecca.rowe@unh.edu
Office: James Hall 136
Office hours: W: 11-1, or by appointment

Time and Place Monday/Wednesday/Friday 10:10-11:00 Spaulding 230
Lab: Mondays 1:10-4:00 James Hall G45

Course Credits 4

Course Description
Landscape ecology focuses on the relationships between scale, spatial pattern, and ecological processes. Emphasis will be placed on landscape perspectives and practices as they relate to understanding and managing populations and communities. Through lecture, discussion and lab exercises, this course will explore: (1) the concept and importance of scale in assessing pattern and process, (2) abiotic and biotic drivers of landscape patterns including land-use legacies and disturbance regimes, (3) how landscape structure is characterized (e.g., patch metrics), (4) how populations and communities are structured across the landscape and respond to landscape change (e.g., patch size and heterogeneity, ecotones, connectivity/fragmentation, landscape context, metapopulation and metacommunity theory), and (5) management and conservation issues at the landscape scale.

Objectives - *By the end of the course students should be able to:*
- Understand the concepts and consequences of scale, scaling techniques and spatial pattern
- Explain how ecological systems are dynamic in space and time based on knowledge of process
- Infer the abiotic and biotic processes that structure landscape mosaics and patterns of biodiversity from local to global scales
- Review the theory, methodology, and application of landscape ecology to contemporary issues in conservation biology and resource management

Prerequisites
One introductory-level ecology course (e.g., BIOL 541 General Ecology or NR 527 Forest Ecology) or permission of the instructor.

Required Text (available at the UNH bookstore).
- Turner, M.G., R.H. Gardner, and R.V. O'Neill. 2001. *Landscape Ecology in Theory and Practice: Pattern and Process*. Springer-Verlag, New York, NY.
- Additional readings from the primary literature will be posted on the blackboard site.

There may be in-class quizzes or writing assignments to assess comprehension

Expectations
My goal is to facilitate your learning of landscape ecology. Learning is not a passive process. You are expected to (1) attend all class and lab sessions, (2) actively participate by asking questions in class/lab/office hours (3) come prepared - read all assignments prior to class to facilitate a productive discussion or lab session, and (4) communicate and work cooperatively and respectfully with your peers.

Exams
There will be a total of three exams, including the final exam. The final exam will be comprehensive regarding the concepts covered in the course but will focus on the material covered during the last section of the course. Exam questions will be based on lectures and readings. Exams will primarily include definition, short essay and problem-solving questions. The best study guide for the exams will be your own class notes. If you miss an exam, it is your responsibility to contact me regarding the possibility and policy of a make-up; these will be addressed on a case-by-case basis.

Laboratory Exercises
Laboratory exercises will reinforce key concepts, such as differences between grain and extent, landscape metrics, simulating changes in landscapes, interpreting landscape pattern from an organism-based perspective, and landscape context. This is an introductory-level course focusing on concepts and will introduce students to commonly applied software applications (e.g., FRAGSTATS and Circuitscape); these exercises do not require familiarity with ArcGIS. Lab assignments turned in late will be discounted 5% per day for up to three days. After the third day late assignments will no longer be accepted. Extensions on lab assignments can be considered with advance notice and due cause. If you miss a lab period, it is your responsibility to contact me regarding the possibility and policy of making-up the assignment.

Discussions
As a class we will discuss peer-reviewed literature chosen to reinforce and expand upon key concepts introduced in lecture. These class discussions are intended to provide students with the opportunity to think critically about a research study, to formulate questions and explanations, and to communicate these effectively to their peers. All students are expected to participate in these discussions. ***A short writing assignment will be associated with each article.***

Academic Honesty
The University of New Hampshire operates on the assumption that all academic work is the honest product of each student's own endeavors. The faculty and staff expect such integrity from all students, and violations are cause for disciplinary action. Violations of academic honesty in this course may result in a grade of zero on an assignment, quiz, or exam, or failure (F) for the course as a whole; at the discretion of the instructor. Further ramifications at the University level (e.g., suspension, probation, or expulsion) also may occur. Academic dishonesty includes, but is not limited to, cheating and plagiarism. For a full definition refer to your Student Rights, Rules, and Responsibilities Handbook (http://www.unh.edu/student/rights/srrr0708.pdf), or ask if you have questions or concerns.

Grading
Course assignments and exams are designed to measure your understanding of the material and your ability to effectively communicate that information.

Grading Scale

A	95-100	B-	80-82	D+	67-69
A-	90-94	C+	77-79	D	63-66
B+	87-89	C	73-76		
B	83-86	C-	70-72		

Weight of Assignments

Class attendance, participation	5%
Discussions & writing assignments	15%
Lab exercises (calculations & report)	30%
Exams	50%

University or Major Requirements
This course will NOT satisfy any DISCOVERY requirement, including INQUIRY, and will NOT fulfill any Writing Intensive requirement. The course will fulfill requirement #20 in the B.S. Wildlife and Conservation Biology, meets a specialization requirement (second-level ecology) in Environmental Conservation Studies, and can be used as an elective in the Environmental Science and Community and Environmental Planning majors.

UNH Policy on Use of Electronic Devices in the Classroom
"Students may not use cell phones, PDAs, pager, digital music players, laptops and other electronic devices during class unless designated by the course instructor. If use of any of these items is permitted by the course instructor, these items are not allowed to be used for non-class activities. If you have a learning disability that requires the use of one of these items, you must provide evidence from the Disability Services for Student office (DSS), to inform the course instructor of this situation so that he or she can accommodate your use. Also, if you need to leave a cell phone on for an emergency situation, you should inform the course instructor at the beginning of the class session as well as keep the phone on in a silent mode, so as not to disrupt the course."

Persons with Disabilities
The University is committed to providing students with documented disabilities equal access to all university programs and facilities. If you think you have a disability requiring accommodations, you must register with Disability Services for Students (DSS). Contact DSS at (603) 862-2607 or disability.office@unh.edu. If you have received Accommodation Letters for this course from DSS, please provide me with that information privately in my office early in the term (***within the first two weeks***) so that we can review those accommodations.

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Class Schedule

Week		Topic	Reading
One – 9/1	M	Labor Day – **UNH Closed**	
	W	Course overview and expectations	Turner (Ch 1)
	F	What is landscape ecology?	
Two – 9/8	M	History of the discipline, principles & applications	Turner (Ch 2)
	W	Fundamental concepts	
	F	Fundamental concepts, continued	
Three – 9/15	M	Fundamental concepts, continued	
	W	Fundamental concepts, continued	
	F*	GIS & RS – Land surface phenology	Kerr & Ostrovsky (2003)
	Lab	***Discussion I* (James Hall 116 1:30-3:00)**	
** Last day to add course or honors designation*			
Four – 9/22	M	Agents of landscape pattern – Physical template	Turner (Ch 4)
	W	Agents of landscape pattern –Physical template cont	
	F	Discussion II	
	Lab	***Land surface phenology***	
Five – 9/29	M	Agents of landscape pattern – Disturbance	Turner (Ch 7 pp157-174)
	W	Agents of landscape pattern – Biotic processes	
	F*	**Exam I**	
** Last day to drop course (with fee)*			
Six – 10/6	M	Agents of landscape pattern – Land-use	Foster et al (2003)
	W	Agents of landscape pattern – Land-use, continued	
	F	Discussion III	
	Lab	***Fire and invasive grasses***	
Seven – 10/13	M	Landscape pattern – Data representation	Turner (Ch 5)
	W	Landscape pattern – Metrics I	
	F	Fall Break – **UNH Closed**	
Eight – 10/20	M	Landscape pattern – Metrics II	
	W	Landscape pattern – Neutral landscape models	Turner (Ch 6)
	F	Discussion IV	
	Lab	***Understanding landscape metrics***	
Nine – 10/27	M	Implications of landscape structure – Island Biogeography	Turner (Ch 8 pp201-221)
	W	Implications of landscape structure – Metapopulations	
	F	Discussion V	
	Lab	***Neutral landscape models***	
Ten – 11/3	M	Implications of landscape structure – Fragmentation	
	W	Implications of landscape structure – Fragmentation	
	F	**Exam II**	
Eleven – 11/10	M	Implications of landscape structure – Edge effects & matrix	Laurance (2008)
	W	Implications of landscape structure –The matrix, continued	
	F	Discussion VI	
Twelve –11/17	M	Implications of landscape structure – Corridors & connectivity	Colligne 2009 (ch6)
	W	Implications of landscape structure – Landscape genetics	also Turner Ch8, 229-40
	F	Discussion VII	

Thirteen – 11/24	M	Management and conservation **–** Disease ecology	
	W*****	Management and conservation **–** Reserve Design	Turner (Ch 10)
	F	Thanksgiving Break – **UNH Closed**	
	Lab	***Corridors***	
*****Wednesday is an academic Friday			
Fourteen – 12/1	M	Management and conservation **–** Reserve design	
	W	Management and conservation – Networks of protected areas	
	F	Discussion VIII	
Fifteen – 12/8	M	Management and conservation **–** Networks, continued	
	W	Management and conservation **–** Restoration Ecology	Bell (1997)
	F	Management and conservation **–** Restoration, continued	
Sixteen – 12/16	T	FINAL EXAM 1:00-3:00 PM	

This syllabus is subject to change.